



सत्यमेव जयते

NITI Aayog



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# Health System for a New India: Building Blocks

## *Potential Pathways to Reform*

November 2019

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The 70th World Health Day was celebrated last year, under the theme of "Universal Health Coverage". With an objective to achieve Universal Health Coverage by 2030, the Government of India has initiated significant reforms to improve citizens' access to good quality, affordable healthcare. There remains, however, a need to strengthen the broad ecosystem in which health services are delivered. For this, we need to chart out a clear roadmap to the complete transformation of India's health system. This will result in institutional reform and eventually help us achieve larger health objectives.

Similar to other countries, India too has innovated in its journey towards achieving universal health coverage. Ayushman Bharat has been greatly influenced by the experience of these countries. It is imperative that we learn from them, especially at a time when key implementation strategies are being developed at the central and state levels.

Our vision for a healthy India requires us to holistically transform the delivery of health services in both the public and the private sectors, across levels of care. At a systems level, overcoming the challenges of fragmentation, across healthcare financing and service delivery will help us optimize both quality and access. For a large country like ours, efforts aimed at aggregation and standardization will contribute to enhancing both efficiency and quality. Achieving this will require us to make major institutional changes.

In this context, the NITI Aayog recently launched the "Development Dialogues" series with a multi stakeholder consultation titled "Health System for a New India: Building Blocks". Technical discussions in the important areas of India's health system brought out several recommendations that policymakers can explore in their concerted efforts to design and implement health reforms and achieve overall systems transformation. It is about time that we take a systems view of health so that the complex linkages of various policy levers impacting the health of a common citizen are addressed in a comprehensive manner.

As we embark working upon the building blocks of the health system of a new India, I hope that the findings and reform options presented in this book will help guide policymakers and implementers take informed and evidence-based decisions and accelerate the process of health systems transformation in India.

**Dr Vinod. K. Paul,**  
Member, NITI Aayog





NITI Aayog is responsible for charting India's road map towards attaining the commitments under the Sustainable Development Goals, particularly in critical social sectors such as health and education. A Three Year Action Agenda and a Seven Year Strategy have already been prepared by the NITI Aayog and placed in the public domain. We are now engaged in developing a fifteen-year vision document for the nation's development.

India has made significant progress in improving its health outcomes over the last two decades. Many key indicators, however, continue to show considerable scope of improvement. India now needs to build on its many opportunities to respond to the growing aspirations and needs of a new India. The vision for health in India in the next fifteen years is to transform the delivery of health services in a way that health outcomes improve at a much greater pace, without financially burdening its citizens.

Consultations as a part of our "Development Dialogues" series have been initiated to generate debate and discussion on the vision for our nation. We launched this series with a workshop titled "Health System for a New India: Building Blocks" on November 30, 2018. The dialogue engaged international and national experts and key stakeholders to engender an informed discussion and debate on the trajectory of India's health system. Through such dialogues, we aim to facilitate conversations on a systemic approach to reforming healthcare in India.

For the first in the Development Dialogue series, NITI Aayog brought together discussions on the key health systems themes of financing and provisioning with a focus on risk pooling, strategic purchasing, health service provisioning and digital health. The discussions were based on the analyses by global and national experts, in particular Dr Cristian Baeza, Dr Jack Langenbrunner, Dr Jerry La Forgia, and Dr Dennis Streveler who have been engaged in consolidating global experiences in this regard. Mr. Alok Kumar, Advisor (Health) NITI Aayog contributed in synthesizing all the inputs for transforming the Indian health system in the 21<sup>st</sup> Century and how that might inform India's fifteen-year vision on health.

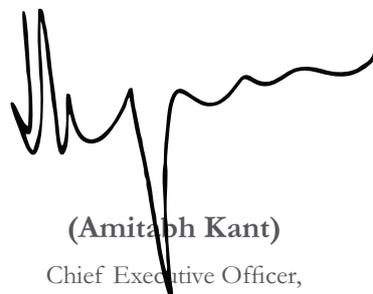
This book is an attempt to bring together all the valuable findings of these studies including supporting data from this analysis. With regards to financing, the book talks of improving financial risk protection and reforming fiscal transfers. For better provisioning of healthcare services, strengthening primary care, accelerating human resources development, implementing digital information systems, and improving access to quality medicines are some of the suggested areas of focus. The book also incorporates the discussions from the Development Dialogue wherein the authors presented their work to a wide audience.

In effect, the book presents a preliminary menu of strategic choices available before India to steer its health system. It is with great pleasure that I thank the authors and all other experts and stakeholders involved in producing these four critical pieces of work. I sincerely hope that this book will help policymakers think through and design some of the most critical strategies and action plans required for the

## Foreword

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successful implementation of our ambitious policy reforms and contributed to a healthy future for India and its 1.3 billion citizens.



**(Amitabh Kant)**

Chief Executive Officer,  
NITI Aayog

# ACKNOWLEDGEMENTS



The analyses presented in this report are a result of months of research by international and national experts as a part NITI Aayog's comprehensive effort to present design options for a 21st Century health system in India. We owe an enormous debt of gratitude to all the experts and organizations who have contributed to this crucial piece of work.

This report is intended to initiate a discussion and a dialogue amongst all the relevant stakeholders and the policy makers who are interested in the projectory of our health system in the medium to long term. Since health is all encompassing subject, we have restricted our focus in this document to four areas; namely, financing and risk pooling, strategic purchasing, organization and provision, and digital health. On each of these issue we delineate the current status, a diagnosis of the key constraint, options that may be feasible and finally the way forward.

We, at NITI Aayog, are certain that the menu of choices presented in this analysis can catalyze important policy decisions that will help us in better organising the highly fragmented health care system and achieving universal health coverage in India. We are also grateful to the ACCESS Health International and PwC India Private Ltd for providing technical assistance to the authors and to NITI Aayog in the entire duration of the exercise. We would like to acknowledge the various contributors listed at Annexure for their unstinted commitment and dedication to the exercise.

We are grateful to Dr Rajeev Kumar, Vice Chairman, Dr Vinod K Paul, Member & Shri Amitabh Kant, CEO, NITI Aayog for their inspiration and guidance that made this report possible, and the Health Division Team Dr S. Rajesh, Director, Dr K. Madan Gopal, Sr. Consultant; and Ms Urvashi Prasad Consultant who contributed to the exercise.

**(Alok Kumar)**  
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# ABBREVIATIONS



<b>AB</b>	Ayushman Bharat	<b>DRG</b>	Diagnosis Related Grouping
<b>ACA</b>	Affordable Care Act	<b>EAG</b>	Empowered Action Group
<b>ACO</b>	Affordable Care Organizations	<b>EHRs</b>	Electronic Health Records
<b>AHRQ</b>	Agency for Healthcare Quality and Research	<b>EMRI</b>	Emergency Management Research Institute
<b>AI</b>	Artificial Intelligence	<b>EPH</b>	Essential Health Package
<b>AIIMS</b>	All India Institute of Medical Sciences	<b>ESI</b>	Employee State Insurance
<b>ALOS</b>	Average Length of Stay	<b>ESIC</b>	Employee State Insurance Corporation
<b>ANM</b>	Auxiliary Nurse Midwife	<b>ESIS</b>	Employee State Insurance Scheme
<b>APL</b>	Above Poverty Line	<b>eVIN</b>	Electronic Vaccine Intelligence Network
<b>ASHA</b>	Accredited Social Health Activist	<b>FFS</b>	Fee for Service
<b>AYUSH</b>	Ayurveda, Yoga & Naturopathy, Unani, Siddha	<b>FHIR</b>	Fast Healthcare Interoperability Resources
<b>BoD</b>	Burden of Disease	<b>FRU</b>	First Referral Unit
<b>BPJS</b>	Badan Penyelenggara Jaminan Sosial, Indonesia	<b>GDP</b>	Gross Domestic Product
<b>BPL</b>	Below Poverty Line	<b>GIPSA</b>	General Insurance Public Sector Association
<b>BPSSBY</b>	Bhagat Pura Singh Sehat Bima Yojana	<b>GoI</b>	Government of India
<b>BSBY</b>	Bhamashah Swasthya Bima Yojana	<b>GP</b>	General Physician
<b>CAPEX</b>	Capital Expenditure	<b>GR</b>	Grievance
<b>CBHI</b>	Central Bureau for Health Intelligence	<b>GSHIS</b>	Government Sponsored Health Insurance Scheme
<b>CD</b>	Communicable Diseases	<b>GST</b>	Goods and Services Tax H&WC Health and Wellness Centre
<b>CDAC</b>	Centre for Development of Advanced	<b>HAAD</b>	Health Authority of Abu Dhabi
<b>CDSS</b>	Clinical Decision-Support Systems	<b>HDD</b>	Health Data Dictionary
<b>CDSS</b>	Clinical Decision Support Systems	<b>HIC</b>	High Income Countries
<b>CEA</b>	Clinical Establishments Act	<b>HIIP</b>	Health Information and Intelligence Platform
<b>CGHI</b>	Central Government Health Scheme	<b>HIIS</b>	Health Insurance Information System
<b>CGHR</b>	Centre for Global Health Research	<b>HIS</b>	Health Information System
<b>CHA</b>	Cambridge Health Alliance	<b>HIT</b>	Health information technology
<b>CHC</b>	Community Health Center	<b>HIV</b>	Human Immunodeficiency Virus
<b>CHD</b>	Center for Healthy Development	<b>HLFPPT</b>	Hindustan Latex Family Planning Promotion Trust
<b>CHIAK</b>	Comprehensive Health Insurance Agency of Kerala	<b>HMIS</b>	Health Management Information System
<b>CMCHIS</b>	Chief Minister's Comprehensive Health Insurance Scheme	<b>HMO</b>	Health Management Organization
<b>CMIE</b>	Centre for Monitoring Indian Economy	<b>HR</b>	Human Resources
<b>COPD</b>	Chronic Obstructive Pulmonary Disease	<b>HRH</b>	Human resources for health
<b>CPA</b>	Consumer Protection Act	<b>HRIS</b>	Human Resources Information System
<b>CPHC</b>	Comprehensive Primary Healthcare	<b>HTA</b>	Health Technology Assessment
<b>CVD</b>	Cardiovascular Diseases	<b>IAS</b>	Indian Administrative Services
<b>DHAF</b>	Digital Health Architecture Framework	<b>IBEF</b>	India Brand Equity Foundation
<b>DMRC</b>	Delhi Metro Rail Corporation		
<b>DOTS</b>	Directly Observed Treatment, Short-course		

## Abbreviations

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<b>ICD</b>	International Classification of Diseases	<b>MNCH</b>	Maternal, New-born and Child Health
<b>ICHSS</b>	International Center for Health Systems Strengthening	<b>MoF</b>	Ministry of Finance
<b>ICMR</b>	Indian Council for Medical Research	<b>MoHFW</b>	Ministry of Health and Family Welfare
<b>ICT</b>	Information and Communications Technology	<b>MoU</b>	Memorandum of Understanding
<b>ID</b>	Identity	<b>MSQH</b>	Malaysian Society for Quality in Health
<b>IDSP</b>	Integrated Disease Surveillance Program	<b>NABH</b>	National Accreditation Board for Hospitals & Healthcare Providers
<b>IEC</b>	Information, Education and Communication	<b>NAMMIS</b>	National Anti-Malaria Management Information System
<b>IFC</b>	International Finance Corporation	<b>NACO</b>	National AIDS Control Organization
<b>IHI</b>	Institute for Healthcare Improvement	<b>NCD</b>	Noncommunicable diseases
<b>IHME</b>	Institute for Health Metrics and Evaluation	<b>NCMH</b>	National Centre for Mental Health
<b>ILO</b>	International Labour Organization	<b>NDHA</b>	National Digital Health Authority
<b>IMA</b>	Indian Medical Association	<b>NDHM</b>	National Digital Health Mission
<b>IMS</b>	Inventory Management System	<b>NFHS</b>	National Family Health Survey
<b>IOM</b>	Institute of Medicine	<b>NHA</b>	National Health Authority
<b>IP</b>	In Patient	<b>NHM</b>	National Health Mission
<b>IPA</b>	Independent Practice Associations	<b>NHRR</b>	National Health Resource Registry
<b>IPHS</b>	Indian Public Health Standards	<b>NHS</b>	National Health Service, United Kingdom
<b>IPs</b>	Informal Providers	<b>NHS</b>	National Health Stack
<b>IQWiG</b>	Institute for Quality and Efficiency in healthcare	<b>NHSRC</b>	National Health Systems Resource Centre
<b>IRCTC</b>	Indian Railways Catering and Tourism Corporation	<b>NIC</b>	National Informatics Centre
<b>IRDA</b>	Insurance Regulatory and Development Authority	<b>NICE</b>	National Institute for Health and Care Excellence
<b>IT</b>	Information Technology	<b>NID</b>	National Identification
<b>JCAHO</b>	Joint Commission on Accreditation of Healthcare Organizations	<b>NIPI</b>	Norway India Partnership Initiative
<b>JHM</b>	Johns Hopkins Medicine	<b>NITI</b>	National Institution for Transforming India
<b>JLN</b>	Joint Learning Network	<b>NPCDCS</b>	National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke
<b>LIS</b>	Laboratory Information System	<b>NSS</b>	National Sample Survey
<b>LMIC</b>	Low and middle-income countries	<b>NSSO</b>	National Sample Survey Organization
<b>MCI</b>	Medical Council of India	<b>NWH</b>	Network Hospital
<b>MIC</b>	Middle Income Countries	<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>MCTS</b>	Mother and Child Tracking System	<b>OOD</b>	Object-Oriented Design
<b>MDDS</b>	Meta Data and Data Standards for Health	<b>OOP</b>	Out-Of-Pocket
<b>MHIS</b>	Meghalaya Health Insurance Scheme	<b>OOPs</b>	Out-Of-Pocket Payments
<b>MHN</b>	Merrygold Health Network	<b>OP</b>	Outpatient
<b>MIS</b>	Management Information Systems	<b>OPD</b>	Outpatient Department
<b>MMR</b>	Maternal Mortality Ratio		

<b>ORS</b>	Oral Rehydration Solution	<b>SNCU</b>	Special Newborn Care Unit
<b>OT</b>	Operating Theatre	<b>SQAU</b>	State Quality Assurance Units
<b>P4P</b>	Pay-for-Performance	<b>SRS</b>	Sample Registration System
<b>PC</b>	Primary Care	<b>SSI</b>	Surgical Site Infection
<b>PCR</b>	Pure Claims Ratio	<b>STGs</b>	Standard Treatment Guidelines
<b>PDSA</b>	Plan, Do, Study, Act	<b>SUS</b>	Brazil's Sistema Único de Saúde
<b>PFMS</b>	Public Financial Management System	<b>TA</b>	Technical Assistance
<b>PHC</b>	Primary Health Centres	<b>TB</b>	Tuberculosis
<b>PHFI</b>	Public Health Foundation of India	<b>TFR</b>	Total Fertility Rate
<b>PHR</b>	Personal Health Records	<b>THE</b>	Total Health Expenditure
<b>PHSC</b>	Punjab Health Systems Corporation	<b>TPA</b>	Third Party Administrator
<b>PM-JAY</b>	Pradhan Mantri Jan Arogya Yojana	<b>UAE</b>	United Arab Emirates
<b>PPD</b>	Public-Private Dialogue	<b>UHC</b>	Universal Health Coverage
<b>PPP</b>	Public Private Partnership	<b>UK</b>	United Kingdom
<b>PRP</b>	Performance-Related Pay	<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>PSF</b>	Brazil's Programa Saúde da Família (Family Health Programme)	<b>UNICEF</b>	United Nations Children's Fund
<b>QCI</b>	Quality Council of India	<b>UNDP</b>	United Nations Development Program
<b>QOF</b>	Quality and Outcomes Framework	<b>UPID</b>	Unique Patient Identifier
<b>RBSNY</b>	Rajya Bimaari Sahayta Nidhi Yojana	<b>US/USA</b>	United States of America
<b>RFP</b>	Request For Proposals	<b>USAID</b>	United States Agency for International Development
<b>RIS</b>	Radiology Information System	<b>VAS</b>	Vajpayee Arogyashree Scheme
<b>RSBY</b>	Rashtriya Swasthya Bima Yojana	<b>VAT</b>	Value Added Tax
<b>SAST</b>	Suvarna Aarogya Suraksha Trust	<b>WHO</b>	World Health Organization
<b>SDG</b>	Sustainable Development Goals	<b>WMS</b>	World Management Survey
<b>SECC</b>	Socio Economic Caste Census	<b>WPI</b>	Wholesale Price Index
<b>SHI</b>	Social Health Insurance		
<b>SIMS</b>	State Information Management Systems		
<b>SNA</b>	State Nodal Agency		





**NITI Aayog**

# CHAPTER 1

## Synthesis

Transforming the Indian health system  
in the 21<sup>st</sup> Century



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Health System for a New India: Building Blocks  
*Potential Pathways to Reform*

November 2019

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## Transforming the Indian health system in the 21<sup>st</sup> Century

### Introduction

The Indian health system can justifiably claim credit for multiple achievements in the last couple of decades. We have eliminated polio, guinea worm disease, yaws and maternal and neonatal tetanus. Our Total Fertility Rate (TFR) has reduced sharply from 3.4 in 1992-93<sup>1</sup> to 2.2 in 2015-16<sup>2</sup>. Contrary to expectations, we were able to achieve the Millennium Development Goals in respect of the Maternal Mortality Ratio (MMR level of 130 against a target of 139) and almost succeeded in meeting the Under-5 child mortality target (U5 MR level of 43 against a target of 42).

Having said that, it is also true that the evolution of India's health system is still a work in progress and there remains a large unfinished agenda. There are significant inter-state and intra-state differentials in health outcomes with socio-economically disadvantaged groups being particularly vulnerable to gaps in access as well as quality of healthcare available to them. Further, the double burden of disease – with a rising burden of non-communicable diseases in addition to the persistence of communicable diseases – stretches the system thin and makes the task of health policy makers all the more complex. India's health system reveals a story of multiple fragmentations: a fragmentation of payers and risk pools; deep fragmentation of providers of healthcare services; and also of the digital backbone running it. In our view, we would need to make concerted efforts for strengthening the existing health system to gear up in order to meet the challenges that lie ahead of us.

Currently the Government (Union and the States put together) spends roughly 1.13 per cent of GDP on health, which is grossly inadequate compared to similar spending by other countries. As a result, 62 per cent of healthcare spending is financed by households through out-of-pocket expenditure at the point of care. Imagine a billion transactions every year where individual patients seek care from a million healthcare providers dominated by the private sector negotiating their own prices for the procedures they undergo. Even among the organized payers, there are multiple schemes. This multiplicity of purchasing platforms, apart from fragmenting risk pools into sub-optimal sizes, prevents standardization of purchasing procedures and imposes a huge compliance burden on the providers.

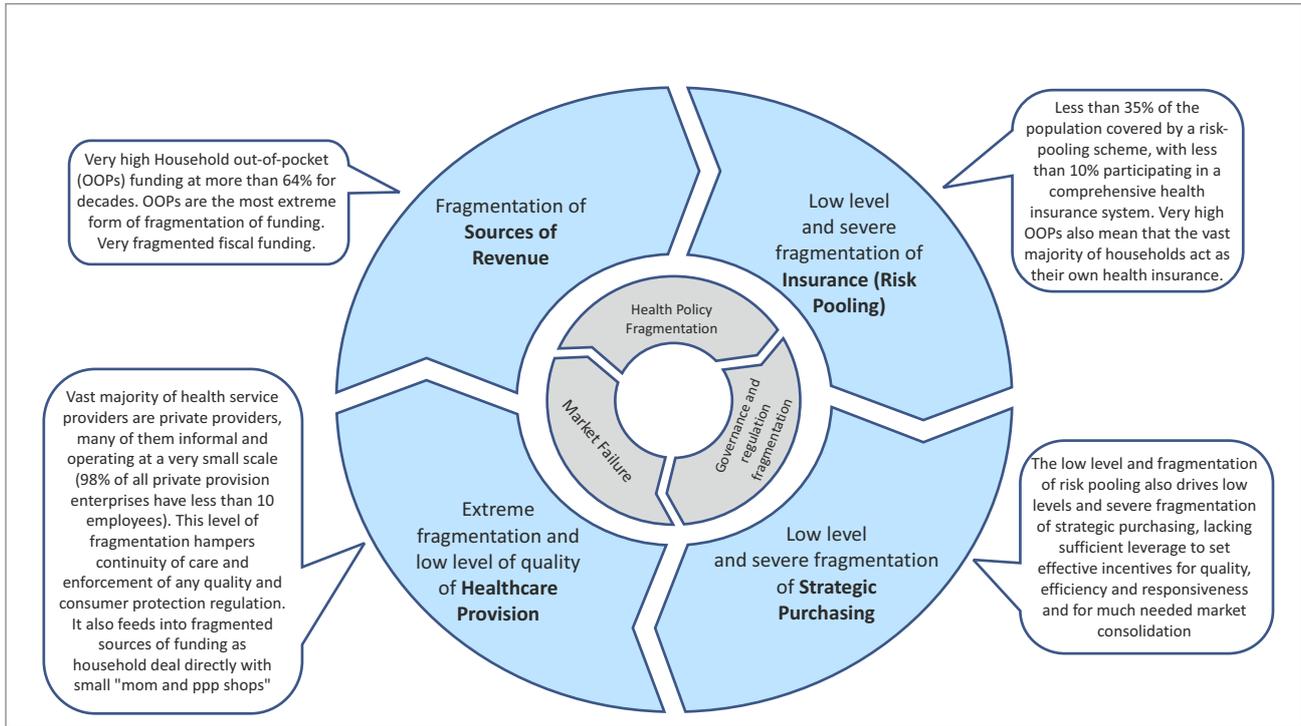
India also suffers from inadequate and fragmented delivery of healthcare services. Over 98 per cent of healthcare facilities in India are those which employ ten persons or less. A consequence of the fragmented provider space is that the health records of patients lie buried in manual systems or in some cases disparate IT systems with little standardization with almost no possibility of inter-operability or cross-sharing, thereby limiting the availability of information that could potentially guide the decisions on health policy. In fact, the multiple fragmentations drive each other and are compounded by market failures and governance challenges as indicated above (Figure 1.1).

It is in this context that the NITI Aayog has been pushing for a systems approach to health. In the Three-Year Action Agenda, we called for a new wave of institution building with a strong and a pro-active stewardship role by the government to overcome these challenges while leveraging the potential of a mixed health system. The Government of India has initiated the first steps to build a robust health system by

<sup>1</sup>NFHS-1

<sup>2</sup>NFHS-4

**Figure 1.1: Severe fragmentation, compounded by market failures and governance challenges, act as a vicious circle driving low health sector performance.**



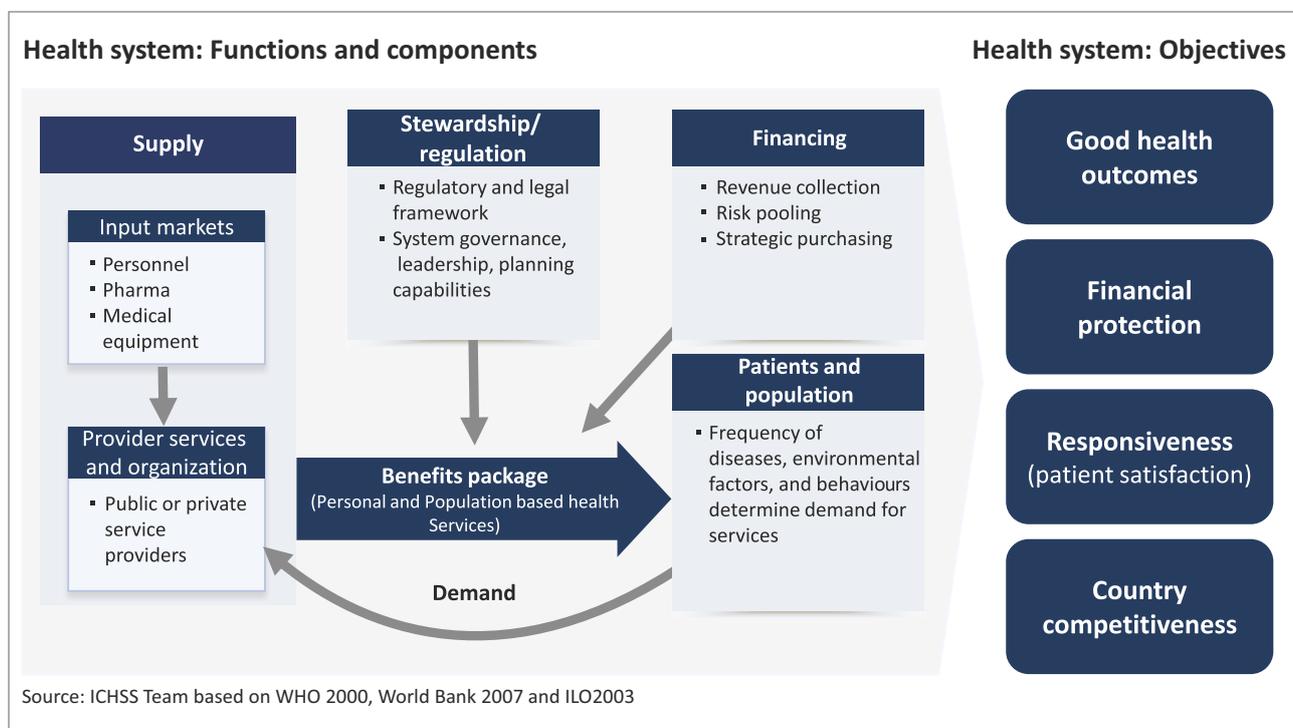
taking a comprehensive view, impacting the multiple determinants of health and simultaneously engaging with multiple policy levers. Coupled with the strengthening of the public health system under the National Health Mission (NHM), the recent roll-out of Ayushman Bharat — with its twin components of the Health and Wellness Centres to provide comprehensive primary and preventive care at the community level; and the PM Jan Arogya Yojana (PM-JAY) with its Rupee 5 lakh health cover to the bottom 40 per cent of the population for secondary and tertiary care against 1350 odd disease conditions — has laid down a solid foundation on which a good health system can be crafted. When fully implemented, it can serve as a powerful catalyst for a much-needed transformation of India’s health system. India has a unique opportunity to transform its health sector, which currently lags behind the performance of other comparable economies in the region and worldwide. In doing so, India will not only be able to save millions of lives and avoid millions of households from slipping into poverty due to catastrophic illness but will also further strengthen the virtuous circle of better health and faster economic growth.

Given the historic opportunity, NITI Aayog thought it fit to undertake a serious review of the health system as it is prevalent in India now and to suggest potential options as to the way forward. Of course, systematically transforming India’s health system will require us to catalyse changes in all components simultaneously. We understand that the task of addressing every element of the health System and summarizing them in a slim volume is akin to taking on the Mission Impossible. Hence, the scope of this study was limited to the two key components of the health system — financing (revenues, risk pooling, and strategic purchasing), as well as organization and provision of health service delivery. In addition, it also devoted attention to digital health, which we believe will be a key enabler of system performance (Figure 1.2).

We invited renowned global experts and their collaborators in India to take a look at the current state of affairs prevalent in the health system and requested them to recommend the potential options available to

India for improving its health system performance over the next decade. This report encapsulates the findings and recommendations of a year long analysis of challenges and opportunities as part of a broader

**Figure 1.2 : Focus on health system financing and health service provision and organization as well as on digital health as a key system enabler**



effort to contribute to the national dialogue on working towards Universal Health Coverage.

### Challenges, opportunities, benefits and options for improving india’s health sector

Attempting to summarize the complexities of the challenges faced by India’s Health System and suggesting a way forward is a formidable task fraught with risks. But in what follows, we try to do precisely the same and synthesize the findings of the exercise that we have already alluded to earlier. We are mindful of the fact that in simplifying the complex ideas into a simple readable chapter, we would have to make the difficult trade-off between presenting the ideas in all their lucidity but sacrificing some of the painstaking research and detailing that has gone into making the ideas. Readers may kindly indulge me for a bit; since the detailing is available in the chapters that follow. The rapid roll-out of Ayushman Bharat over the last few months lays a path for critical changes in the management of public funding for healthcare, especially for those who cannot afford to pay. Continuing and expanding this journey of healthcare transformation is critical to setting up an improved system, which accelerates the gains made thus far with respect to improving health outcomes (accelerating the reduction of maternal and child mortality, as well as reducing morbidity due to non-communicable diseases), preventing poverty due to illness and improving the patient’s interface with the health sector. We strongly believe that strengthening health systems through strategic stewardship on the part of the government will also lead to substantial positive impact on the productivity of the working age population, enabling India to realize its demographic dividend over the next 10-15 years and boosting economic growth. Before laying down choices and options that are available before the health policy community in India at this point in time, it is also pertinent to note the broad macro-economic scenario in

which such policy response is situated.

### **1. India has laid a strong economic foundation that provides the basis for transforming a currently underperforming health sector**

India's remarkable macroeconomic performance over the last decade provides the basis for further stepping up efforts for improving healthcare in the country. Rapid economic growth together with controlled inflation, and increasing global competitiveness in key markets, has fuelled the rapid growth of a vibrant middle class and private health sector. It has also lifted millions out of poverty. This much desirable trend, however, is creating substantial demands for improving the performance of the health system in India. Indeed, the country's health system lags behind comparable countries on multiple dimensions including key outcome indicators, public financing for healthcare, level and depth of health insurance coverage (risk pooling) as measured by household exposure to out-of-pocket expenditures for health, as well as access to and quality of healthcare (Figure 1.3).

### **2. Improving health sector performance will save lives, protect households from poverty, improve the patient interface with the health sector, and accelerate economic growth**

Improving the provision of healthcare will substantially avert avoidable mortality and morbidity in all age groups, especially for children and working-age adults. Abundant international literature indicates that in addition to saving millions of lives, reduction in mortality and morbidity for working-age adults improves labour productivity with a high impact on economic growth.

System improvement, particularly improving participation in and efficiency of health insurance schemes (risk pooling in system financing), will also have a positive and substantial effect on reducing undesirable out-of-pocket expenses<sup>3</sup> as well as improving patient protection. It will prevent millions of households from falling into poverty and/or becoming a major fiscal contingent liability for the country if and when inefficient insurance schemes fail to provide the intended coverage.

Improving health system financing, particularly the way pooled funds (insurance and government schemes) are used to pay health service providers as well as to set the right incentives for ensuring quality, efficiency, responsiveness, and long-term affordability (strategic purchasing of health services) will substantially improve health system performance. In the absence of such incentives (that exist only in a minority of healthcare schemes in India today), health service providers will also lack the incentives for reducing the current extreme level of fragmentation in service provision. At this extreme level of fragmentation, it is all but impossible to enforce quality and patient protection regulations. Figure 1.4 summarizes the main health, patient protection, and economic benefits of a much-needed health sector transformation in the country

### **3. Health sector fragmentation, market failures, and governance challenges are the key drivers of an underperforming healthcare system in India**

Severe fragmentation, compounded by market failures and governance challenges, is the key driver of

<sup>3</sup>Not all out-of-pocket expenditure is undesirable and most countries aim to reduce OOPs to 20-30 per cent of total country health expenditures, reducing catastrophic OOPs (which would throw a household into poverty) to as close to zero as possible.

**Figure 1.3 : India's health system is lagging behind comparable countries<sup>4</sup> in many key system's performance indicators**

	India	China	Sri Lanka	Indonesia	Egypt	Philippines
Total Health Expenditures as % of GDP	4.0%	5.5%	4%	3%	5%	4%
Fiscal Health Expenditures as % of GDP	0.9%	3.2%	2%	1%	1%	1.3%
Per-capita Health Expenditures (PPP)	239	761	491	363	516	342
Level of Out-of-pocket (% Total Health Expenditures)	64%	36%	50%	60%	62%	54%
Neo-Natal Mortality 1980	60	65 <sup>2</sup>	24	41	53	27
Neo-Natal Mortality 2016	25	5	7	13	12	13
Global Healthcare rank <sup>1</sup>	145	92	71	138	111	124
Burden of Disease (DALYs per 100,000 population)	34,000	26,300	24,000	28,900	28,000	31,000

(1) The Lancet ranking: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)30994-2/fulltext#seccetitle190](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)30994-2/fulltext#seccetitle190)

(2) Estimate

(3) Per 1000 Live Births

(4) All low-middle-income countries except China

Source : World Bank, WHO country data bases, and The Lancet Journal.

India's underperforming health system. Fragmentation, understood as a myriad of organizations, institutions (formal and informal rules), management and administrative arrangements as well as entitlements that do not coordinate harmoniously and are often subjected to contradictory incentives, all severely hamper continuity of care and portability of benefits. The also impede participation in any formal contributory or non-contributory coverage and/or access to formal healthcare. Many countries are successful in running their health systems with a diverse set of actors and institutions as long as they operate under a single set of rules for patient protection, efficiency, and quality. However, highly fragmented systems tend to severely underperform.

Health financing is fragmented at all three levels ---revenue sources, health insurance (financial risk pooling), and strategic purchasing (how funds are used to set incentives for service providers to maximize efficiency, responsiveness, and quality in the health service provider market). There are high levels of fragmentation in the sources of revenues, with most health expenditure (about 62 per cent) coming directly from households, out-of-pocket. Government spending on healthcare, roughly 1.1 per cent of GDP (among the lowest in the world for low-middle-income countries), is also fragmented among union and state levels.

Risk pooling — before the advent of PM-JAY — was very low, with less than 35 per cent of the population participating in any risk pooling scheme and less than 10 per cent being covered by a functioning risk pooling mechanism (one that provides effective protection against catastrophic events). The high level of out-of-pocket expenditure is also a clear sign of the lack of risk pooling. High out-of-pocket expenditures, especially among the poor and near poor means that they act as their own household-level insurer with devastating effects on restrictions for demanding services when needed and impoverishment due to illness.

**Figure 1.4 : Transforming India's healthcare system can save lives and accelerated economic growth.**

By introducing critical health systems transformations, India can:

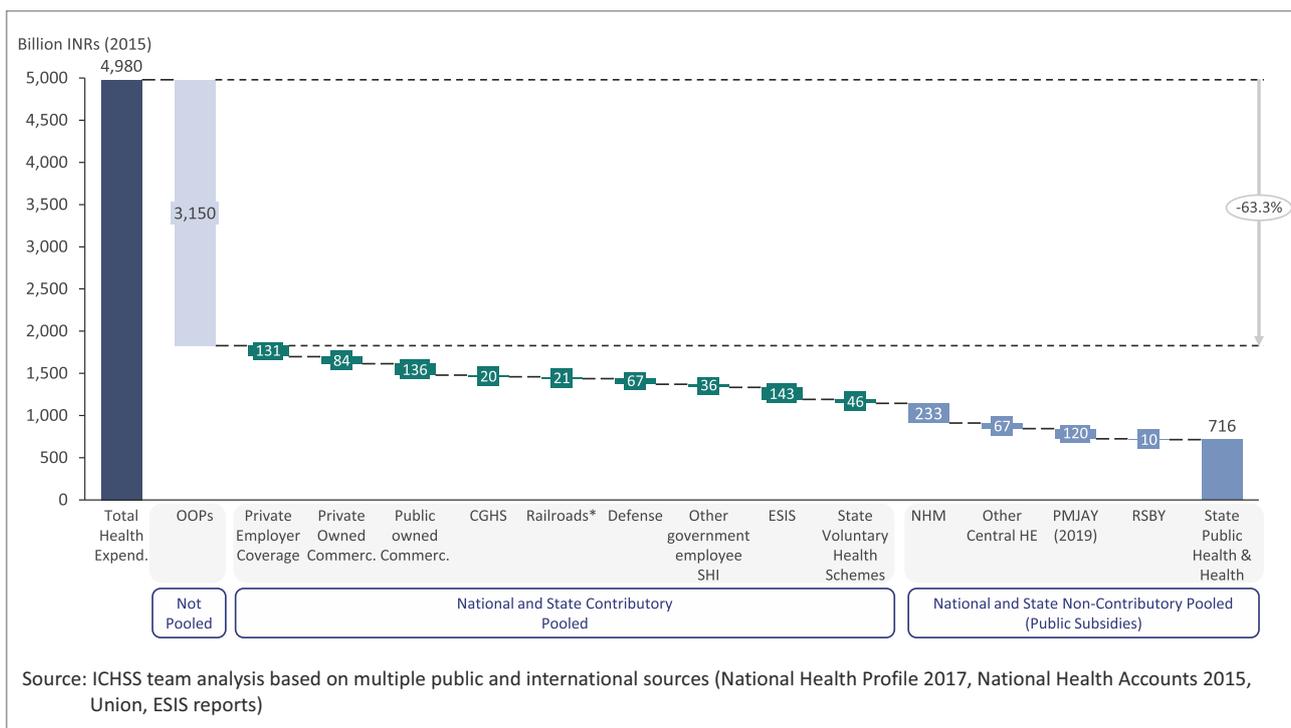
1. Save more than a million additional children lives and reduce working age adults death by an additional 16% by 2030 as compared to the current no-transformation trajectory.
2. Accelerate economic growth. Additional 16% decline in working-age adult mortality would increase real GDP 64% by 2030 as compared to current trajectory. Up to 50% of this potential increase can be attributed to the health system transformation when implemented.
3. Reduce avoidable out-of-pocket expenses to less than 45% by 2030 as compared to India's current no-transformation trajectory that would have it at more than 60% by the same year. This would save at least 1.5 million additional households from falling into poverty due to illness.
4. Substantially reduce the fiscal contingent liability risk currently emanating from market and governance failures in the commercial health insurance sector.
5. Improve consumer experience and citizen satisfaction and trust in the healthcare system.
6. Grow a globally competitive healthcare insurance and service provision industry (with inter alia, substantial impact on employment, financial markets) with potential substantial increase in medical tourism.

Source: Based on Economic calculations by Ajay Mahal and Cristian Baeza

The remaining 34 per cent of funding that is pooled (fiscal funding, voluntary commercial insurance contributions, and mandatory social insurance contributions) is also very fragmented across many commercial, social, union sponsored, and state level risk pooling schemes. Figure 1.5 summarizes the fragmented distribution of risk pooling in India in 2015.

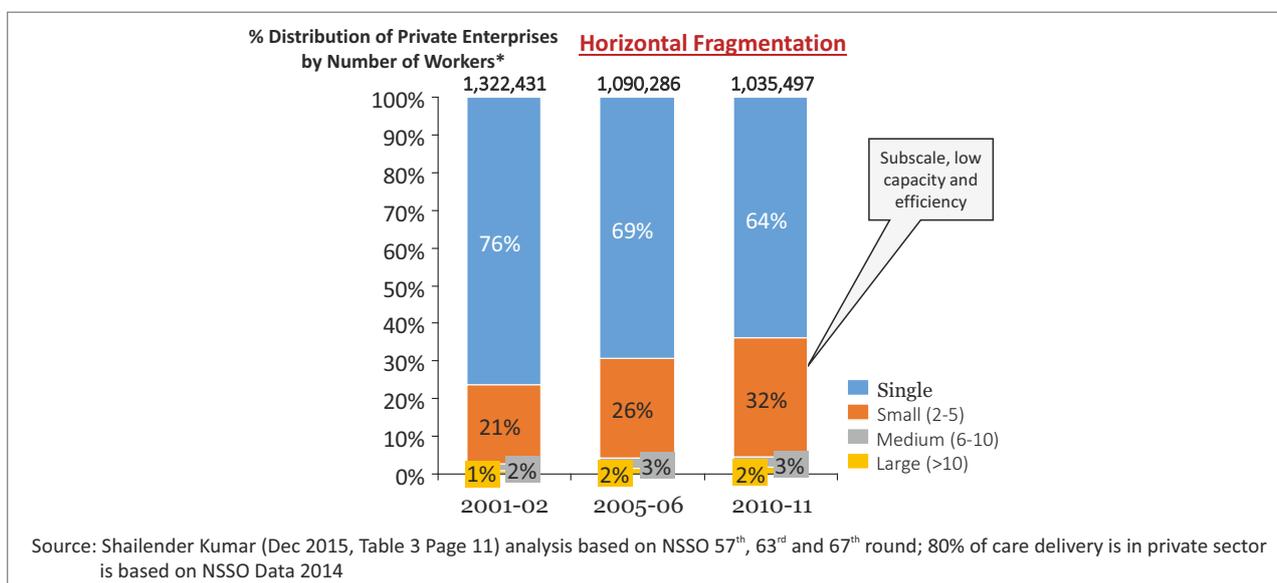
Each of these pools acts as a health service purchaser. With this level of fragmentation, every pool has limited leverage on providers. Additionally, with a few exceptions, both public and private schemes use less effective provider payment mechanisms, with line-item budgets predominating the public sector and fee-for-service in the private sector. Both, limited leverage and the use of less effective payment mechanisms severely hamper the capacity of these pools to behave as strategic purchasers. As a consequence, they behave mostly as passive payers.

**Figure 1.5: India has low level and very fragmented risk pooling, with household out-of-pocket funding at 64% of total expenses dominating the overall system financing**



An increase in the participation of household OOPs thereby growing the risk pool; and better integration (actual and/or through a single set of regulatory rules) will greatly increase their leverage over providers as well as facilitate the development of provider payment innovations. This development will be essential for setting the incentives for provider integration and consolidation. Health service provision is also fragmented as a consequence (as well as a cause) of the extreme fragmentation of financing. Today, more than 64 per cent of health service provision is done by small health service providers. More than 98 per cent of all health service providers in the country have less than ten employees.

**Figure 1.6: Service delivery is highly fragmented, with more than 80% care delivery happening in the private sector**



In this extremely fragmented provider landscape, the average patient faces a bewildering set of choices with respect to where and how to get care on their own, in the context of severe information asymmetry between providers and patients as well as in the absence of a strategic purchaser that typically provides guidance to patients. The public sector has multiple levels of care (Sub-Centres, Primary Health Centres, Community Health Centres, Hospital, District Hospital, Medical Colleges and Super Speciality Tertiary Centres) similar to the private sector (corporate hospitals, stand alone hospitals, nursing homes, clinics, informal providers, and chemists). Unclear/uncontrolled referral pathways lead to zigzagging behaviour of patients among multiple types of providers in search for care. This, in turn, results in delayed care and unnecessary expenditures, with sub-optimal overall outcomes. A fragmented provider market with unclear referral pathways, weak strategic purchasing, and weak or no regulatory/insurance oversight, also makes the provider-customer relationship transactional, with limited accountability for continuity of care and improved outcomes over time. It also substantially contributes to a reduced willingness by patients to participate in risk pooling schemes that are unlikely to change their relationship with providers.

Important strides have been made in providing critical primary, secondary, and tertiary care to the population; however, there is still a long journey ahead for structuring the system and deriving maximum value from all sources of financing and care provision. This extreme level of provider landscape fragmentation is being facilitated by the very high level of fragmentation of strategic purchasing due, in turn, to the very low level of risk pooling reflected by high levels of OOPs. However, it is likely that the provider fragmentation itself is also feeding the fragmentation of the risk pool.

India also faces the additional challenge of a federal decentralized health policy. Similar to most federal countries, health in India is the primary responsibility of the States. This increases the complexity of avoiding fragmentation of policy formulation and implementation, regulation as well as sector and organization governance. Severe fragmentation, compounded by market failures and governance challenges, at all levels of the system (financing, service provision, policy formulation, regulation, governance, among others) determines a vicious circle that fuels low performance across all system functions.

This has demanding implications for moving forward in the transformation of healthcare in India. Although expert analysis and recommendations for improving the system in India (and across most countries) focus on one aspect of the system for pragmatic analytical purposes, the vicious circle of interdependence of fragmentation among all key components of the health system will not be broken by reforming any one component of the system alone. A systems approach to transformation is therefore essential.

Successful health sector transformation in India will require simultaneously reducing funding and provision fragmentation. This will facilitate the necessary leverage for effective strategic purchasing to occur, which in turn will determine the incentives for consolidating service providers and improving India's capacity to enforce much needed patient protection, fair competition, as well as quality and efficiency regulations. These are not separate reforms, it is unlikely that strategic purchasing will substantially improve without pooling the excess out-of-pocket spending into larger schemes. It is unlikely that much needed health service provider consolidation will happen at scale without strong strategic purchasing that has sufficient leverage over the providers. Households will not have incentives to participate in risk pooling if they will

need to continue to deal directly with the extremely fragmented provision with little or no intervention from an effective strategic purchaser.

#### 4. Potential options for the way forward

India has a unique opportunity to transform its healthcare system over the next decade or so. This synthesis provides a high-level overview of the findings and recommendations for potential options for systemic transformation in India. Seizing this opportunity requires action and implementation with respect to six pillars of transformation:

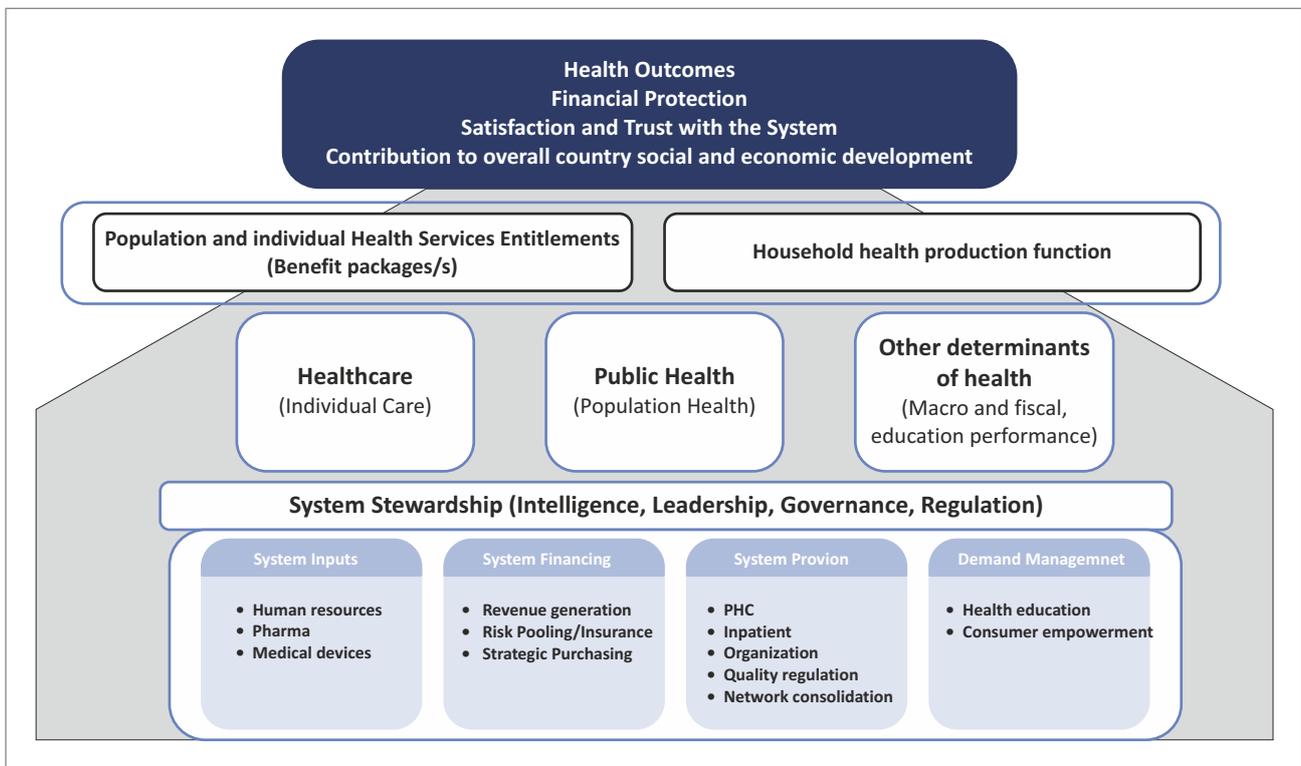
- a) Further develop and deliver on the unfinished agenda pertaining to population and public health
- b) Change health system financing structure away from the predominant undesirable out-of-pocket spending into larger risk pools, with strong strategic purchasing capabilities
- c) Reduce fragmentation of riskpools and health service provision, incentivizing much needed provider consolidation and organization in networks
- d) Empower patients to become better purchasers
- e) Harness the power of digital health as a critical enabler for the overall transformation of the health system
- f) Implement PM-JAY with an eye on its potential to influence the overall healthcare transformation in India, beyond its current explicit mandate

##### a) Further develop and deliver on the unfinished population and public health agenda.

India's epidemiological profile and burden of disease still shows that India is in the midst of an epidemiological transition. There is a marked burden of communicable diseases as well as Maternal, New-born and Child Health (MNCH) related morbidity and mortality, particularly among the poor. All these health challenges are amenable to promotive and preventive health interventions, vaccination, contraception, safe delivery, nutritional interventions, infectious disease control, sanitation, clean air and water and health education among others. Furthermore, regarding non-communicable diseases that will dominate the future of healthcare in India, there is no country in the world that is able to cope only by strengthening healthcare. India is no exception. Medical care as a strategy for addressing NCDs is necessary for the population already affected by it but, is unsustainable as an effective strategy for the future. For the future strategy on NCDs, it is imperative therefore that India further develops and delivers on its unfinished population and public health agenda. The Health & Wellness Centres — with their promise of comprehensive primary care — has to be accorded top most priority and if implemented well, could lay down a solid foundation of our health system.

Most population health services and interventions are either public or private goods with high positive externalities. This is a class of goods that the government should be funding adequately as citizens are unlikely to demand and pay for them at a level that is necessary for the benefit of the entire country. The immediate need is to prioritize high-impact and cost-effective interventions at India's current stage of development — such as finishing the agenda on infectious diseases, which the government should fund fully. The vast majority of these good are also, by definition, non-insurable goods. As successful a health insurance and medical service provision transformation can be, it is not intended to address the need for a strong population health strategy.

**Figure 1.7: Healthcare is only one determinant of better health: Critical to deliver on an effective population health agenda**



Although this report did not articulate an in-depth view on the stewardship function of the health system (Figure 1.2), the report highlights it as a critical pending effort that should not be crowded out by the necessary but, by no means sufficient, agenda of improving the other healthcare components of the system. This is typically the core mission of the national health authorities and normally the system function that leads population health formulation and implementation.

**b) Change health system financing structure away from the predominant undesirable out-of-pocket spending into larger risk pools, with strong strategic purchasing capabilities.**

While India may well need to increase its overall level of spending on healthcare, this may not necessarily imply more public resources on health as the only response. Several other countries have lower total health expenditures (per cent of GDP) as compared to India, but with better outcomes on many indicators, suggesting that attention needs to be focused on how existing resources are utilized.

The following core actions would allow India to achieve this objective:

- Address the very high level of out-of-pocket spending to reduce its negative impact on access to care and poverty as well as to leverage it as a source of additional risk pooling funding
- Improve the performance of the existing risk pools

In the near term (as fiscal space grows slowly over time), the larger resource for healthcare financing remains in citizen spending on healthcare, mainly out of their own pockets at the point of service (62 per cent of total expenditure). Changing this nature of spending, from point of service to risk pooling for

undesirable OOPs (about 60 per cent of existing OOPs or 39 per cent of all funding for health in India), could create large pools of financing and change the nature of the market (see figure 4 for total funding references). It would also substantially reduce financial barriers to access to care (characteristic of OOPs and user fees) as well as reduce poverty due to the financial shock of illness.

There are multiple challenges to this — hyperbolicity of population which may not buy insurance/pre-payment products, poor products which return little value to beneficiaries, inconvenience to buy and use products, adverse selection<sup>4</sup>, insurers risk selection, etc. The existing risk pooling platforms may serve as natural channels to attract out-of-pocket spending from the non-poor population. Many of them are already serving the formal non-poor population. Further using some of the scale purchasing platforms (e.g. large commercial insurance companies, ESI, some of the state level contributory schemes, and potentially PM-JAY) to create effective and attractive insurance/pre-payment products can further expand the participation of the formal non-poor and more importantly, to incentivize the informal non-poor to contribute in large groups (e.g. through industry associations like in Taiwan), voluntarily initially, and gradually in a mandated form (to avoid adverse selection). This is a critical path for India to explore. If India wants to accelerate its path to universal healthcare and universal risk pooling coverage, it would need to innovate in this regard as a matter of urgency.

Using the existing risk pooling platforms effectively to expand to the informal non-poor sector would require strengthening the platform's performance and the overall health insurance regulation framework in India — from one focused on a 'general insurance regulation scope' to one with a health specific insurance perspective (e.g., having laws on minimum loss ratios, regulation the network design, etc.)

#### *Improve the performance of the existing risk pools*

Improving the performance of existing risk pools is essential not only as a policy imperative to serving the beneficiary population as mandated by their mission but, also strategically, as ill performing schemes discourage potential beneficiary participation, a luxury that India cannot afford given its current shallow and limited levels of risk pooling. Detailed analysis presented in Chapter 3 of this report develops the main findings and recommendations of the preliminary study of national schemes including contributory schemes such as ESI, Commercial Health Insurance, CGHS as well as non-contributory publicly subsidized health insurance schemes such as RSBY, state schemes, NHM, PM-JAY and others.

Findings and recommendations can be categorized as:

- a) General recommendations for the entire set of risk pooling schemes
- b) Recommendations for specific schemes or segments of the market

#### **General recommendations include:**

- Urgent need to develop and implement strategic purchasing in all schemes. Currently, existing schemes, with few exceptions are operating as passive payers both in the public and the private sectors. In the public sector they do so by funding providers through historical input-based, line-item budgets. In the private sector they do so by using fee-for-service as the main provider funding mechanism. Both funding mechanisms lack the right incentives for quality as well as productivity and have proven to encourage inefficiency leading to cost escalations.

- Strengthen patient protection as well as fiduciary, competition, and benefit package regulations. Currently, the regulatory framework is only partially effective for commercial health insurance. Social insurance, state level insurers, and national schemes do not have independent regulators or regulations.
- To ensure patient protection and transparent public funding allocation, India may need to enact a standard benefits package that would serve as the floor of what contributory health insurers must cover and serve as the guidance for allocation of public subsidies for non-contributory schemes.

### Specific recommendations include:

- Resolve market failures in the commercial health insurance market to better leverage their potential for expanding risk pooling for the non-poor, better protecting patients and mitigating the potential contingent liability of commercial insurance dumping risky beneficiaries into publicly-financed schemes in the future. There are substantial signs of market failure in commercial privately-owned insurance arrangements indicative of insufficiency in regulation. They include risk selecting the healthy and higher income populations; financial management that circumvents prudential and fiduciary regulations and shallow coverage.
- Resolve governance challenges in publicly-owned commercial insurance and ESI. Governance challenges in commercial publicly-owned insurance include years of seemingly pricing products under cost, which may be potentially seen as a dumping practice in the commercial market. Challenges in governance for ESI include, for example, the accumulation of large financial margins and very large financial reserves in the presence of low access to services by their beneficiaries.
- Urgently improve ESI performance in providing better access to healthcare to their beneficiaries.

**Figure 1.8: Critical actions to improve performance of existing risk pooling schemes**

<p><b>General recommendations for all existing riskpooling schemes</b></p> <ul style="list-style-type: none"><li>• Urgent need to develop and implement Strategic Purchasing in all schemes</li><li>• Strengthen consumer protection, fiduciary, competition, and benefit package regulations.</li><li>• Consider enacting a standard benefit package that would serve as the floor of what all contributory health insurers must cover and serve as the guidance for allocation of public subsidies for non-contributory schemes.</li></ul> <p><b>Specific recommendations for schemes or segments of the market</b></p> <ul style="list-style-type: none"><li>• Strengthen regulation to resolve market failures in the commercial health insurance market</li><li>• Strengthen corporate governance oversight and regulation to resolve governance challenges in publicly owned commercial insurance and in ESI</li><li>• Urgently improve ESI performance in providing access to health services to their beneficiaries</li></ul>
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Chapters 2 and 3 of this report present in detail the recommendations for funding and risk pooling; and for strategic purchasing respectively.

<sup>4</sup>Moral hazard and adverse selection in health insurance <https://www.nber.org/digest/apr16/w21858.html>;  
[https://www.jstor.org/stable/pdf/1813785.pdf?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/pdf/1813785.pdf?seq=1#page_scan_tab_contents)

**c) Reduce fragmentation of risk pools and health service provision, incentivizing much needed provider consolidation and organization in networks.**

Severe fragmentation in risk pooling and health service provision hampers the ability of the health system to ensure access to quality, affordable and timely healthcare as well as continuity of care and portability of benefits. It also impedes the ability to set the right incentives for efficiency and long-term sustainability for insurers and healthcare providers. Further, it likely affects the ability of the health sector stewardship function to focus on much needed effective population health as the challenges of healthcare fed by fragmentation all but consume their daily attention. Fragmentation in risk pooling and health service provision is evident in India as presented in Figures 1.5 and 1.6.

**Reducing fragmentation in risk pooling in India can be achieved by:**

- i) Innovating in effective mechanisms to include the informal non-poor in contributory insurance
- ii) Enacting and enforcing similar rules of functioning across the pools (e.g., minimum mandatory benefits coverage for all insurance operators, norms on exclusions and pre-existences, comparability of contracts data standards, provider contracting and payment terms, quality metrics, fraud management practices, corporate governance, fiduciary and providence rules)
- iii) Administratively and/or through incentives, converging pools into larger pools when more efficient
- iv) Reducing duplication/waste across pools e.g. people contributing to ESIS but using public healthcare facilities because of inadequate access

**Fragmented, individual providers, with limited oversight for process and outcomes, and no accountability to the patient over time, is a sub-optimal way for the market to be organized** and contributes substantially to the Indian system's low performance. Provider fragmentation is also the closest experience with the system for patients. It is on the basis of patient experience with health service providers that most people define their trust and satisfaction with the system (or the lack of it).

As hard as it is to reduce fragmentation in risk pooling, reducing fragmentation in health service provision in India will be one of the hardest and long-term efforts in overall system transformation. It is especially difficult given the enormous numbers of providers involved in India, the prevalence of informality among them, and the fact that to a large extent, it is the financial incentives coming from newly restructured financing (more risk pooling and strategic purchasing) that historically have driven provider consolidation in best performing systems around the world. Typically, the change towards a more cohesive, integrated care market is easily achieved with the economic force of large pools of financing. Thus, India will need to leverage the power of newly transformed financial, governance and regulatory incentives, towards better quality and integration as well as consolidation of health service providers in the public sector and private markets. However, given that financing reforms of this nature would take time, there are multiple ways to innovate in the shorter term:

- **Organize/aggregate the private sector market**
  - Enable innovation and establishment of good representative models of integrated care delivery (e.g. HMOs), where stable pools of healthcare financing already exist e.g. large corporates, ESI, government facilities.

- For the larger fragmented market, encouraging models which enable virtual networks of existing providers (secondary or primary) and deriving synergies/standardization across them, could increase efficiency. e.g. Tata cancer grid, Policy Bazaar/Practo etc.

### **Targeted bridging of most critical delivery gaps**

- The overall delivery system needs to shift towards more customer-centric and outcome centric integrated care models. In the short-term, targeting the most critical gaps especially in emergency care across rural and semi-urban India should be undertaken. C-section rates (a proxy for emergency care abilities) are less than 2 per cent in many districts of India (vs 10-15 per cent benchmarked by the WHO). Targeted build-up of emergency care in smaller cities and near urban areas through the upgrade of existing smaller nursing homes (easy financing, tax breaks, technical and managerial assistance) and further push for increase in the number of specialists, is critical. This is of course in addition to strengthening the public health facilities to carry out the same functions.

- **Strengthen governance, engagement and oversight**

It is difficult to regulate the fragmented provider landscape. However, institutionalizing a dedicated body to engage with private and public providers, on areas of quality, efficiency, responsiveness and affordability from a broader strategic lens (with industry associations e.g. nursing home associations) – could bring coherence in action across the public and private sectors.

- **Create and use positive as well as negative financial and regulatory incentives for encouraging integration and consolidation**

Positive incentives can include availability of innovation funding for micro-providers to coordinate and form networks to serve existing insurers/strategic purchasers. These funds should include both, a real financial incentive plus funding for the necessary technical assistance to achieve network collaboration.

Negative incentives can include a normative condition that publicly funded insurers/purchasers would only empanel outpatient and inpatient providers who are of a minimum size in terms of beds and personnel, with others being ineligible for payment or reimbursement. They can also include minimum quality and reporting data (essential in any case), which will likely be very costly for smaller providers and force different models of actual or virtual consolidation.

Chapter 4 of this report presents in detail the recommendations for health service organization and provision.

- d) **Empower patients to become better purchasers of health insurance coverage and health services.**

In the dominant out-of-pocket market (even as the push to reduce out-of-pocket is launched), the maximum spend is happening by individuals at points of service mostly for health service provision but,

also for forms of insurance coverage in the voluntary market. Empowering them to become better purchasers is important for both, purchasing health insurance coverage (when the time comes) and direct purchasing of health services. Consumer information and education plays a critical role.

On insurance: What makes sense to have as part of an insurance coverage? What is the record of the insurer in reimbursing their beneficiaries? What are the co-payments? What are the exclusions and pre-existence small print in the policy? Today many patients purchase insurance coverage mostly focused on first rupee coverage rather than truly insurable events. They know very little about the insurer burning ratios, exclusions in their contract. Co-payments and co-insurance are very difficult to interpret, with each insurer having its own nomenclature and tariffs.

On providers: Where is good quality care available in close vicinity and at an affordable cost? Is the provider licensed and empanelled? Today, a TB patient might have to go to 3-4 providers before getting accurately diagnosed and treated. At every step they would waste time, spend on drugs and delay proper care, sometimes with incomplete compliance of the drug regimen thus making them multi-drug resistant, which would then take even longer to cure. If the patient had a google map indicating here appropriate care was available, with the right diagnostics, and low-cost drugs then they could avoid this complex referral pathway. Channelizing the entrepreneurial spirit of India can solve many of these critical problems generating innovative solutions.

**e) Harness the power of digital health as a critical enabler for the overall transformation of the health system.**

Given the fragmented nature of the market, good information systems become even more critical for tracking patients, activity and money, therefore driving efficiency. Unfortunately, like financing and delivery systems, even digital health systems are fragmented. India requires its own widely accepted data standards, platforms for data exchange across hospital information systems and health insurance information systems. A powerful IT backbone can also provide real-time information on expenditures, utilization, fraud, quality metrics and drive more value for money for India's limited health expenditure. Given the IT powerhouse of India, this should be leveraged effectively. Chapter 5 of this report presents in detail the findings and recommendations for digital health. We find many of these suggestions already incorporated in the National Digital Health Blueprint released by the Government of India.

**f) Implement PM-JAY with an eye on its potential to influence the overall healthcare transformation in India, beyond its current explicit mandate.**

By the time PM-JAY was announced in late 2018, the technical analysis for this report had been completed and no additional analysis could be done by the authors on the new scheme. However, although we do not yet have any analytics or evidence on the specific functioning of the scheme, we believe that PM-JAY has the potential to catalyse changes far beyond its core operational mandate. It has this potential especially on account of its structural characteristics and role in the market. Although the funding and reach is very large in absolute terms as compared to any scheme in the world, it is still modest as per the overall health financing landscape in the country, especially when compared to the enormous out-of-pocket funding and the needs of the poor population. The government has of course committed to increasing funding for the

scheme as and when needed.

The scheme, a large-scale demand side financing for insurance coverage for the poor, comes to introduce some balance to the hitherto almost purely supply-side public funding in the health sector. Its rapid deployment looks increasingly as a purchaser of both, insurance coverage and direct service purchasing. Structurally it occupies a critical position between the national public funding level for health and the States. It has a very committed and active leadership team that has moved quickly in deploying the scheme. PM-JAY has enormous potential with respect to guiding the transformation of the system at the State level if its implementation allows it to rapidly evolve into a strong strategic purchaser, one that links provider funding with results and service provision outputs; that sets a strong compact with states including not only financial and operational results but also utilization and impact results; and one that institutionalizes for the longer term the arrangements for public funding of the scheme by the Ministry of Finance. PM-JAY would then indeed be in a position to advance many of the recommendations presented in this report on strategic purchasing, on potentially expanding to informal non-poor contributions as well as on setting incentives for integration and consolidation of health service providers. Furthermore, similar to the role that Medicare had in the US on the overall system with the introduction of DRGs in the 80s, which became the standard followed by the entire insurance system, PM-JAY can play a role model for other national schemes and even for private insurers.

It would be critical to document the implementation of PM-JAY, provide it with all necessary technical assistance, and set up from the very beginning a robust monitoring and impact evaluation mechanism for ensuring the social accountability of the scheme as well as enabling learning at the national and global levels from this distinctive risk pooling scheme.

With these few words, we commend to you this report, which has undergone multiple iterations and also heated debates. As we have said earlier, the overall objective is to offer options for triggering a debate and discussion around the nature of reforms necessary for catalysing a substantive improvement in India's health system. The report is organized in five sections. The synthesis chapter puts the results in the context of transforming the overall performance of the Indian health system. The second section captures specific recommendations regarding health financing in general and risk pooling in the health sector in particular. Recommendations on strategic purchasing, an integral part of health financing, are presented separately in the third section to highlight its critical importance for the country today. The fourth section details recommendations regarding health service organization and provision and the final chapter presents the recommendations for digital health as a critical enabler of all other health system functions in India. We look forward to a sustained and continued engagement with all the concerned stakeholders in thinking through a clear path ahead for our health system.



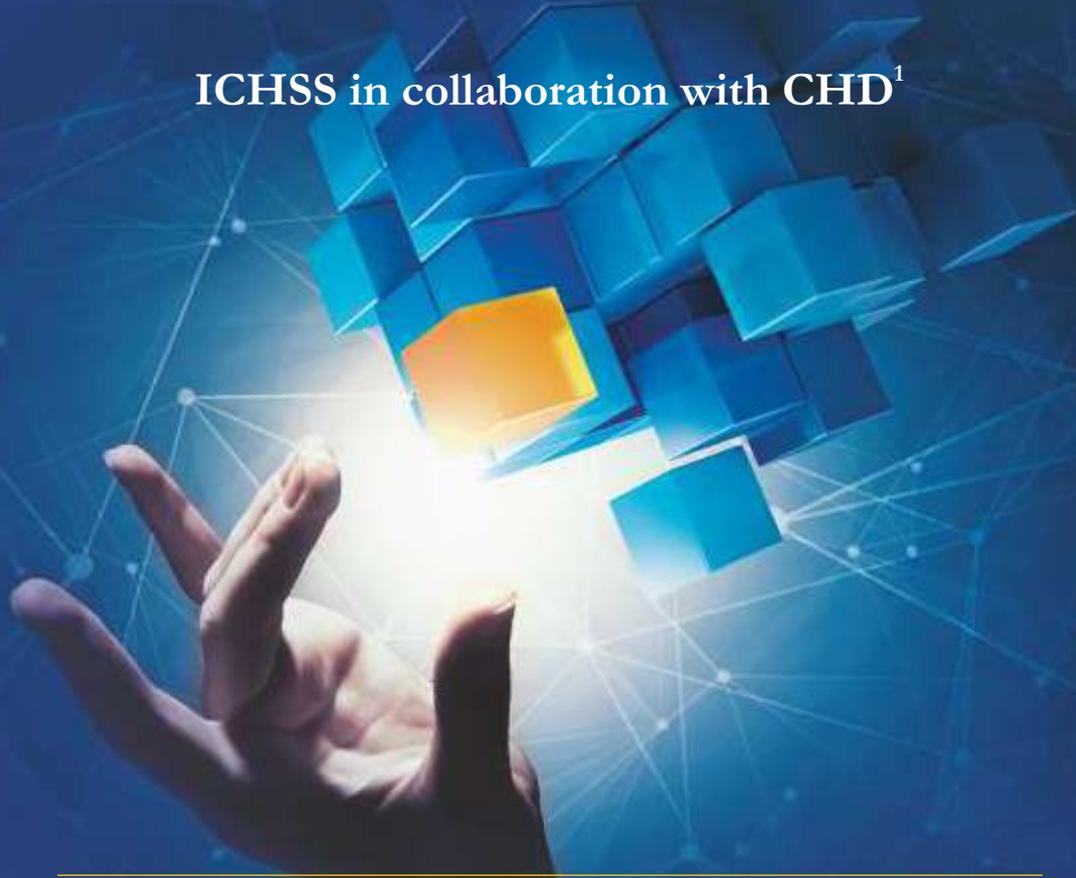
**NITI Aayog**

# CHAPTER 2

## India Health Sector Risk Pooling

### Challenges, Opportunities and Options for Improvement

ICHSS in collaboration with CHD<sup>1</sup>



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**Health System for a New India: Building Blocks**

*Potential Pathways to Reform*

November 2019

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<sup>1</sup>This report was prepared by the International Center for Health Systems Strengthening (ICHSS) in collaboration with the Center for Healthy Development (CHD) as an outside-in study. It was prepared as a contribution to NITI Aayog's dialogues on the future of healthcare in India. The report team was led by Dr Cristian C. Baeza and composed by Dr David Peters, Mr. Thomas Pellathy, Mrs Evangeline Javier, and Mrs Monica Ramon. The report findings and recommendations are those of the authors only and do not necessarily represent the views or policies of the Government of India (GoI). Its findings and recommendations are preliminary and intended only as a contribution to support a dialogue with Indian authorities and leaders in the health sector. Please address any technical questions or comments about this chapter to Dr Cristian C. Baeza, Executive Director of ICHSS.





### India Health Sector Risk Pooling

#### Challenges, Opportunities and Options for Improvement

This report summarizes the findings and recommendations of a six-month outside-in analysis of challenges, opportunities, and options to improve risk pooling in India. The study was performed as a contribution to NITI Aayog's dialogue on the future of healthcare in India and as part of a broader effort to contribute to the national dialogue to build universal health coverage in India. The study focused specifically on the current performance of risk pooling in the context of India's macroeconomic progress and the peculiarities of its massive health system. It highlights the challenges, opportunities, and options to improve risk pooling with the vision of achieving universal health coverage in the next decades.

Risk pooling is the aggregation of collected funds and contributions in a way that ensures that the financial risk associated to health expenditures is born by all members of the pool rather than by individual contributors. It is the essence of the health insurance function in a health system.

This report summarizes and synthesizes the key findings and recommendations previously presented in four analytical Interim Reports (PowerPoint decks) issued at different stages of the six-month project. All the details in the said interim reports were not reproduced in this document but they provided the analytical base of the risk pooling options recommended in this Final Report.

The report is organized in four sections. First, the Introduction and Context section frames the importance and urgency of, as well as defines the approach for improving risk pooling taking into account the myriad of factors affecting India's path to Universal Health Coverage (UHC). Second, the Executive Summary section presents the key findings and recommendations in a succinct way. Third, as the title suggests, the Country and Health System Legacy Constraints section elaborates on the major economic, demographic and labour market trends as key challenges to address in improving India's health risk pooling performance. It also details the key current bottlenecks within the health sector that hem in the development of a robust risk pooling system in India. The implications of these various factors on the resulting weak risk pooling arrangements are dissected. The recommendations made in this report are based upon this analysis. This section also presents key international lessons on how other countries designed feasible solutions and alternative policy reform options to address similar risk pooling constraints facing India today. Fourth, the Risk Pooling Options section presents actions recommended for the immediate and short-term regardless of the specific path of reform that India will implement in risk pooling in the long-term (no-regret-changes), considering country and system constraints today. It also presents an architectural design of the long-term options with a time frame of 10-15 years.

#### Introduction:

#### Context and Framework of the Health System Analytic Programme

India has shown impressive growth in the last decade. Millions of people have benefited from this growth. Many have been lifted out of poverty. A rapidly growing and vibrant middle class has contributed to the growth of a dynamic private sector. It is visible across all sectors of the economy. At the same time, India is experiencing a rapid epidemiological and demographic transition — a phenomenon common to many emerging markets. All these developments are creating greater demand for better services from public and

## India Health Sector Risk Pooling

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quasi-public institutions, especially in the social sectors. It is also highlighting the growing inequitable access to services by the poor and vulnerable population. India's health system is thus faced with challenges to meet the demands of an expanding upper and middle class (first two income quintile households) while ensuring access for the poor to critical life-saving services. By the time this report was finalized the GoI had launched the expansion of non-contributory coverage for the poor called Pradhan Mantri Jan Arogya Yojana (PM-JAY) or the National Health Protection Scheme. It aims to address the growing inequality with respect to access to healthcare.

### **The urgency of improving India's risk pooling system**

The level and quality of risk pooling — the insurance function of a health system — is a critical determinant of the performance of the health system in several areas, inter alia:

- beneficiaries' access to healthcare services through reducing financial barriers at the time of need
- protecting participants from the financial shocks associated with sickness (household financial protection)
- reducing the household's risk of falling into poverty and protecting other key household consumption areas critical for human capital development
- facilitating more stable and predictable funding of health service providers, which is essential to ensure efficient capacity growth and integration of health service delivery at scale

The evolution of health system financing worldwide shows that risk pooling performance has substantial influence on how health service provision performs. Low-level and fragmented risk pools are likely to determine, in turn, very fragmented health service delivery, where direct household-to-solo-provider funding dominates the landscape. This occurs because low level and fragmented risk-pools lack the leverage and scale to influence providers. Likewise, these types of risk pools are usually fragile and ineffective in contracting and paying providers even for small amounts of goods and services. In other words, fragmented risk pools would lack what is called in the health system parlance as “strategic purchasing” capabilities, a topic that is analysed in a separate report of this health system analytic series.

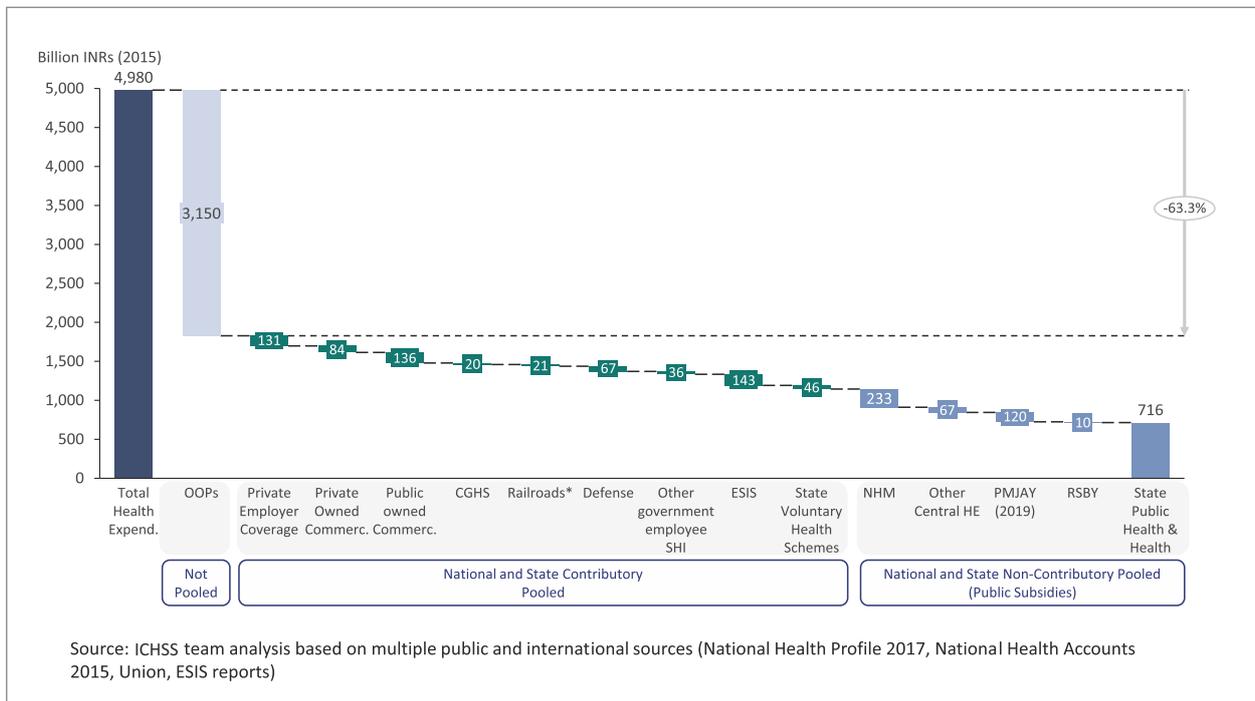
### **India's health system has a fragmented and low level of risk pooling characterized by:**

- multiple contributory (public and private) and non-contributory risk pooling schemes
- many different benefits packages
- different, fragmented and often absent regulatory systems
- substantial differences in performance across schemes focused on ensuring access to healthcare and financial protection of beneficiaries.

This fragmentation and lack of risk pooling explain India's very high and slow-to-decrease levels of out-of-pocket (OOP) financing from households which accounts for more than 64 per cent of total health expenses in the country (Figure 2.1 below)

No country, including India, should aim for zero out-of-pocket and full risk pooling of funding in healthcare, as it would be inefficient for society and households. Risk pooling focuses mainly on insurable events (unpredictable, higher costs health events), with effective prevention, public subsidies, household savings and pre-payment systems responding to higher cost non-insurable events. However, there is no doubt that the very high level of OOPs in India today is due to inadequate risk pooling mechanisms in the country. Urgent actions are needed to take the level of OOPs to more efficient and equitable levels of

**Figure 2.1: India has low level and very fragmented risk pooling, with household out-of pocket funding at 64% of total expenses dominating the overall system financing**



between 20-30 per cent of total health expenditure (OECD levels) within the next two decades. The key task in the short and medium-term is to improve the level and efficiency of risk pooling. For it will be at least a decade before “excessive” risk pooling may become a policy concern for India.

Improving risk pooling performance, especially current fragmentation of the health risk pool, a common challenge in most emerging markets, is compounded by many factors in India. These include, India’s vast population, its complex federal structure, relatively low levels of tax collection, a large informal sector<sup>2</sup>, and extreme poverty still prevalent in certain sections of society.

Key policy decisions have to be made soon in India. If no changes are introduced in the risk pooling system, the current risk pooling trends trajectory will be consolidated, continuing a highly fragmented risk pool that is inefficient and inequitable. Coupled with regressive public finance subsidization and a weakly regulated commercial health insurance sector, a no-reform scenario would determine a bleak future for India’s healthcare sector. As things stand today, in a decade the healthcare sector will be dominated by inefficient commercial insurance for the haves and persistent high OOPs for the have nots.

Low level and highly fragmented risk pooling, with lack of strategic purchasing in the context of significant governance and regulatory challenges affect all types of existing risk pooling in India today including commercial health insurance, social health insurance schemes, and non-contributory schemes at national and state levels.

If fragmentation, inefficiency, unfair competition and weak consumer protection in India’s commercial and social health insurance across all risk pooling schemes in the sector continue, it will soon resemble the 1950-60s US health insurance market which was extremely fragmented, with clear signs of market failure,

<sup>2</sup> According to current ILO statistics in 2017, more than 90 per cent of labour informality exists in India.

## India Health Sector Risk Pooling

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insufficient incentives for cost control, consumer protection, and efficiency. Four decades later, although much has been improved since the 1950s, the US is still struggling to overcome these challenges. These are all also signs of governance and regulatory challenges in the health sector. If India does not pay heed now there will be weakness of strategic purchasing, low quality healthcare, and extreme fragmentation of providers. Such market and governance failures will have a domino effect in increasing fiscal contingent liabilities for India as commercial insurance and social insurance fails to deliver efficient coverage and dumps risk back to government financed healthcare. Risk dumping to public finance systems as the insurance cohorts age in the next decade will displace the poor from scarce public subsidies.

Transformation of India's risk pooling system has substantial spill over benefits to other components of the health system as well as India's macroeconomic trajectory. In the current highly fragmented low level of risk pooling scenario it is nearly impossible to bring crucial changes to strategic purchasing that are essential for critical consolidation of health service providers making it very difficult to improve and maintain quality standards and incentives for efficiency.

### **The India health system has historically been a tale of two types of fragmentation feeding off each other — risk pool and health service providers**

Currently the fragmented risk pooling system is dominated by household OOPs such that most funding for providers comes directly from individual households (instead of coming from insurers and institutional strategic purchasers). In this scenario, there is a very strong incentive to maintain the extreme fragmentation of health service providers to respond directly to households rather than insurers and purchasers. For instance, more than 90 per cent of out-patient providers have five or less staff, most hospitals have less than twenty beds (see specific data details in the health service provision section of this book). At such small scale, continuity of care, efficient service delivery and quality cannot be improved and sustained. Facing this extreme provider fragmentation, it is almost impossible financially and operationally for insurers to develop comprehensive insurance benefits packages, including out-patient-care, for a larger number of people. Instead of developing healthcare insurance for a broader market, insurers are therefore incentivized to focus their business model on high net worth individuals (top income quintile) who can afford comprehensive and more expensive benefits packages.

Now is the time to take decisions on risk pooling options in India that will positively affect not only access to health services, ensure financial protection and improve consumer experience in the health sector for all Indians, but also enhance labour market competitiveness, economic growth, and the future of a well-functioning private health sector.

### **Risk pooling:**

#### **Objective and key policy questions**

The main objective of this report is to provide preliminary technical insights to NITI Aayog on potential options for expanding and improving health risk pooling in India in the immediate, short and long-term. This analytical effort supports dialogue with the GoI on options for a risk pooling vision with high-level architectural design as well as considerations for making the transition.

**In this context, the report aims to address the following key policy questions:**

1. What are the key dimensions and critical constraints to consider in designing a feasible risk pooling system expansion and improvement strategy in India?
2. How is India doing today regarding these risk constraints and pooling policy options? What are the implications for adopting and implementing such options?
3. What are the immediate and short-term actions that GoI can take to improve risk pooling in the short-term?
4. What are some of the most suitable models from which GoI can choose to significantly increase risk pooling?
5. What are the key high-level factors to be taken into consideration by the GoI for the transition period to the preferred options?

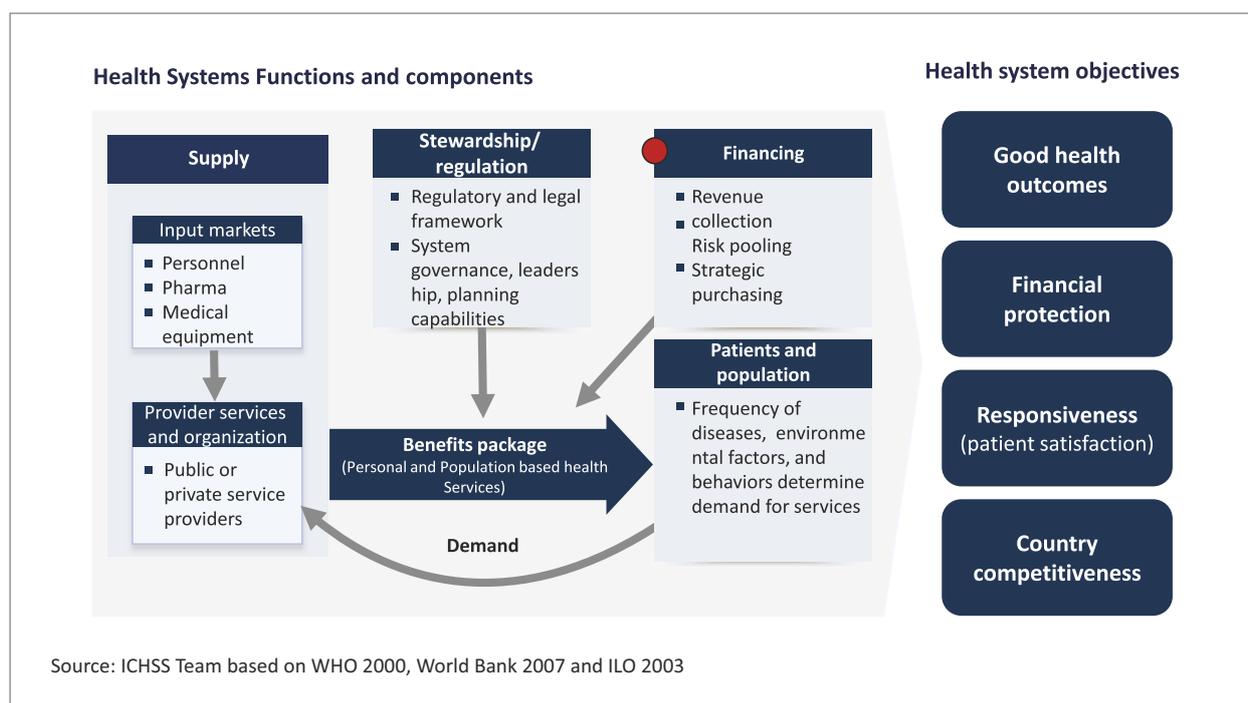
This report focuses mostly on risk pooling in India as per scope of work under the terms of reference of the study. However, under no circumstances does this imply that expanding risk pooling is the only critical health system financing reform required to improve access to healthcare and reduce the excess Burden of Disease (BoD) and excessive OOPs in the country. It is also essential to revisit the overall funding and cost-effectiveness of India's Population Health Strategy, in particular the effectiveness of its current healthcare fiscal allocation policies and strategy. Although an in-depth analysis in this area is out-of-scope of this report and the other work streams in this book, India faces a bimodal distribution of BoD in India, one with predominant maternal and child health issues as well as communicable diseases BoD (that would respond best to public good type interventions) and another with chronic diseases (responding better to insurance coverage for financially catastrophic health events). This bimodal distribution makes it critical to re-examine the financing of healthcare in general in addition to insurable healthcare funding explored in this risk pooling report. Better risk pooling will substantially improve the coverage of services addressing the financially catastrophic non-communicable diseases but, it will not be as effective for addressing the effectiveness and progressivity of public funding for public goods as well as prevention for MNCH and communicable diseases. Reorganising the health sector to offer universal healthcare by providing improved opportunities for risk pooling would also facilitate better household savings and will improve household financial protection mitigating the effects of very high OOPs in India. Better managing pre-payment mechanisms (in addition to true risk pooling) will help households to mitigate effects of large predictable health expenses (non-insurable events). Addressing the efficiency and performance challenges of commercial and social health insurance will likely reduce short and long term risk dumping into the publicly finance healthcare delivery and, help improve the targeting and progressivity of fiscal funding in health, critical given the very limited fiscal space for then country in healthcare.

However, given the current low level and significant fragmentation of existing risk pooling (which is mostly pre-payment schemes in the current situation), the most urgent policy action in health financing is to substantially increase and improve the level of efficient risk pooling in the country in the next decade. This will also help improve strategic purchasing and create incentives for integration of health service providers.

### **Context within the health system analytic programme**

Risk pooling is a finance function of a health system (number 6 in figure 2.2). It allows for the financial risk of health shocks to households to be spread among all the participants and contributors of a pool, mitigating the negative healthcare access and financial impact impact to participating individuals and households.

Figure 2.2: Health Systems Analytical Framework for this report



Without participating in a risk pool, individual households face the full financial consequences of a health shock, which can be devastating. It can throw a household into poverty. A major difference between risk pooling and pre-payment is that pre-payment includes expense caps as a critical component whereas risk pooling can be availed irrespective of the individual's contribution or their actuarial risk. In most emerging markets, health shocks account for between 1-10 per cent of new poor households annually. In India it is 9 per cent (2010). The full positive impact of risk pooling is evident when used for unpredictable and high-cost health shocks. Savings and pre-payment are best positioned for predictable high-cost events. Any other healthcare requirement can be managed by households through OOPs as a more efficient instrument and/or by targeted fiscal subsidies.

An efficient risk pooling system is dependent upon the other components of healthcare financing such as strategic purchasing and revenue collection for its performance. A good risk pooling system would not have any funds to pool if the revenue collection is ineffective. Similarly, even if there are plenty of funds and they are well pooled, the effect would be marginal if the funds are expended inefficiently and there is no value for money because of the absence of strategic purchasing in the system.

In turn, health system financing itself is mediated by other components of the health system such as efficient health service provision; good inputs from medical devices and pharmaceutical markets, and from high quality human resources for health. It is also dependant on effective system rules (governance and regulations - the stewardship of the system) that promote responsiveness, consumer protection, quality, and efficiency. International experience clearly shows that reforming only one function of the system requires adaptations of the other components to render the expected benefits. In the case of risk pooling, strategic purchasing, health service provision and stewardship<sup>3</sup> are critical to achieve substantial improvements in health system financing performance for better health, financial protection, and people

<sup>3</sup> specially regulation, governance, and management information systems

satisfaction. Ultimately it positively impacts a country's global competitiveness and growth through improvements in labour productivity resulting from improvements in the health status and household human capital investments.

The risk pooling work presented in this chapter, is one of the four main work streams of a comprehensive analytical programme to identify options for the Indian government to improve the country's health system performance with an emphasis on those who need it the most. The effort included four complementary work streams: Risk Pooling, Strategic Purchasing, Health Service provision, and Digital Health. Although some aspects of regulation are addressed in all work streams, regulation and governance have not yet been fully addressed. Similarly, population demand trends and drivers, benefits package policy, as well as population health (essential public health functions) for system stewardship are partially addressed in all work streams but, not comprehensively examined. It would be important to do so as a follow-up to this very comprehensive and promising effort.

Successful implementation of all work stream recommendations is essential. Selecting only one set of recommendation, will likely result in far less benefits for the system than possible. In the case of risk pooling, it is unlikely that there will be integration and strengthening of strategic purchasing in the absence of increased risk pooling. Today only 35 per cent of funding is pooled. Fragmented and low level of risk pooling does not provide a conducive atmosphere for strong strategic purchasing which, in turn, would foster integrated quality and efficient healthcare provision. Much needed consolidation of the fragmented provider landscape in India will not happen unless there are strong strategic purchasers and if OOPs continues to constitute the bulk of sector financing. Finally, none of these improvements will be feasible in the absence of a robust digital health system. Transforming India's health system necessitates the concomitant implementation of recommendations from all four work streams. Cherry picking one or the other may substantially decrease the likelihood of success. Health system transformation requires a systems approach to succeed.

### Executive Summary

India is at a crossroads in terms of transforming the performance of its health system in general and its risk pooling system in particular. The country's robust macroeconomic performance and vibrant growth of its private sector provide an excellent opportunity for introducing the necessary changes in the health sector. India has a number of short - and long - term options for improving risk pooling in the health sector. Risk pooling - the health system's insurance function - is critical for improving access to health services, providing financial protection to households, improving consumer satisfaction, enhancing stability and expansion of service delivery as well as, ultimately, promoting smooth macroeconomic performance and growth.

This section summarizes the analyses and proposed actions as well as future options for improving health system risk pooling in India in the immediate, short and long-term. The main report elaborates upon several themes presented in the summary. In addition to GoI's objectives (improving risk pooling for better health, financial protection, consumer satisfaction and system sustainability) the feasibility of risk pooling options is greatly determined by the country context and health system legacy constraints, along with the trajectory

## India Health Sector Risk Pooling

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of these factors over the last decade. India faces significant country and health systems constraints critical to identifying feasible options:

- High growth with controlled inflation but, with slower decreasing poverty compared to other comparable emerging markets or fast-growing economies, all expected to persist for the next decade
- Limited fiscal space and government fiscal allocation for healthcare funding
- Very high and persistent labour informality, contributing to low income and labour tax collection
- Total Health Expenditures (THE) growing but, driven by very high and slow decreasing out-of-pocket expenditures (OOPs)
- Very fragmented and low level of risk pooling, with also fragmented and generally shallow benefits packages
- Strong state leadership in health with significant state efforts to contribute to risk pooling but, altogether, a small fraction of the overall total health expenditure and risk pooling in the country
- A newly launched national scheme — PM-JAY, a very innovative demand-side risk pooling public subsidization arrangement that can further build an equitable and effective Federal-States collaboration to expand risk pooling. PM-JAY, if well implemented has a substantial potential to rebalance the demand and supply-side financing in the healthcare sector (currently overwhelmingly supply-side), re-set the Union-State compact in health financing, and likely change incentives for commercial insurers
- Moderately regressive public funding for healthcare that further limits fiscal space, with limited evidence-based cost-effectiveness of funded benefits, all reducing health return on investment
- Predominant supply-side historical funding allocation in the public sector (NHM and states) and in social insurance (ESIS), in the absence of strategic purchasing
- Complex country Burden of Disease (BoD) with rapidly growing non-communicable diseases but still dealing with an unfinished health agenda of MNCH and communicable diseases susceptible to public goods interventions. Such a BoD pattern requires a sharp focus on the poor who also tend to be the sickest segment of the population
- Inadequate regulatory environment for a moderately sized and growing commercial health insurance which currently has significant signs of market failure but also substantial potential for risk pooling expansion

These country and health system legacy constraints, and their trajectory over the last two decades, have specific critical implications for identifying and designing viable options as well as their transitioning to an improved risk pooling system in India. Specifically:

1. Despite its sustained positive macroeconomic performance, India's high labour informality and its low fiscal allocation for health will likely remain hard to tackle constraints over the next decade. India's fiscal funding of healthcare around one per cent of GDP is one of the lowest among LMICs.
2. Any significant growth in risk pooling over the next decade would need to come from pooling existing very high OOPs, especially those from the informal non-poor who can be attracted to join contributory risk pooling schemes. There is simply no other substantial source of funding for expanding risk pooling.
3. Reducing fragmentation of the risk pool is essential but a single national risk pool organization

seems unfeasible (as is a purely commercial solution to expanding risk pooling). Improving risk pooling in India will require a pluralistic national and state, as well as public and private mixed, risk pooling system increasingly working under single regulatory and governance rules.

4. Existing contributory social insurance such as ESIS has substantial potential as a base for growing risk pooling but, to fulfil its potential, it will require a significant transformation to improve its performance, which may take at least three to five years if launched immediately.
5. Harnessing the growing capacity and capabilities of commercial health insurance and related TPAs (Third Party Administrators) is a very promising short- and medium-term strategy to grow and develop risk pooling in India. Doing so successfully requires however, directing the commercial sector in the right direction compatible with the country's long-term health policy through a substantial regulatory and governance framework transformation.

Based on the country and health system legacy constraints and the resulting implications, this report identifies short- and long-term options to improve and grow risk pooling in India. The two steps include:

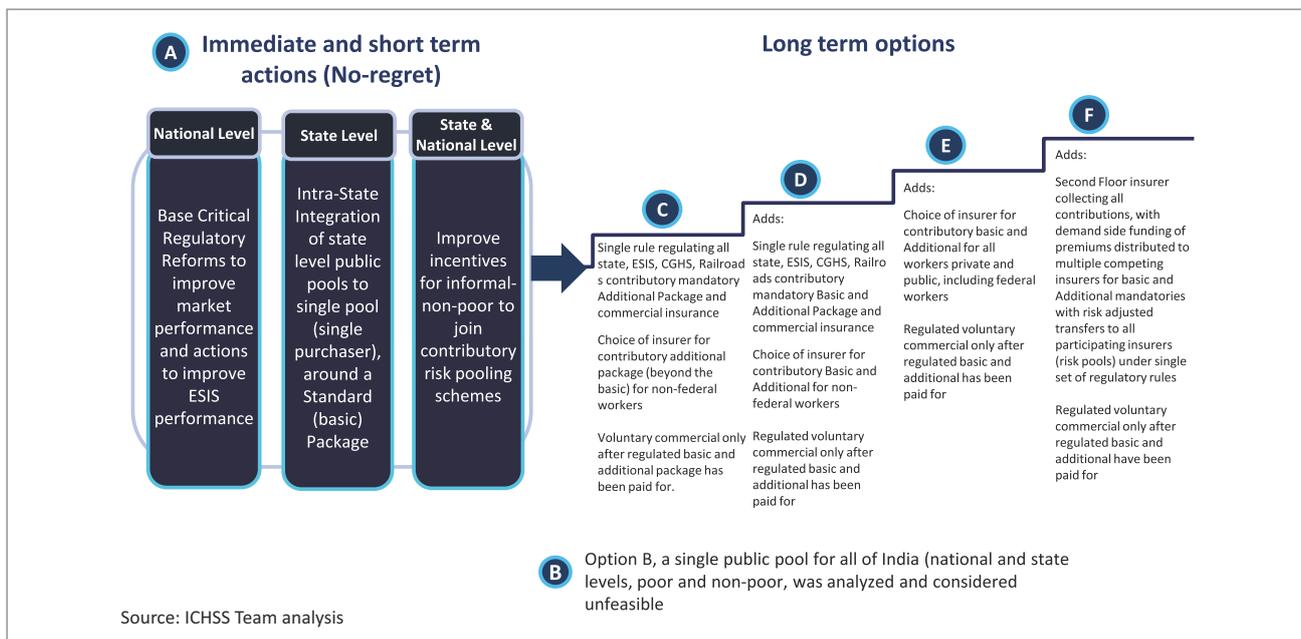
**I. Immediate and short-term actions, with four critical components:**

1. Base critical (no-regret) regulatory reforms to harness the power of commercial health insurance in the right public policy direction
2. Governance, managerial and strategy actions to improve ESIS performance
3. Intra-state integration of state-level fragmented risk pools
4. Improving incentives for informal-non-poor participation in contributory risk pooling

**II. Long-term options to improve and expand risk pooling in India**

The immediate and short-term actions, as well as long-term options, are summarized in Figure 2.3, and further elaborated upon in subsequent sections below:

**Figure 2.3: A two-step options and transition approach to improve risk pooling in India has been identified, with "short-term" no-regret actions and "long-term" structural options**



# India Health Sector Risk Pooling

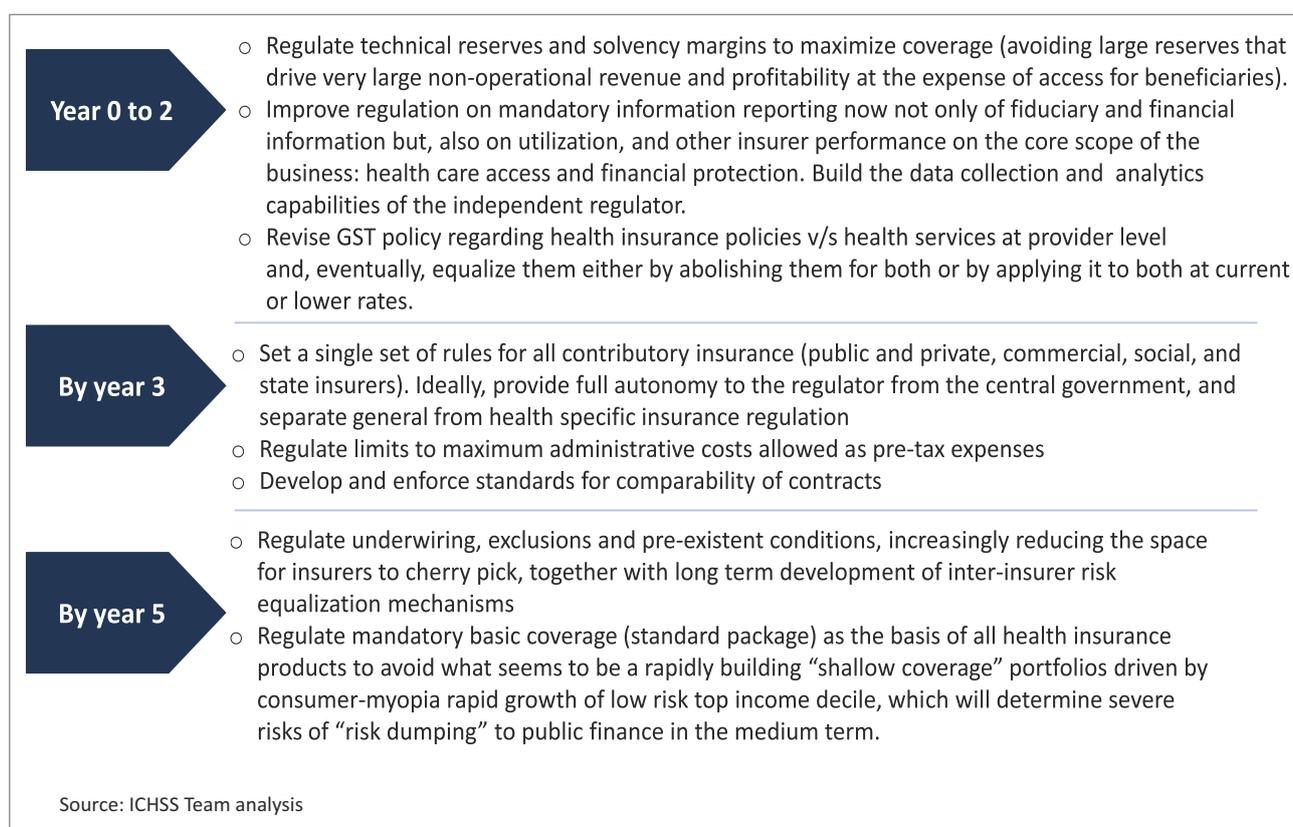
## I. Immediate and Short-term Actions

### 1. Base critical (no regret) regulatory reforms for commercial and private health insurance

To effectively harness the power of commercial and private health insurance in the right public policy direction, policymakers would need to overcome substantial signs of market failure and regulatory and governance challenges in the commercial health insurance sector. Some of them also apply to ESIS and may apply to contributory state health insurance schemes as well. Further, there are signs of potential distortions in competition in the commercial insurance space where publicly-owned commercial insurance seems to penetrate markets at below-cost pricing and to mitigate the impact on their P&L through very large non-operational revenue. This revenue is derived from exceedingly large financial reserves from their general insurance business.

Improving the trajectory and performance of the commercial health insurance sector to harness its substantial potential to be a pillar of future risk pooling development in India requires reforming its regulatory framework in the short-term. Some immediate (0-2 years), short-term (3-5 years) and long-term (beyond 5 years) recommended reform actions are summarized in figure 2.4.

**Figure 2.4: Improving the regulatory framework for risk pooling, specific actions for the next 2, 3 and 5 years.**



### 2. Governance, managerial and strategy actions to improve ESIS performance

The following actions have been identified to address ESI’s current critical health service access challenges and improve performance in the long run.

- ESI needs to urgently and effectively address the critical access challenges for its beneficiary population. Specifically, it needs to:
  - Rapidly build strategic purchasing capacity, with immediate scale up of external purchasing of healthcare services. Use it as a platform for also changing the current ESI ownproviders payments in the medium- and long-run
  - Revise current capital expenditure (CAPEX) strategy and ensure that there is an effective supply-side response (most efficient solution) to short-term health service needs
  - Substantially increase within the senior management decision-making process the health systems expertise necessary to drive effective and timely responses to beneficiary needs
- ESI stakeholders need to revise its governance and strategy as well as the apparent difficulties with responding rapidly to the access challenges and adjusting the structure as necessary.
- ESI needs to improve the volume and quality of publicly available data as well as the robustness and timeliness of data for the purpose of corporate, population health and clinical management. These steps would be critical for strengthening its governance, transparency, and accountability.

### 3. Intra-state integration of state-level fragmented risk pools

A high level of risk pooling and benefits package fragmentation at the state-level requires in centivizing and supporting intra-state integration of state-level fragmented risk pools. A four-step effort is recommended to facilitate such integration:

- Increase organizational aggregation. Increase state-level oversight and decision-making power on all schemes that states substantially manage and/or fund; bring these schemes under a common coordination arrangement managed by the state.
- Build risk pooling infrastructure. Develop a robust HIIS including beneficiary identification; enrolment; revenue collection and management; as well as strategic purchasing (including provider payment mechanisms).
- Incrementally equalize basic (standard) benefits package. Incrementally ensure a standard benefits package to cover all populations in the pool receiving national fiscal subsidies, enhanced if desired by additional benefits that the states may want to offer with their own funds.
- Finally, in time, merge functionally and financially all similar risk pools previously aggregated. Incrementally homogenize and equalize contributions (from beneficiaries, state and union, if available) across all merged schemes so the household contributions in contributory schemes are the same for the same package and the subsidized per capita fiscal contributions are also the same for the standard (basic) benefits package.

### 4. Improving incentives for informal-non-poor participation in contributory risk pooling

Given severe fiscal constraints, the very high level of labour informality, and the high level of OOPs, risk pooling growth will need to come from pooling OOPs from the informal non-poor. Simply put, there is no other source of funding to expand risk pooling in the short and medium term. Doing so requires improving incentives for informal-non-poor participation in contributory risk pooling. Two specific actions are identified for improving incentives for the informal non-poor to join contributory schemes in India:

## India Health Sector Risk Pooling

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a) **Test informal non-poor schemes in ESI (once ESI is able to do so) and further improve those existing in selected states, possibly within the next 3-5 years. This may be feasible through:**

- Including key services appreciated by the informal-non-poor in the standard benefits package
- Creating non-health services in addition to the standard benefits package
- Charging the informal non-poor based actuarial risk towards risk rated premiums (contributions) and solve the potential resulting equity challenges directly with government general poverty alleviation policy and instruments, not necessarily all from within the health sector, and/or through efficient risk equalization arrangements appropriate to the capacity and capability levels of the system.
- Provide technical support and an effective regulatory framework for commercial, social, and state insurers, for them to develop products that include better coverage of out-patient care and other key drivers of OOPs

b) **Improve existing commercial pre-payment and risk pooling to boost demand from the informal-non-poor**

- Unbundle health insurance from other contributions (e.g. pension?)
- Accelerate commercial insurance regulatory changes for boosting consumers trust and demand
- Potentially revise the differential application of GST to health services at a provider level versus commercial insurance products (benefits packages); which may be setting disincentives for demanding risk pooling products in contrast to paying providers directly.

## II. Long-term options for improving risk pooling in India

Two main areas for action in the long-term: a) introducing a standard (basic) package as the basis for all insurance coverage, critical for effective regulation and for sound fiscal subsidization policies in healthcare; and b) four potential risk pooling architecture options for the long-term

a. **Introduction of a standard (basic) mandatory benefit as the basis for all health insurance coverage in India**

There are important health insurance and public funding efficiency and equity reasons for introducing a standard benefits package as reference for all insurance coverage in India. India does not only have a low level of risk pooling that is very fragmented but also highly fragmented benefits packages provided by the existing risk pooling schemes. Benefits package fragmentation occurs not only in voluntary commercial health insurance (which traditionally does provide a diverse set of health insurance products) but also among publicly-subsidized schemes and packages, resulting in publicly-funded coverage inequity. Most large federal countries face these differences across states and, in most of them, there is agreement that the federal level needs to play an active role in reducing inter-state inequality, by targeting the poor in the poorest states with higher funding contributions for healthcare through conditional or unconditional fiscal transfers.

If central governments play an equalization role, it is very difficult to do so in the absence of a standard benefits package, which would set the minimum level of services that a country wants all members of

society to have, as well as can afford and use to estimate costs and fund allocations. In India both the benefits package set by PM-JAY on the demand side as well as the less explicit benefits package set by NHM on the supply-side are in fact preliminary versions of a potential standardized benefits package. GoI may further explore it as part of key conditions for future risk pooling options identified below. In the absence of such standardized reference and gap identification, it is impossible to judge the gaps that the central government equalization and policy facilitation roles needs to target.

A standard benefits package also plays a substantial role in guiding the future development of commercial health insurance. It would ensure coverage of essential and insurable events under risk pooling arrangements. This is in contrast to the current practice of providing relatively shallow coverage for mostly in-patients. Thus, a standard benefits package would mitigate the effects of the consumer blindness tendency of households and the shallow coverage of unregulated insurance. The absence of a minimum level benefit mandate in commercial insurance makes consumers believe they have insurable events insurance coverage when they have, in general only, pre-payment coverage, with substantial risk dumping to the public sector and fiscal risk in the short, medium and long term. All these, when non-poor consumers could afford a more insurable event benefits package. Therefore, standard minimum coverage is also essential for the healthy development of commercial insurance aligned with long term sustainability of the system. Most OECD countries do have a mandatory reference coverage set of benefits. This has been at the centre of the recent policy debate about the mandate in the USA ACA-Obamacare reform in recent years.

### **b. Four long-term risk pooling architecture options**

A focus on long-term action is not only essential but also critical to develop a vision of the desired risk pooling system. This long-term vision provides the “north” or a “consistency check-point” for designing the implementation of the “no-regret” immediate actions and medium-term reforms in a way that would not lock India in a direction away from the long-term vision. It will help ensure transition designs that would not lock the path of short and medium-term reforms in a way that would make the long-term vision infeasible.

In the analysis it is assumed that India wants to achieve comprehensive and equitable risk pooling for access to timely, quality and affordable health services for all – Universal Health Coverage. Given the substantial country and system constraints, there is no doubt that it will be decades before India will have a universal, comprehensive, and equal coverage for all, but for policy reasons, it is critical that reforms serve, and are communicated as preparing the foundation for objectives to be met in the longer run.

Long-term options for improving risk pooling in India require a complex transition and careful attention to key principles resulting from, or shaped by, country and health system constraints. Ignoring the realities of these constraints, as it has often happened in health sector reforms, may ease the complexity of the dialogue, but will greatly jeopardize the technical, fiscal, and political feasibility of future options in risk pooling and will likely paralyze effective implementation. Although diverse, all four identified options for long-term improvement of risk pooling share key characteristics. These are summarized in Figure 2.5.

**Figure 2.5: Five core characteristics common to four possible long-term risk pooling options for India**

- a** All options are pluralistic risk pooling architectures: Multiple risk pools converging to single functional rules. The single risk pool (public monopoly) for entire India option was analyzed and deemed unfeasible within the 10 to 15 years' timeframe (and possibly undesirable given the size, federal nature and diversity of India)
- b** All options have risk pooling schemes co-existing at state and national levels
- c** In all of them, there are Public and Private (commercial and non-profit) risk pooling arrangements co-existing in the system, with differences in their roles for each of the six options
- d** All options have differential benefit packages (regulated for minimal quality and content) – until a desired single comprehensive package for all can be achieved
- e** In all options, public funding (subsidies) are mainly to follow the poor (more effectively than the BPL mechanism currently in place), with the exception of some level of subsidization to informal-non-poor to increase incentives to participate in contributory risk pooling

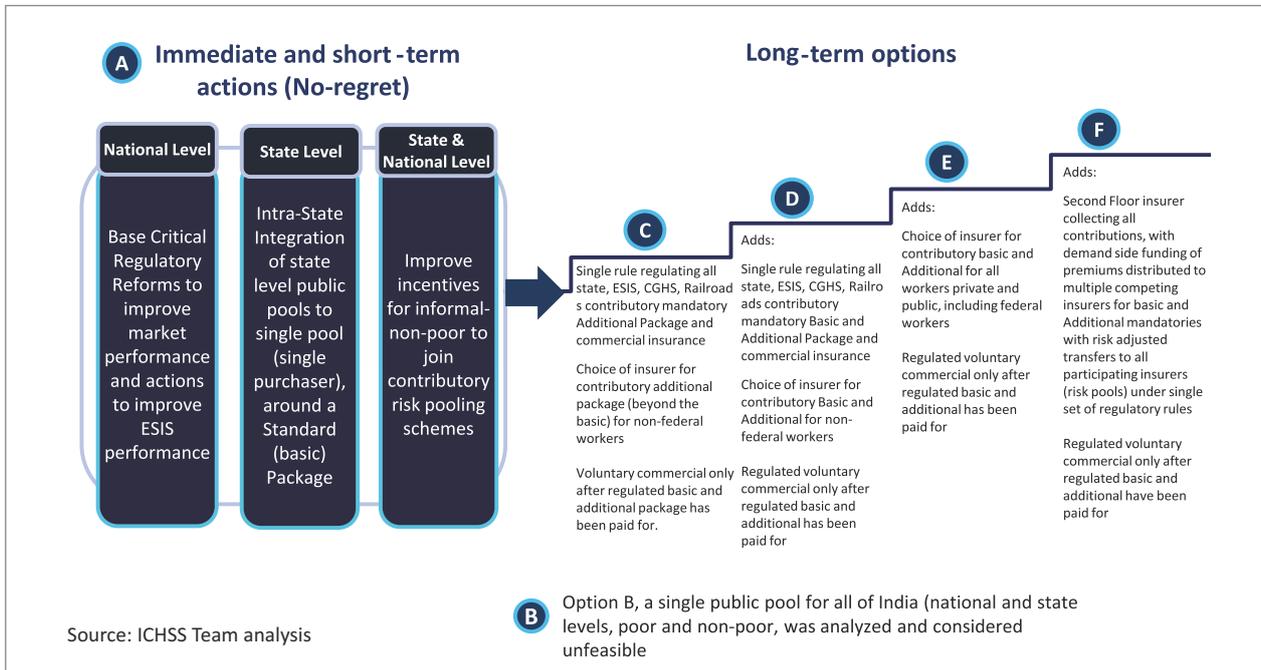
Source: ICHSS Team analysis

Taking into account, country objectives, country and health system legacy constraints and derived principles, four long-term options for risk pooling architecture were identified for a time frame of 10-15 years. A longer time frame for risk pooling trends in India becomes unpredictable given its current starting point. All of them have common characteristics as summarized in Figure 2.5

Options presented in Figure 2.6 below synthesise the main body of this report and are more extensively described in the previously-mentioned interim reports. Option A, while called an “option” is in fact a strong recommendation of urgent “no-regret” actions that are necessary conditions for moving to any of the preferred long-term options.

A possible single risk pool scheme for the entire country (single payer Option B), which would de-facto replace all existing national and state-level schemes, was analysed and deemed infeasible by the authors within the 10-15-year time frame of this analysis and, possibly undesirable given the population of India, its marked federal nature, diversity, and the limitations imposed by constraints such as fiscal space and federalism. Option F, a national “second floor” insurer that would collect all contributions and distribute them to multiple national and state-level competing risk pools, based on risk-adjusted capitations and under single basic benefits package and regulatory rules, is a complex form of a single pool and extremely demanding from an operational and regulatory perspective. In short, Option F would allow for a form of a single pool system, but preserve the pluralistic nature of risk pooling in India. The main text of this report elaborates further upon the characteristics and assumptions underlying the proposed gradual transition from long-term options C to F.

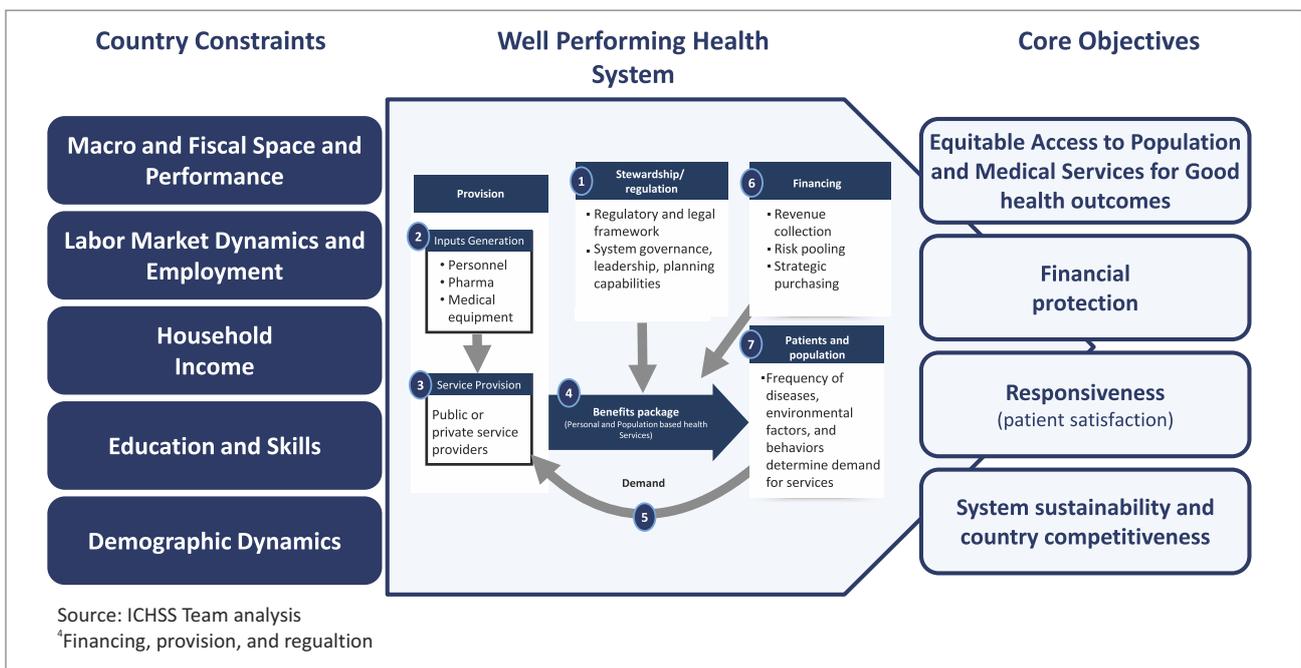
Figure 2.6: A two-step options and transition approach to improve risk pooling in India has been identified, with short-term no-regret actions and long-term structural options



**c. Country and health system legacy constraints for risk pooling options**

Improving a country health system performance requires simultaneous change and improvements in most (if not all) of its health systems functions of which risk pooling is only one. No single function reform<sup>4</sup> by itself, and in isolation, has been successful in improving the performance of the entire health system. Additionally, no country can transform its health system as a green field, that is, without considering its country context limitations and health system legacy constraints.

Figure 2.7: Achieving the system goals depends on and affects key country constraints and legacy systems constrains



## India Health Sector Risk Pooling

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Figure 2.7 summarizes some of the key country constraints that can affect how the health system functions. It also shows how a well-performing health system can achieve four core system objectives:

- Access to healthcare and improved health outcomes
- Effective financial protection (protection of households from excessive health expenditures, particularly impoverishing ones)
- Responsiveness of the system to satisfy the legitimate expectations of the population and patients
- Achieving these goals in a manner that ensures system sustainability and contributes to the growth and development strategy of the country.

Similar to many developing low-middle-income countries, India faces substantial country and health system constraints.

### I. Key country constraints influencing options for improved risk pooling

Country constraints substantially define the challenges and opportunities to improve risk pooling in any country and determine the key design principles for guiding a feasible solution space for policy reform options. The conclusions on constraints included in this section (as well as the implications described in section IV below) are the result of extensive analysis of data pertaining to governments, markets, and organizational trends over the last decade as well as explicit national and state policy documents; informal policy dialogue with key actors and international experts on risk pooling system transformation, and the team's own expertise on the matter. Key constraints to consider include: macroeconomic performance; fiscal space and government commitment for fiscal expenditures for healthcare; labour formality/informality; household income growth and income distribution, private sector development, regulation, and governance.

#### Key country constraints or opportunities include:

##### **High growth with controlled inflation but slow decreasing poverty**

India has shown impressive economic growth in the last decade, controlling inflation at moderate levels. The high macroeconomic performance can potentially create additional fiscal space for a historically low fiscal commitment to healthcare, which is a hard constraint for risk pooling options over the next decade. Although there is rapid growth in the top household income quintile, income of lower quintiles is growing at a much slower pace. This explains the slow reduction in poverty as compared to other large LMIC economies. The rapid growth in top quintile household income is fuelling a moderate to rapid growth of private sector participation in all sectors, including healthcare.

##### **Persistent limited fiscal space and government allocation for healthcare**

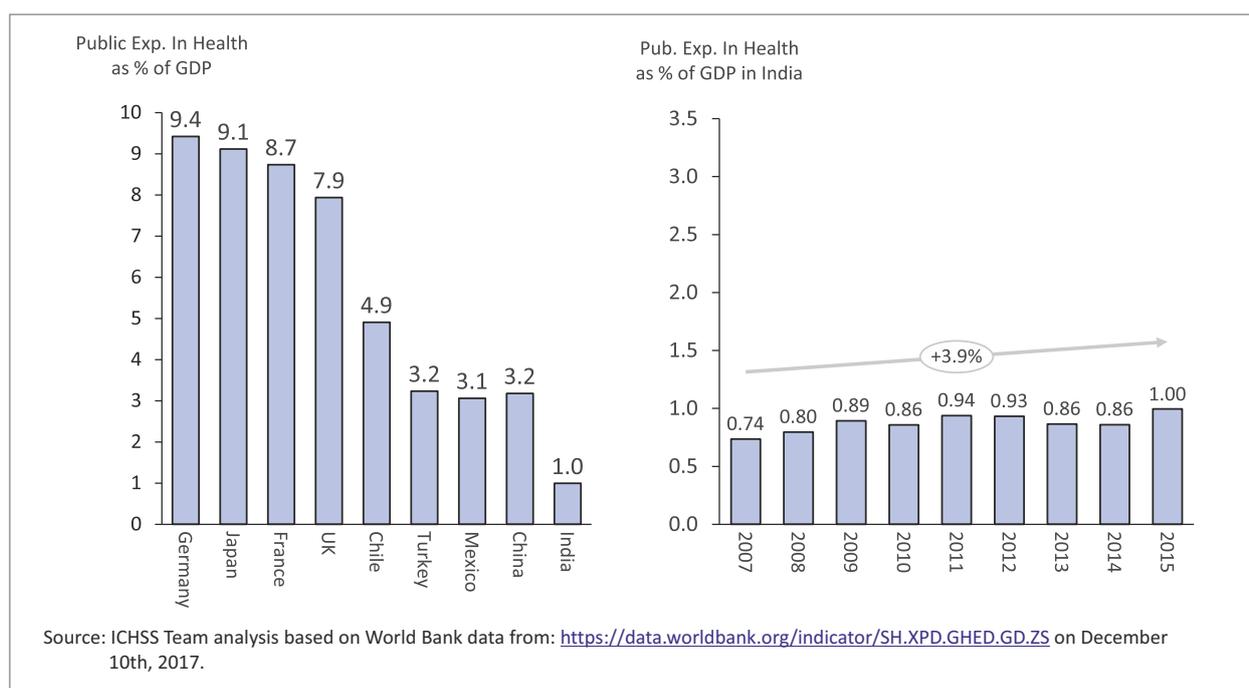
India's public total fiscal expenditure in healthcare has remained at 0.9-1.1 per cent of GDP, one of the lowest in the world among LMICs. Such limited fiscal expense on healthcare is a constraint for growing subsidized risk pooling especially for those who need it the most — the poor and the sick. Better evidence-based decisions on what components of the healthcare package are to be subsidized for these populations, are therefore the need of the hour.

The very limited fiscal space for funding health services for the poor is compounded by lack of effective

targeting of public funds towards the poor. They are also the sickest population accounting for most of the BoD in India. Public expenditures on healthcare in India are shown to be neutral or moderately regressive in the case of hospital care, with the non-poor receiving most public funds. Estimates suggest that per-capita expenditures in healthcare for the poor (after cost-effective public goods are financed for the entire population) would more than triple if public funds were to be fully targeted only to the poor<sup>5</sup>.

Figure 2.8 shows trends in India's fiscal funding for healthcare as well as other relevant economies.

**Figure 2.8: Persistently low level of fiscal allocation to healthcare, with historical allocation around 0.7 to 1 per cent of GDP**



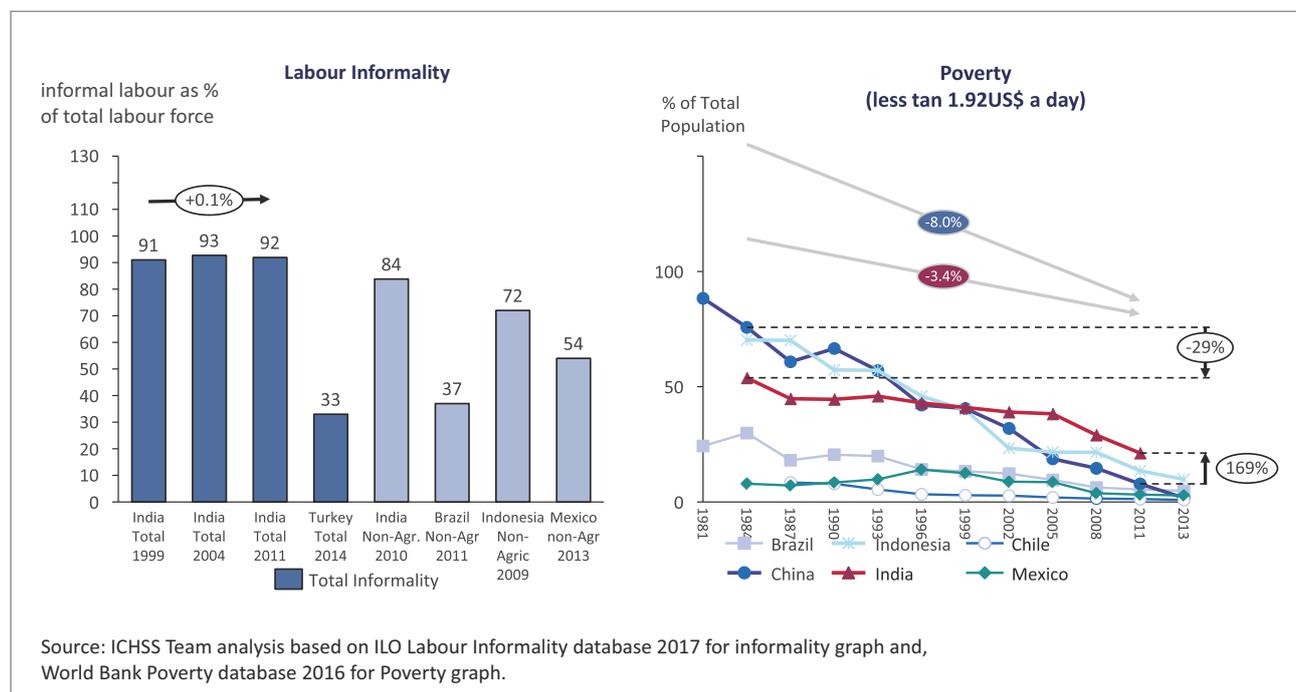
### High and persistent labour informality resulting in low income and labour tax collection

India's labour informality (as defined by ILO and shown in ILO's labour statistics of 2017) is among the highest in the world (more than 90 per cent of total labour force and more than 84 per cent of non-agricultural labour force are informal). This high level of informality poses significant constraints to options for growing and improving risk pooling in the country.

- First, the use of salary related contributions (e.g. payroll-tax) as a revenue source is very limited by definition.
- Second, it substantially limits income tax collection, restricting any growth in tax funded risk pooling.
- Third, mandatory participation in mandatory contributory risk pooling is unenforceable, with informal workers participating only when incentives to do so make it desirable for them to join the schemes (as is likely happening with pre-payment commercial schemes existing today in the market). Innovations in revenue collection will be essential for creating the necessary incentives to participate.
- Fourth, the ease of transitioning out of formality for workers, calls for very careful consideration before introducing increased direct and indirect taxation in general and/or for healthcare financing.

<sup>5</sup> An analysis of targeting of public finance in healthcare, its progressivity and the effects of targeting are presented in interim report 3 of the risk pooling work stream.

**Figure 2.9: High and slowly decreasing poverty, and persistently very high labour informality, determining a very low space for payroll-tax revenue**



## II. Key health system legacy constraints influencing options for improved risk pooling

### Key health systems legacy constraints in India include:

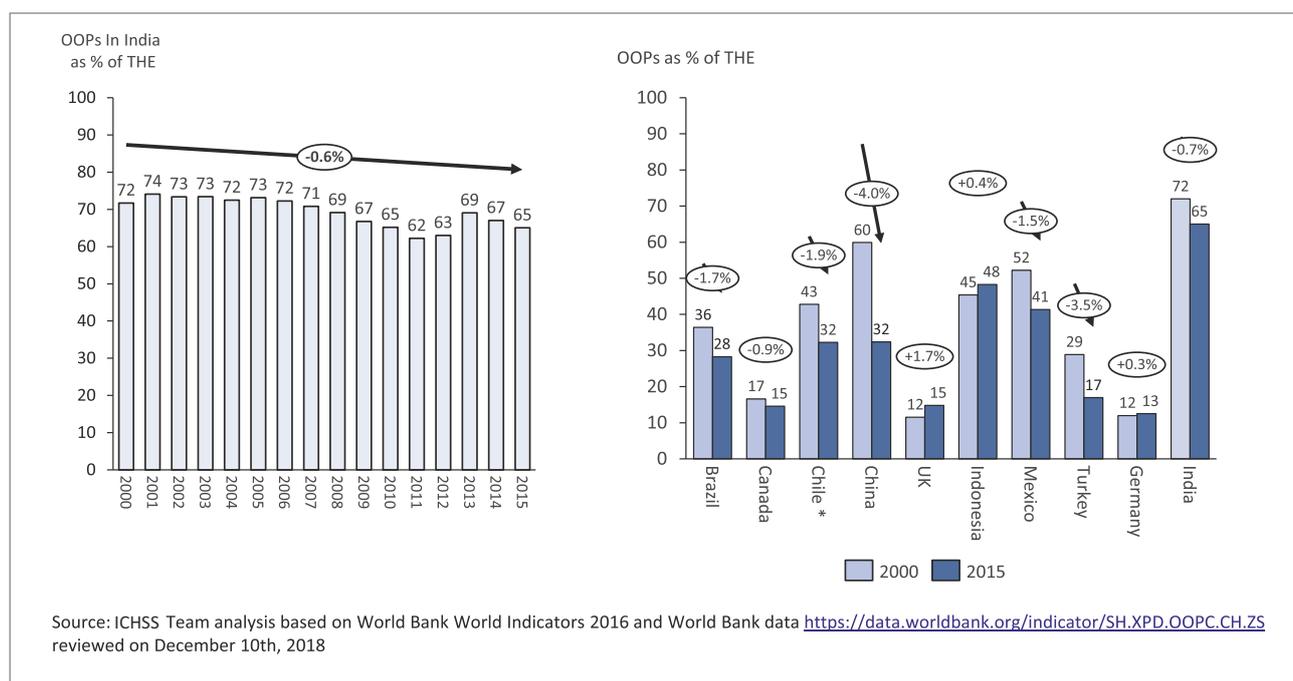
#### 1. Total health expenditures driven by high and slow decreasing out-of-pocket expenditures

India's Total Health Expenditure (THE) is dominated by persistent and slowly decreasing high OOPs. The high OOPs are the result of ineffective risk pooling and pre-payment systems.<sup>6</sup> These are likely to remain high for the next decade unless substantial improvements are made to risk pooling in the country.

There is no global technical consensus about the exact optimal level of OOPs in a country, but most MICs and HICs that have been successful at achieving universal health coverage aim at reducing OOPs to less than 20-30 per cent of THE. High OOPs are proven to contribute to poverty and reduce access to health services.

No country in the world aims at reducing OOPs to zero, with some UHC successful countries keeping OOPs above 10-15 per cent, as doing so would be inefficient for households and for the risk pooling system in a country. In general, risk pooling should be reserved for low predictability and higher cost health events, making it mandatory when free-rider behaviour is likely and/or there are large positive/negative externalities involved. For large but reasonably predictable health events, it is more efficient to develop effective savings and pre-payment systems. However, in most countries, the specific content of risk pooling is not only a technical decision based on efficiency, but also a question of societal preference, with many countries including services under risk pooling that would otherwise not be included. Figure 2.10 shows trends for India and other relevant economies with respect to OOPs.

**Figure 2.10: Persistently very high OOPs, with slower rate of reduction as compared to other relevant economies**



Although both, pre-payment and risk pooling are needed for reducing OOPs for non-insurable and insurable events respectively, India's current commercial health insurance is almost entirely composed of pre-payment schemes and products. When one considers the limitations of existing products including short-term, actuarially-driven expense caps, exclusions and waiting times for benefits for many health conditions, strict risk rated premiums as well as underwriting. The pre-payment market is already operating (although it requires better consumer protection regulation, so consumers realize that they are buying pre-payment products rather than full coverage insurance).

## 2. Fragmented and low-level risk pooling and shallow benefit packages

India has a highly fragmented and low level of risk pooling, with less than 10 per cent of the population covered by formal contributory health insurance, as evidenced by most funding coming from OOPs. Around 60 per cent are covered by (nominal) comprehensive health insurance. There are multiple contributory risk pooling schemes at the state and national level, with different benefits packages, eligibility criteria, as well as contribution and funding arrangements, including:

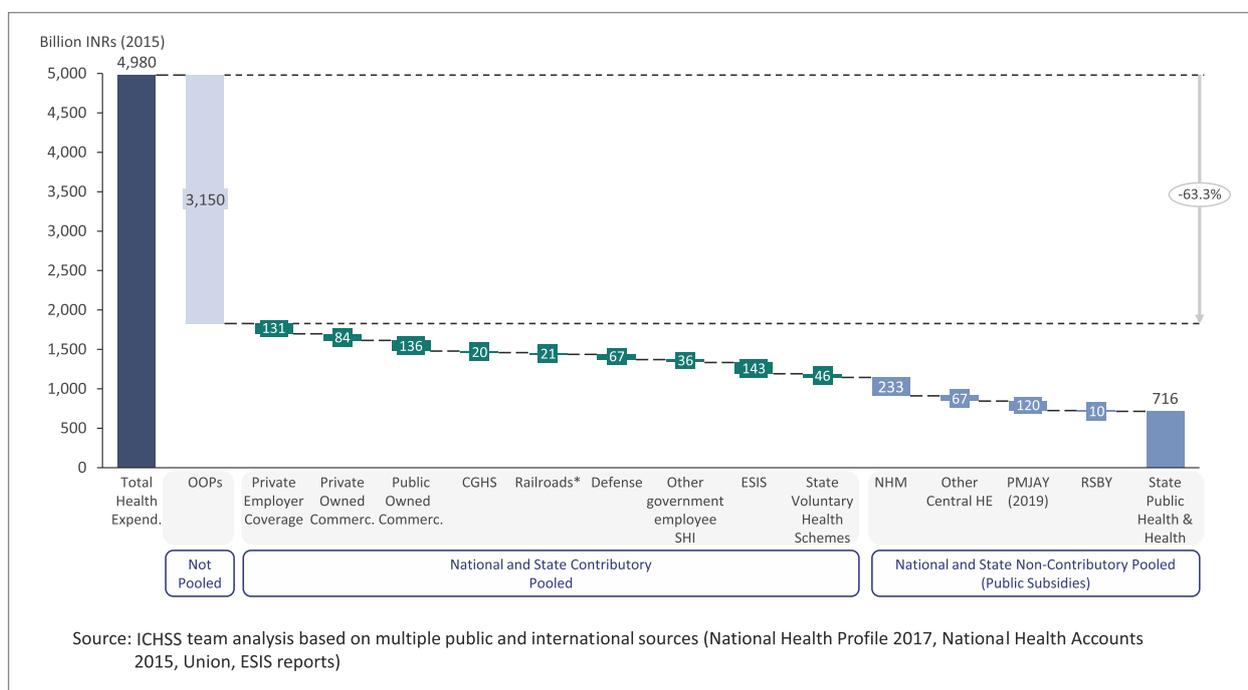
- At least four large national-level contributory quasi-public single insurers (ESIS, CGHS, Railways health system, armed forces, and others)
- About thirty commercial health insurance schemes, all operating at national level under general insurer schemes, four of them publicly owned and dominating the market
- A national demand-side subsidization for insurance scheme (PM-JAY-which internalizes important lessons from a previous smaller scale scheme, RSBY)
- A large supply-side fully subsidized national scheme, focused mainly on the primary care level, co-financed by the union and states (The National Health Mission-NHM); and
- Between 30-40 state-level contributory and non-contributory schemes, most of them running independently of each other.

\*These systems are fragmented, low share of total expenses, and have shallow benefits

## India Health Sector Risk Pooling

Figure 2.11 summarizes the landscape of risk pooling in India as of 2017.

**Figure 2.11: India has low level and very fragmented risk pooling, with household out-of-pocket funding at 64% of total expenses dominating the overall system financing**



### 3. PM-JAY is an innovative and high potential impact instrument for risk pooling

The newly announced national scheme — PM-JAY is a very innovative demand-side risk pooling public subsidization arrangement that can further build equitable and effective federal-state collaboration to expand risk pooling. India's PM-JAY is one of the most innovative (and rare) international examples of demand-side funding for risk pooling for healthcare in the world. It is especially relevant given the uniquely large population of India, its marked federal nature, as well as complex governance, capacity, and capabilities in the public sector. It has the potential for rapidly growing subsidized risk pooling, contingent to adequate fiscal space and government allocations. If targeted well (population and health interventions) and scaled up properly (with good contract management systems and capabilities), it has the potential for harnessing the rapidly developing power of private insurance in the right direction. This is a legacy, which today is still at the initial implementation stages. However, it can serve as a foundation for accelerating subsidized risk pooling growth, rebalancing demand and supply-side financing in the public sector and through it, steering private insurance development in the right direction (away from its current market failure direction).

### 4. State schemes significant for risk pooling but only a fraction of overall health expenses

There is strong leadership at the state-level and innovations in healthcare with state schemes contributing to risk pooling but, they are only a fraction of the overall health expenditures and risk pooling in the country. The 30-40 state-level contributory and non-contributory risk pooling schemes are a significant part of funding and risk pooling but only a fraction of the overall risk pooling system. Risk pooling schemes operating at the national level (ESIS, Railways, commercial insurers, PM-JAY, and NHM) combined represent almost as much as the state-level efforts. Although there is considerable emphasis in the policy

discourse about risk pooling solutions needing to be state-based solutions, the reality of both, OOPs and schemes operating at the national level, determine the likely need for national and state schemes co-existing in a feasible solution space (a pluralistic risk pooling system).

### **5. Moderately regressive public financing of healthcare further restricts fiscal space**

The moderately regressive trend in public funding for healthcare further limits fiscal space, compounded by limited evidence-based decisions about funded benefits, all reducing publicly financed return on investment for health. Public finance data suggests that public subsidies in healthcare are neutral or moderately regressive particularly for in-patient care at hospitals. This further restricts fiscal space as funds that are originally destined for funding access by the poor are being used by the non-poor. Preliminary estimates by this report team suggest that targeting public funds more effectively would substantially increase per-capita expending for a broader benefits package for the poor as compared to the current (non-targeted public funding). Additionally, the composition of the current benefits under the existing subsidized schemes (NHM and RSBY) do not seem to respond to an in-depth analysis of evidence about what is driving both high BoD and high OOPs for the poor. In the absence of such a systemic approach, current scarce public funding may be less effective than its real potential for impact.

### **6. Burden of Disease: high level of NCDs but unfinished MNCH and CD agenda**

India's Burden of Disease (BoD) shows rapidly growing non-communicable diseases but it is still dominated by an unfinished health agenda of MNCH and communicable diseases susceptible to public goods interventions. This requires a sharp focus on the poor, who are also the sickest population group.

Although India is facing a rapid growth in NCDs (as most LMICs), its BoD is still dominated by an unfinished MNCH and communicable disease agenda, affecting especially the poor and concentrated in the three most populous and poorest states in the country. Risk pooling responses to this BoD profile in the context of limited fiscal space and health services capacity requires a rigorous effort to target those diseases and populations (that substantially overlap), especially when defining subsidized risk pooling packages.

### **7. Commercial health insurance: Weak regulations with signs of market failure and governance challenges**

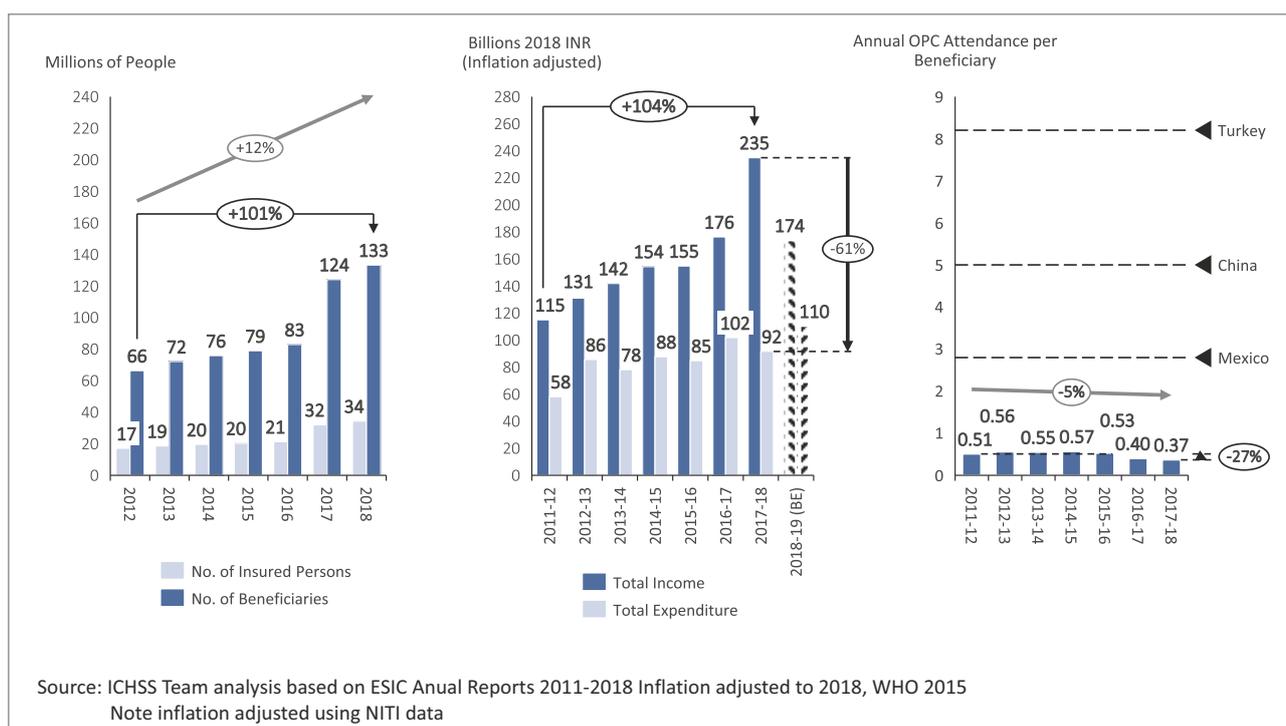
There is a weak health-specific regulatory environment guiding a moderate size and growth of commercial health insurance with substantial potential for expanding risk pooling but with significant signs of market failure. There is a moderately sized commercial insurance sector with co-existing and competing publicly-owned insurance (that dominates the market) and privately-owned insurers. All the players operate under a regulatory framework that is relatively robust on fiduciary and prudential regulation for health products. However, this regulatory framework is insufficient to minimize market failure traditionally occurring in fast growing emerging markets like India. Also, the regulatory framework focuses exclusively on commercial insurance, leaving contributory social insurance at the national (ESIS, other) and state-levels (state-level contributory schemes) without regulation or with fragile self-regulation. There are also significant signs of governance challenges including corporate governance structure and behaviour in ESIS and publicly owned commercial insurance. These regulatory and governance challenges are traditionally hard to change, which means that future options for improving risk pooling need to account for these challenges in the short and medium-term.

### 8. Severely underperforming social health insurance (ESIS)

ESI is the largest contributory health insurance in India and one of the largest in the world, covering about 86 million beneficiaries and principals currently in the low-income formal labour market. The membership of ESIS has grown substantially over the last decade along with its contributions and revenues. At the same time, ESIS has not expanded the supply of services to its members while growing (either through its own network of providers or by contracting out). As a result, ESIS has shown financial margins of around -61 per cent per year which have been growing since 2011 (among the largest in the world for any comprehensive contributory insurance). At the same time, given the lack of expansion of supply (own or contracted), health service utilization for ESIS beneficiaries is extremely low, among the lowest in India as well as among social insurers in the world. This low performance not only deprives its members from due access to services but, is likely contributing to labour market distortions in the country as well.

Figure 2.12 summarizes key financial and access indicators of ESIS performance.

**Figure 2.12: Critically low performance of ESIS, facing very low access to healthcare for its beneficiaries in the presence of one of the largest growing financial surpluses in social insurance in the world**



### III. Key lessons from relevant international experiences

India is unique for its population size, cultural and historic diversity, federal nature and current development path. While no one country in the world can be an easy source of entire health system lessons for India, some of the largest OECD and emerging markets do bring potentially relevant lessons. All large federal countries that have been successful in expanding and reaching high levels of risk pooling and comprehensive benefits packages for their population have done so through decades of concerted incremental reforms and transitions. All of them have done it through a pluralistic but well-coordinated risk pooling system. Some of the most relevant lessons include:

- a) **Achieving full risk pooling and comprehensive benefits package for insurable events**, as well as efficient pre-payment and savings for large non-insurable events, is a long journey that takes decades of coherent policies across multiple governments.
- b) Successful journeys have required the **highest level of possible political support from the most** relevant stakeholders, with a shared vision of reaching universal risk pooling, making the risk pooling reforms towards universal coverage a country level political and policy priority, instead of purely a health sector priority. That is, universal risk pooling becomes an integral part of the political aspiration process instead of merely a technical sectoral aspiration. Often, leaders are able to create a sense of urgency for change that fuels the migration from a sector to a national priority. In the absence of a sense of urgency or acute opportunity, political actors do not mobilize to implement complex and often politically costly health system reforms, benefits of which may take years to materialize. It is imperative to identify and effectively communicate that sense of urgency or acute opportunity.
- c) The journey includes **a combination of reforms** in time, such as:
- Increasingly *reduce fragmentation of the risk pool by merging and consolidating risk pools* when efficient, and by introducing single regulatory benefits and financing rules to make pluralistic multiple pools operate complementarity and synergistically among them.
  - *Grow both the breadth of the pool (its size and inclusion of the population) and the depth of the benefits package, but often at a different time for the poor and non-poor*, ensuring that transition stages are compatible with the long-term vision of universal risk pooling.
  - Have an *initial focus on subsidized fiscal funding of cost/effective interventions for the poor* and, contributory (often labour-based when feasible) funding for the non-poor, ensuring alignment with the country growth and global competitiveness strategy.
  - Although they *have a risk of locking in sub-optimal designs during transitions* (which many countries struggle with) manage during the transition different but converging solutions for the poor, the informal non-poor, and the formal non-poor. Leaving behind any of these populations has proven to be technically undesirable and politically unsustainable in the long run.
- d) Except for the USA and until ACA-Obamacare, all federal HICs have grown their unified but pluralistic risk pooling system. This has happened with a **set of single rules for benefits, portability, enrolment, consumer protection, and contribution mechanisms**. It has also been through a combination of public finance and direct household contributions, with an increase in public funding as GDP grows (including general tax funding and mandatory payroll-tax).
- e) Although all large federal countries have a predominant risk pooling model (Beveridge, Bismarck, or variants of them), all their risk pooling systems are pluralistic with defined complementary roles for public and private finance and actors in risk pooling and health service provision.

### IV. Key implications of India's country and legacy health system constraints

Both the key country context constraints and the health system legacy constraints presented in this report have significant implications for India with respect to finding solutions for improving risk pooling and implementation transition design. Some of the key factors for implementing a successful risk pooling system include identifying and defining all the possible forms of public and private funding available for this exercise, evaluating the institutional frameworks to be created as well as enhancing governance and regulatory strength to ensure that policy changes are made. The following are five important factors that guided the risk pooling team in formulating a short-term action plan:

#### **Positive macroeconomic performance but enduring high informality and severe fiscal constraints**

India's fiscal funding of healthcare, around 1.0 per cent of GDP, is among the lowest in LMICs. The combination of environmental factors in India such as sustained positive macroeconomic performance but, high labour informality and a tiny budgetary allocation for healthcare are likely to be the challenges during the next decade. Notwithstanding small variations in trajectory, India's macroeconomic performance is likely to show high growth with controlled moderate inflation. However, fiscal funding is likely to remain at 1.0-1.3 per cent of GDP. Similarly, labour formality and funding from labour taxation (payroll-tax) is likely to continue to be limited and not a substantial source of additional healthcare revenue. The current one per cent of GDP as public financing for healthcare (and public health) will continue to constrain and limit the space for growth in the benefits package for the poor (although there is a commitment to increase this amount to 2.5 per cent of GDP as per the National Health Policy, 2017). Improvements in healthcare services require a sharp focus on targeting two categories that inevitably overlap in India-the highest risk and the poor.

#### **Future growth in risk pooling would come mostly from informal non-poor OOPs**

Any significant growth in risk pooling over the next decade would need to come from pooling existing very high OOPs, especially those from attracting the informal non-poor to contributory risk pooling schemes. Although there is an almost unanimous opinion among international health financing experts that financing a system through fiscal proceeds is the most efficient and equitable way to funding it, waiting for such a substantial additional fiscal space as the only alternative, would mean that India would need to wait for decades until macroeconomic conditions allow for it. Simply put, there is no other funding source other than non-poor OOPs to grow risk pooling in the short and medium term.

The severe fiscal constraints are aggravated by the need to focus scarce available public funds on the drivers of avoidable BoD for the poor, still dominated by non-communicable diseases and MNCH. Thus, the informal non-poor are almost the only source of additional funding for risk pooling growth in the country. Informal non-poor are not wealthy by any measure but, they will increasingly need effective risk pooling mechanisms and improvements in regulation of the already existing predominant pre-payments market.

As mandating participation in contributory schemes is unenforceable (by definition) for the informal sector, attracting them to participate and pool their OOPs will require creating the necessary incentives that would attract them. This would include innovations in revenue collection that would reduce the gap between the perceived benefits of joining vs the required contribution. One of these innovations (mechanism) is the use of risk rated premiums (contributions) that in general actuarially (not individually)

match the contribution to the risk of the consumer. Charging individuals with risk rated premiums is often at odds with mainstream social insurance policies and thinking (for good reason as applied to individuals it can create substantial inequities in the absence of mitigation mechanisms such as explicit subsidies of limits of contributions for those at high risk). However, today it is the predominant mechanism in the existing commercial health insurance market in India. The recommendation is to explore the use of risk rated premiums, based on community ratings for groups of households (e.g. the union members of a factory; the households of a village) rather than for individuals, for revenue collection purposes. To attract informal non-poor participation is not a recommendation that the authors make by choice among many viable options. It is very difficult to implement and, it requires mitigation of potential barriers to coverage for high-risk individuals (the sick). The recommendation emerges unfortunately forced by the very hard fiscal and labour market constraints that India faces in the short and medium-term, becoming the almost only option for the country if it desires to expand risk pooling in the next decade. Implementing group risk rated premiums (community rated premiums for that group) will mitigate the potential risks but, it will make it less attractive for healthy informal non-poor individuals, a trade-off that needs to be managed carefully on a pilot-by-pilot basis.

### **Reducing fragmentation critical but a single national risk pool solution is unfeasible**

Improving risk pooling in India requires a pluralistic system at national and state-levels. A public and private mixed risk pooling system can work under single regulatory and governance rules. Emphasis must be on reducing fragmentation of the risk pool. Yet a single national risk pool organization is unfeasible as it is also unfeasible to have a purely commercial option solution for future risk pooling. Although the legal framework defines states as responsible for healthcare in the country, and most of the 1.0 per cent of GDP of public funding for healthcare comes from states, the entire contributory social health insurance system (ESIS, Railways, and CGHS) is based on national-level operations as is the entire commercial health insurance system, both together almost as big as the total state-level financing. Feasible risk pooling options will need to contemplate a mix of national and state-level risk pooling efforts unless national-level schemes are rolled-out and replaced by state-level schemes or conversely, state-level schemes are rolled-out and replaced solely by national-level schemes, with both being technically and politically infeasible in the short and medium-term. Having a purely state-based risk pooling system may also further fragment the risk pool. It can pose challenges to portability of benefits for a labour force that is constantly migrating. It can also create roadblocks in interstate efficiency as commercial insurance would become strictly state-based and regulated.

The current risk pooling system includes vibrant and growing commercial insurance and large social insurance schemes (e.g. ESIS). So, unless GoI decides to roll-out commercial insurance, feasible risk pooling options will need to include the efficient co-existence of commercial and social insurance type contributory schemes. It will also help diversify the current regulatory and governance risks in both sectors. Therefore, it is inadvisable at this stage to opt for one over the other.

A single risk pooling organization is infeasible<sup>7</sup> in the short and medium-term yet it is critical for reducing the high level of fragmentation that currently exists. Such fragmentation hampers efficiency, equity, and consumer protection. Doing so in the context of a pluralistic risk pooling system requires that options for improving and growing risk pooling in the country functionally (if not organizationally) merge fragmented

## India Health Sector Risk Pooling

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pools at the state-level when merging them is more efficient. This would require a single set of governance, regulatory rules, and financial incentives to make all actors in the risk pool system in the country work in a complementary manner. This will increase portability of benefits, ensure continuity of care, provide equity in consumer protection and minimize market and governance failures. This will be achieved by establishing a single set of rules or a “virtual single pool”—multiple schemes but operating under the same set of rules.

### **ESIS can grow India's risk pooling but performance improvement is urgently needed**

Existing contributory social insurance schemes such as ESIS have substantial potential as a base for growing risk pooling but it will require substantial transformation for improving its performance. This may take three to five years at the least. ESIS is the largest contributory scheme in the country. It has more than 83 million beneficiaries with the potential of covering up to 160 million eligible formal workers. It operates in most states. As such, ESIS has substantial potential as a platform for the future growth of contributory risk pooling in India. However, ESIS's future as a platform depends entirely on its performance in serving its eligible population. The review of ESIS data shows chronic severe deficiencies with respect to access to services during the last decade. This is due to governance and management challenges in reserves build-up and allocation, an ineffective CAPEX strategy, lack of data transparency, and weak social accountability mechanisms. Given its potential, any risk pooling enhancing option for India needs to include a path towards improving ESIS performance in the medium-term. This is necessary not only to realize its potential as a risk pooling growth platform in the future, but also, to minimize any effects and incentives that ESIS low performance may have on decisions by low-income formal workers to choose informality.

### **Growing commercial health insurance, promising but needs improved regulations**

Harnessing the capacity and capabilities of commercial health insurance and related TPAs is a very promising short and medium-term strategy to develop risk pooling in India. Doing it successfully requires the commercial sector to be compatible with the country's long-term health policy. This can be achieved through substantial regulatory and governance framework transformation.

Commercial health insurance is growing at a moderate rate in India; fast but at a much slower pace than expected in a very rapidly growing economy, especially for the top household income decile. A likely explanation for the slower than expected growth is significant signs of market failure and governance challenges in the commercial insurance sector. Much of this may be attributed to a weak regulatory framework for risk pooling. The current regulatory framework focuses firmly upon fiduciary and prudential regulatory aspects under general insurance models but it lacks effective corporate governance and specificity for healthcare regulations. It also focuses exclusively on commercial insurance, leaving outside the regulatory framework other contributory schemes that de-facto competes for household preferences (e.g. ESIS, state contributory schemes) and/or substantially overlaps with commercial insurance markets (e.g. commercial insurers and TPAs operating under the RSBY in the past — PM-JAY in the future).

Despite the complex challenges facing commercial health insurance, there are no feasible options in the short and medium-term that exclude commercial insurance in a pluralistic risk pooling system. Furthermore, given severe fiscal space limitations, very high labour informality for the next decade, and substantial governance challenges in the public and quasi-public risk pooling sector, a healthy and well-

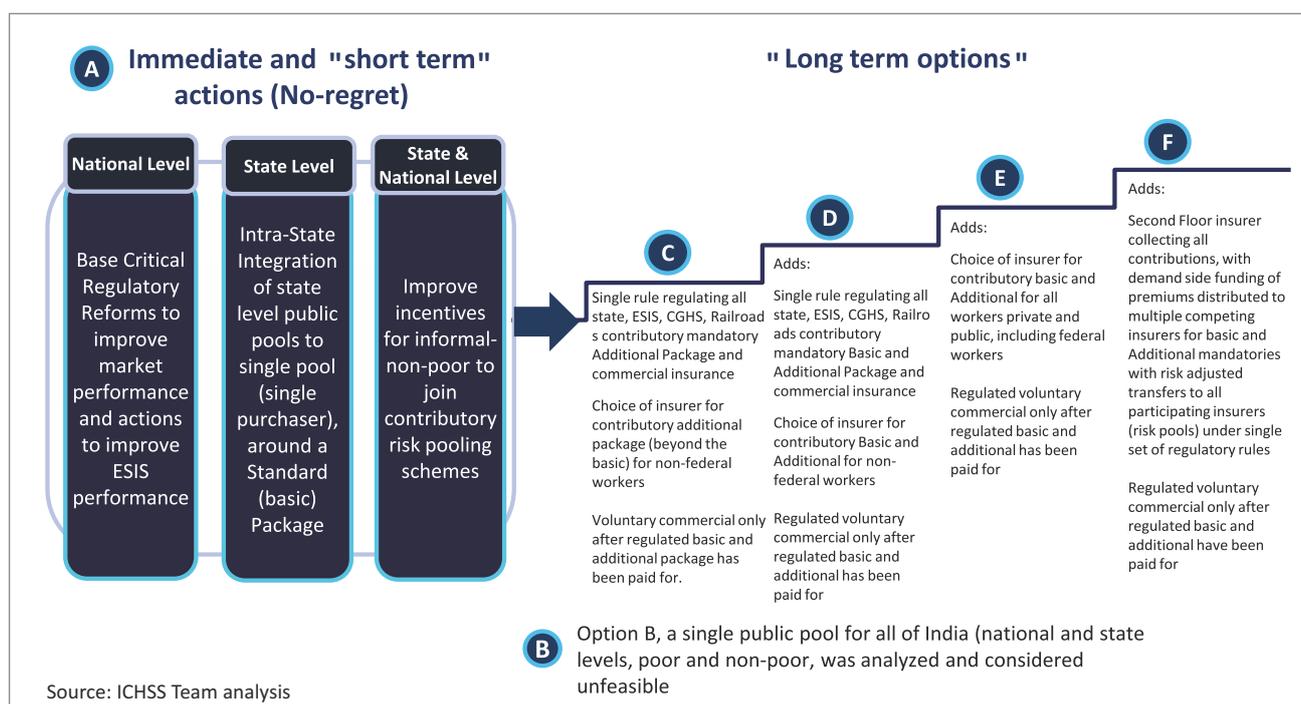
functioning commercial health insurance sector, aligned with public policy objectives for improving risk pooling in the country, is a critical instrument in the short-term for a risk pooling expansion towards the informal non-poor. It is therefore imperative that in order to explore feasible options to improve risk pooling, the regulatory and governance framework of commercial health insurance is tackled on priority. In the short-term it will improve risk pooling as well as address the signs of market failure and governance challenges. Emerging problems in commercial health insurance will likely steer India's insurance market to significant efficiency and equity challenges observed historically in ill-regulated insurance markets, including significant long-term fiscal risks (due to frequent risk selection behaviour in the short-term and risk dumping in the longer term as commercial insurance customer portfolios age).

### d. Risk pooling options for India in the immediate short- and long-term

The size and complexity of the country and its health system, as well as limited fiscal space for implementing structural changes and transformations in the health sector, we call for an incremental reform approach that can render gains in the immediate and short-term, while also preparing the path for long-term system structural improvements. It needs to include long-term options with a transition. This would help avoid locking-in suboptimal reforms during the short-term that may hamper the implementation of a desired long-term vision. In the absence of a long-term realistic vision, countries tend to develop a “patchwork” of initiatives and reforms that often increases system fragmentation. This is a substantial risk for India given its federal nature, size and history of system fragmentation.

For India, a feasible path includes (and requires at this time) a two-step approach to risk pooling improvement: one immediate and short-term, followed by a set of long-term options for the structural transformation of the risk pooling system. The long-term options would require further deep design analysis and, more importantly, a policy dialogue in the country to agree on a preferred path for its future vision. Figure 2.13 summarizes these steps and options.

**Figure 2.13: A two-step option and transition approach to improve risk pooling in India**



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The two steps would include:

### **I. Immediate and short-term step, with four critical components:**

1. Implementing base critical (no-regret) regulatory reforms to harness the power of commercial health insurance in the right public policy direction
2. Governance, managerial and strategy actions to improve ESIS performance
3. Intra-state integration of state-level fragmented risk pools
4. Improve incentives for informal-non-poor participation in contributory risk pooling

### **II. Long-term options to improve and expand risk pooling in India**

#### **I. Immediate and short-term step for improving risk pooling in India**

Irrespective of the long-term options available to India for improving risk pooling within the existing country and health system constraints, India can take immediate no-regret actions to improve the performance of existing risk pools. This may be achieved by the alignment of risk pools with the long-term vision of universal health coverage. Immediate actions include improving commercial insurance markets, improving ESIS performance, integrating fragmented risk pools at the state-level, and improving incentives for the informal non-poor to join contributory schemes. These are not only no-regret reforms but, quite urgent given the current trajectory of the system.

In the short-term, India can harness the power of a vibrant and well-regulated commercial health insurance to propel risk pooling growth. India can also consider comprehensive reforms that would allow a well-regulated commercial health insurance to work in synergy with improved risk pooling at the state and national levels<sup>8</sup>. These steps would harness the power of a well-functioning commercial insurance system in the short-term with a view of facilitating a synergic interaction with public risk pooling schemes in the long-term.

From a labour market perspective, a well-performing ESIS may contribute to labour formalization. Unfortunately, ESIS's current poor performance may already be contributing to incentives for labour informality. It is unlikely that a social health insurance performance is the driver of informality in any country as usually informality is driven by the labour legal framework and regulations, tax policy, employer and business practices as well as governance. At the margin, however, the cost of social insurance does contribute to labour costs, which compounded by the absence of perceived benefits from it, make payroll contributions a simple tax on labour, thereby further pushing employees and employers to avoid it. This indirectly encourages labour market informality.

There are four key immediate and short-term no-regret actions available to GoI:

#### **1. Implementing base critical (no-regret) regulatory reforms to harness the power of commercial and private health insurance**

<sup>8</sup>Examples of national-level health insurance schemes are ESIS and other national contributory and non-contributory schemes such as PM-JAY and NHM.

### *Opportunities and challenges*

Many reforms are required for the commercial health insurance sector. First, commercial insurance is growing with increasing signs of market failure (risk selection, shallow coverage, and other) as well as high administrative costs, low burning ratios and seemingly high non-operational results. If India does not act soon, its risk pooling system will likely be dominated by commercial insurance growth for those who can afford it and persistent high OOPs for those who cannot. This trajectory will likely result in increasing fiscal risks and lack of consumer protection. In this scenario India will accelerate its total expenditures in health but not get optimal returns from its expenditure on healthcare, similar to the USA. Second, the commercial insurance growth, products profile, market penetration and the overall market size is lower than expected for an economy which is otherwise showing rapid growth in its top household income decile. Although a more detailed analysis is required, part of the slower growth may be explained by unfair competition practices from publicly-owned commercial insurance with potential dumping behaviour derived from the use of very large financial reserves. Additionally, the differential use of GST (Goods and Services Tax) for health service provision (which is not subjected to GST) and health insurance products covering the same services (which is subjected to GST) may be setting a significant insurance load that increases the cost of insurance and will reduce demand for risk pooling, at least at the margins. International experience (e.g. USA, Chile, Turkey) shows that it becomes increasingly hard to introduce effective regulation when the commercial insurance can grow and be developed for years under weak regulatory conditions.

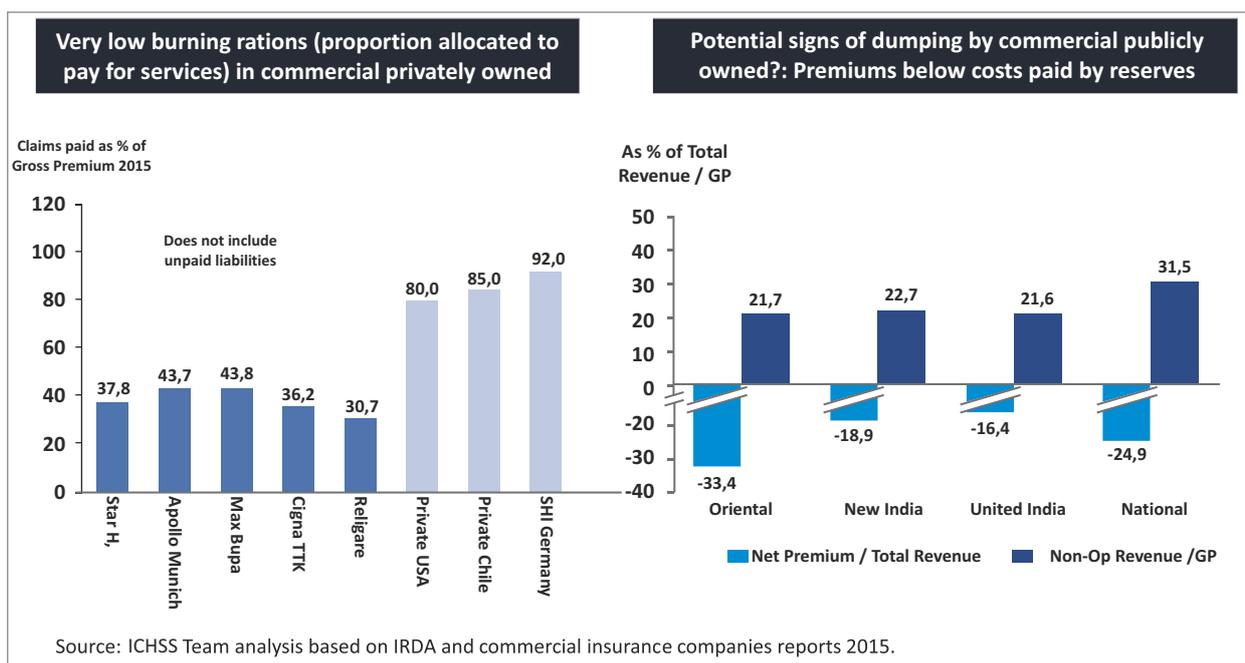
Some of the regulatory and governance challenges also apply to ESIS and, although no information is available, they likely apply to contributory state health insurance as well. Among them:

- Commercial insurance financial indicators: a) High administrative costs; b) high and very high non-operational revenues for commercial privately owned and commercial publicly-owned respectively; c) high financial reserves; d) vertical integration in ownership and purchasing of re-insurance; e) resulting in low taxation driven by apparent low profitability
- All financial indicators in the presence of burning ratios (low beneficiary access), and shallow coverage of most existing products
- Very fragmented and shallow benefits packages, with no-contract/coverage comparability standards; significant underwriting; exclusions; waiting times for benefit eligibility; expense caps; high co-payments; limited (if any) coverage of out-patient expenses including pharmaceuticals and diagnostic procedures; and substantial signs of “consumer blindness” behaviour (focusing on First-Dollar Coverage instead of real insurable events)

In practice current commercial insurance is sold under the general insurance umbrellas. These are more like pre-payment schemes, growing in an unregulated market, rather than true risk pooling or health insurance. Growing pre-payment is good for voluntary coverage of high cost non-insurable events but it needs basic consumer protection and financing health specific regulation.

Figure 2.14 presents some key indicators of commercial insurance suggesting governance and/or regulatory challenges in this insurance market.

Figure 2.14: Signs of governance and regulatory challenges in commercial health insurance



As it is today commercial health insurance is at high risk of risk-dumping in the medium-term from commercial insurance to ESIS and to publicly subsidized care. This is because consumers who are paying for commercial insurance will find out that they have shallow coverage when ageing or faced with unpredictable catastrophic health events. At that time, they will not be able to pay for care, and will fold back to publicly subsidized care when they had been paying for a long time for shallow coverage that could have covered them for insurable events. This is very likely to happen in the current insufficient regulatory environment as commercial insurance customer cohort ages over the next ten years. In countries with ample fiscal space and low poverty rates this may not necessarily be a problem but, in India, this will likely mean crowding out the poor from public subsidies and access to basic healthcare, already a challenge in the country's health system.

Although commercial insurance, social insurance (ESIS) and state contributory insurance operate in the same market or household options, they do not share the same regulatory framework, reducing consumer protection as households move across different labour statuses or geographies and introduces potential market distortions. IRDA (Insurance Regulatory and Development Authority) in fact only regulates contributory commercial insurance with ESIS and state contributory schemes are not being regulated by any other independent regulator.

In addition to regulatory challenges, there are signs of complex governance challenges in the risk pooling system. GoI, mostly through the Ministry of Finance, participates or owns as principal publicly owned commercial insurance and simultaneously participates in the regulator (IRDA) as well as in the governance (and ownership representation) in ESIS. This potentially poses significant challenges in the governance framework of risk pooling in India, which GoI may consider re-examining.

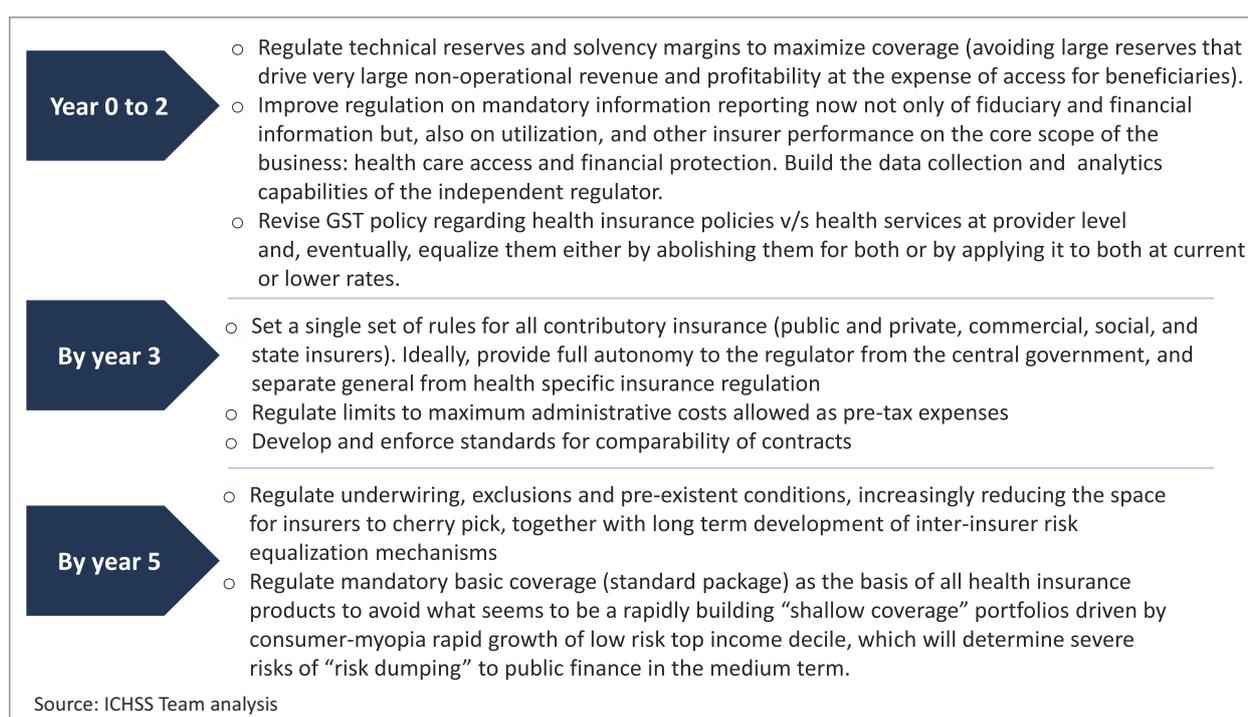
There are also signs of potentially unfair competition in the commercial insurance space where publicly-

owned commercial insurance seems to penetrate markets below cost and mitigate the impact on their P&L through the very large non-operational revenue. This is derived from exceedingly large financial reserves from their general insurance historical practices. This could well be interpreted as dumping practices in the commercial insurance market, which may distort future health market growth and competition. This may also in part explain the relatively low development of privately-owned commercial insurance in India as compared to the expectations for a rapidly household income growth economy, especially in the top income deciles.

### *Recommendations*

Improving the trajectory and performance of the commercial health insurance sector to harness its substantial potential and to be a pillar of future risk pooling development in India, requires reforms to its regulatory framework in the short-term. Immediate (0-2 years), short-term (3-5 years) and long-term (beyond 5 years) reforms are recommended. Actions are summarized in Figure 2.15.

**Figure 2.15: Improving the regulatory framework for risk pooling, specific actions for the next 2, 3 and 5 years.**



## 2. Governance, managerial and strategy actions to improve ESIS performance.

### *Opportunities and challenges*

ESIS has shown remarkable beneficiary and revenue growth of about 35 per cent since 2012, mostly driven by increases in the income eligibility criteria for enrolment in ESIS. The scheme has an unusually high financial performance resulting in some of the proportionally largest financial surpluses among public and private insurers in the world, with continuous margins of around 45 per cent and growing. However, while revenues have grown in line with beneficiary growth, expenditures on healthcare are relatively flat and

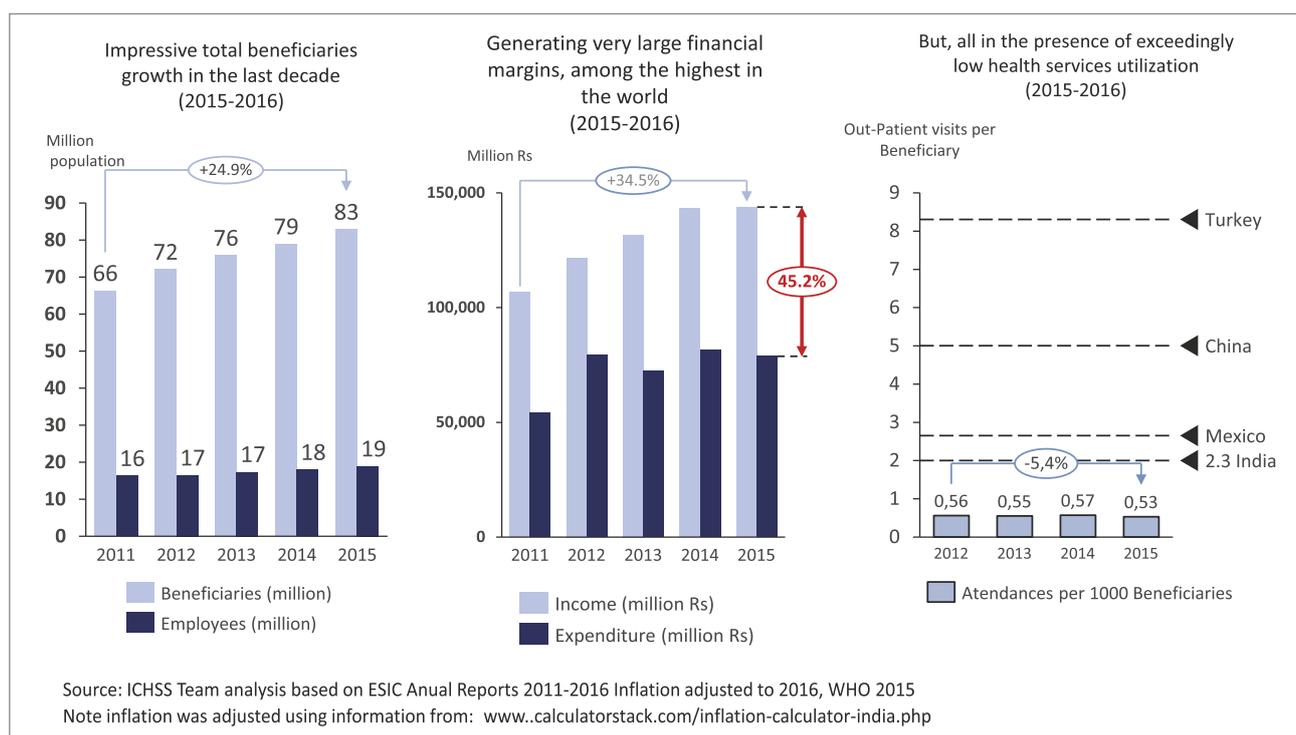
## India Health Sector Risk Pooling

diminishing on a per-beneficiary basis (Figure 7). This mismatch between beneficiary and revenue growth on one side and expenditures and health service supply growth on the other has determined until 2017, a health services access crisis for ESIS beneficiaries, both in terms of in-patient and out-patient care. A crisis that is compounded by a significant supply-side shortage driven by a mismatch between health service supply needs and its CAPEX strategy as well as a reduction (until 2017) of external purchasing of services.

Thus, in the case of ESIS the urgency is self-explanatory. ESIS's low performance has persisted for years with no substantial signs of strategy and operational changes, except recently since 2017. Besides the ethical implications of forcing lower income workers and employers to contribute to a scheme that knowingly is not providing them with the benefits they are entitled to by statute, the low performance of ESIS has risk pooling policy and potentially labour market implications.

From a risk pooling policy perspective, ESIS's chronic low performance questions its potential role as a platform for risk pooling growth in India and deprives policymakers of the largest social insurance scheme in the country as a credible instrument for growing and improving risk pooling. Credibly improving ESIS performance will take time. It is significantly dependent on the evolution of labour formality in the country, but is an essential endeavour given the potential role of ESIS in the future of Universal Health Coverage in India. However, given the complexity of improving ESIS in the short-term, including substantial governance, strategic purchasing, and supply-side strategy changes, Indian policymakers will need to diversify their risk pooling growth strategy in addition to ESIS efforts. Thus, it is of critical importance for improving the regulatory and governance framework for commercial health insurance also.

**Figure 2.16: Critically low performance of ESIS, facing very low access to healthcare for its beneficiaries in the presence of one of the largest growing financial surpluses in social insurance in the world.**



More specifically ESIS faced until recently<sup>10</sup> five inter-related challenges:

- Critical shortage of access to outpatient and inpatient services. Since 2012 and likely before too, ESIS faced a critical challenge with providing access to quality services to its members. It has only marginally been able to respond with some expansion of new service supply. ESIS has stretched existing service supply to critical levels. The challenge is critical for both outpatient dispensary care and hospital bed productivity at concerning levels: average hospital stay is about 1.2 to 1.5 days (remarkably low) and at low levels of outpatient access-0.53 outpatient visits per year. These are low access performance indicators, especially considering that ESIS is a contributory health insurance scheme for workers in the private formal sector.
- The current capital investment strategy is unlikely to help ESIS solve the access challenge in the short and medium-term. ESIS's CAPEX investment strategy until 2016, based mostly on building schools of medicine for training new health personnel, will likely not help address its critical access challenge in the short-term and possibly even in the medium to long-term. The severe shortage of credibly accredited doctors available for ESIS in India may have supported, on the surface, a decision to invest heavily in schools of medicine and HRH training. However, the number of additional internal providers needed by ESIS is quite significant. For instance, 100 per cent more doctors are required to reach an adequate level of dispensary-doctor patient load in the short-term and about 400 per cent additional doctors if ESIS were to aspire to match China's average access. This is compounded by acute demand for doctors from a rapidly growing private sector.
- ESIS's low external strategic purchasing until 2016 deprived it of a critical instrument for a short-term response to the access challenge as well as long-term capacity to set incentives for efficiency and quality in the system. A service supply strategy currently based mostly on its own internal providers contributes to the critical access challenges and limits ESIS's response capacity in the short-term. The current absence of strategic external purchasing at scale also implies that ESIS is likely to face significant lag time to develop the capabilities needed for scaling up purchasing of services in the short-term. Additionally, absence of external strategic purchasing also determines limited capabilities to develop much needed strategic purchasing inside ESIS, particularly in its compact with the states and ESIC hospitals.
- ESIS showed a significant disconnect between its financial and healthcare performance, which makes it advisable for ESIS and its main stakeholders to take stock of its decision-making arrangements. ESIS surplus and reserves are remarkable but, they were not aligned to the overall challenges it faces in terms of access and responsiveness as expected from a traditional social health insurance.
- Scarce and difficult access to readily available, robust, and reliable financial and healthcare data for ESIS substantially reduces policy and management decision opportunities for ESIS and GoI. It also reduces membership oversight and accountability.

### *Recommendations*

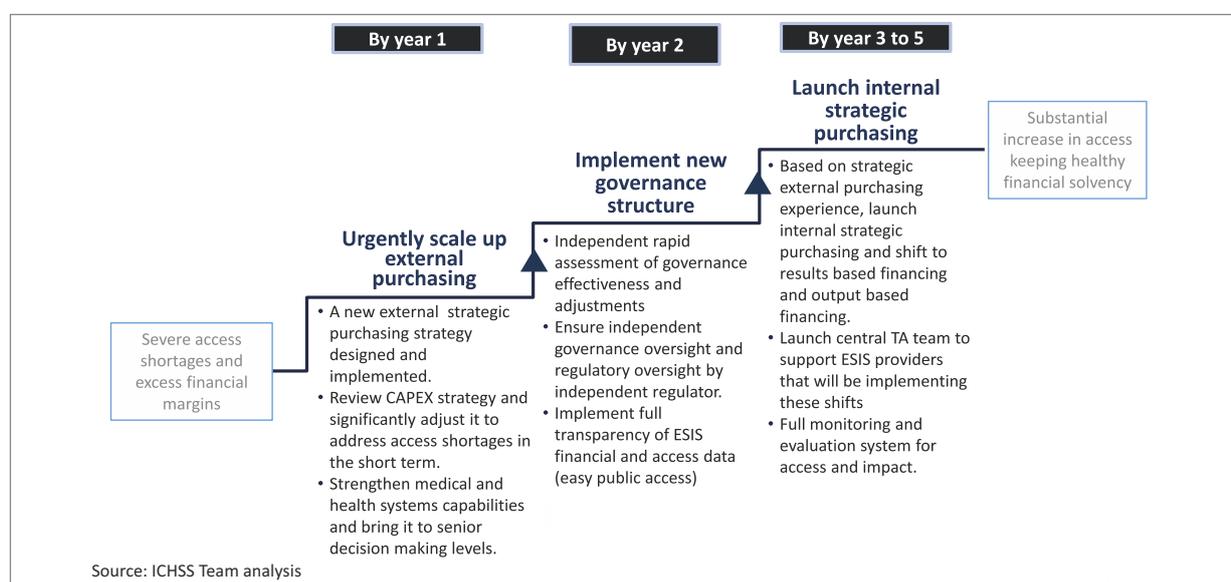
To improve its current health service access and fulfil potential, ESIS needs to rapidly implement significant changes in its operations and governance. To do so, four areas of change have been identified:

<sup>10</sup>ICHSS ESIS analysis of July 2017 used publicly available data as of end-2015. It does not, therefore, reflect recent efforts to improve ESIS performance.

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- a) ESIS needs to urgently and effectively address and solve its current critical access challenges for the beneficiary population. Specifically:
- Rapidly build strategic purchasing capacity, with immediate scale up of external purchasing of healthcare services. Use it as a platform for changing current ESIS own provider payments in the medium and long run.
  - Revise current CAPEX strategy and ensure that there is an effective response to the short-term health service needs
  - Strengthen senior management decision making process with the health system and medical expertise necessary to drive effective and timely responses to beneficiary needs
- b) ESIS stakeholders need to revise its governance and strategy as well as its difficulties in responding rapidly to access challenges.
- Conduct a rapid assessment of governance structures and performance, engaging with ESIS leadership and key stakeholders including employers, employees, GoI and ESIS regulator (if any exists)
  - Revise the composition of ESIS governance, specifically that of its standing committee to assess whether there is sufficient and effective diversity representation
  - Review current external independent policy as well as regulatory oversight and arrangements for ESIS and its recent performance. Adjust them as needed.
  - Assess and revise current reserves investment policies, including those pertaining to liquidity, and returns
- c) ESIS needs to improve the volume and quality of data that is publicly available as well as the robustness and timeliness of data for corporate, population health, and clinical management. This will also help ESIS to strengthen its governance and accountability systems. Figure 2.17 summarizes the sequencing and timing of these actions.

**Figure 2.17: Three steps for improving ESIS performance in the short term.**

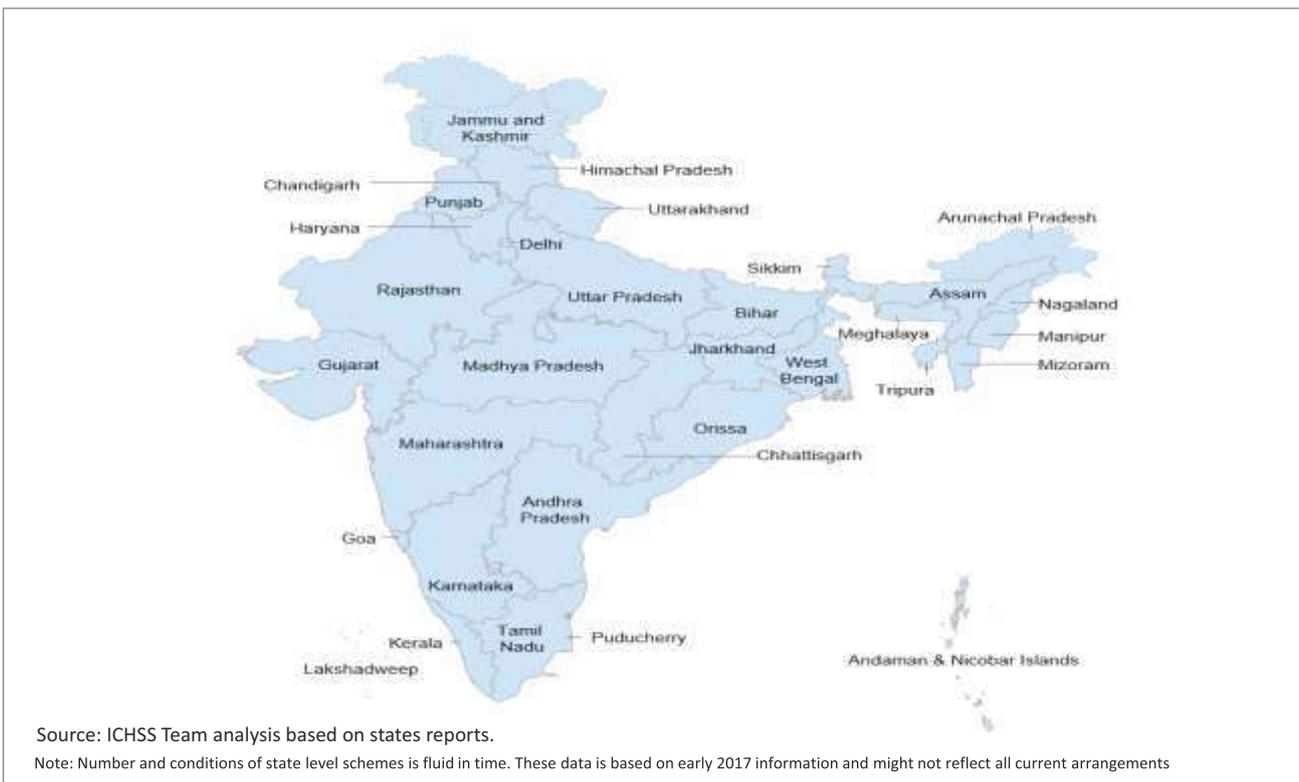


### 3. Intra-state integration of state - level fragmented risk pools

*Opportunities and challenges*

States show a high degree of fragmentation of risk pools and benefits packages today. On average, each state has direct oversight and in most cases funding responsibilities for four different risk pooling schemes including contributory state-level schemes, non-contributory (publicly subsidized) state schemes, as well as national schemes substantially operated by the states — RSBY, PM-JAY, NHM, and ESIS (see Figure 2.18). In some cases, states manage up to eight different schemes such as in Karnataka where they are already developing measures to manage the schemes under a common umbrella arrangement. In any country, multiplicity of schemes with different benefits, funding mechanisms, provider funding arrangements, beneficiary eligibility and other different characteristics, substantially fragments the risk pool. This poses significant challenges to households in terms of continuity of care and portability of benefits. In India, given capacity limitations in certain states, management capacity and scheme performance oversight get spread thin.

**Figure 2.18: State risk pooling is very fragmented: states manage multiple risk pooling schemes, state specific schemes, central government related schemes, and fund and manage the majority of NHM and ESIS programs.**



In the case of state schemes, although clearly it will entail a longer time frame than the commercial risk pooling changes as well as ESIS performance improvement reforms, the urgency of integrating risk pools and improving their performance comes not only from the high degree of current fragmentation but, also, from the future evolution of the risk pooling system in the decades to come. If the Indian economy continues to grow at a fast pace, with commercial insurance in an improved regulatory framework and

## India Health Sector Risk Pooling

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performance level, it will be critical for states to function effectively as an option for contributory risk pooling for the non-poor (who have options in a highly informal labour market) and not be left behind as purely health insurance for the poor schemes. But, even if that is the case, reducing fragmentation is essential for improving the efficiency and equity (progressivity) of fiscal expenditures in health.

### *Recommendations*

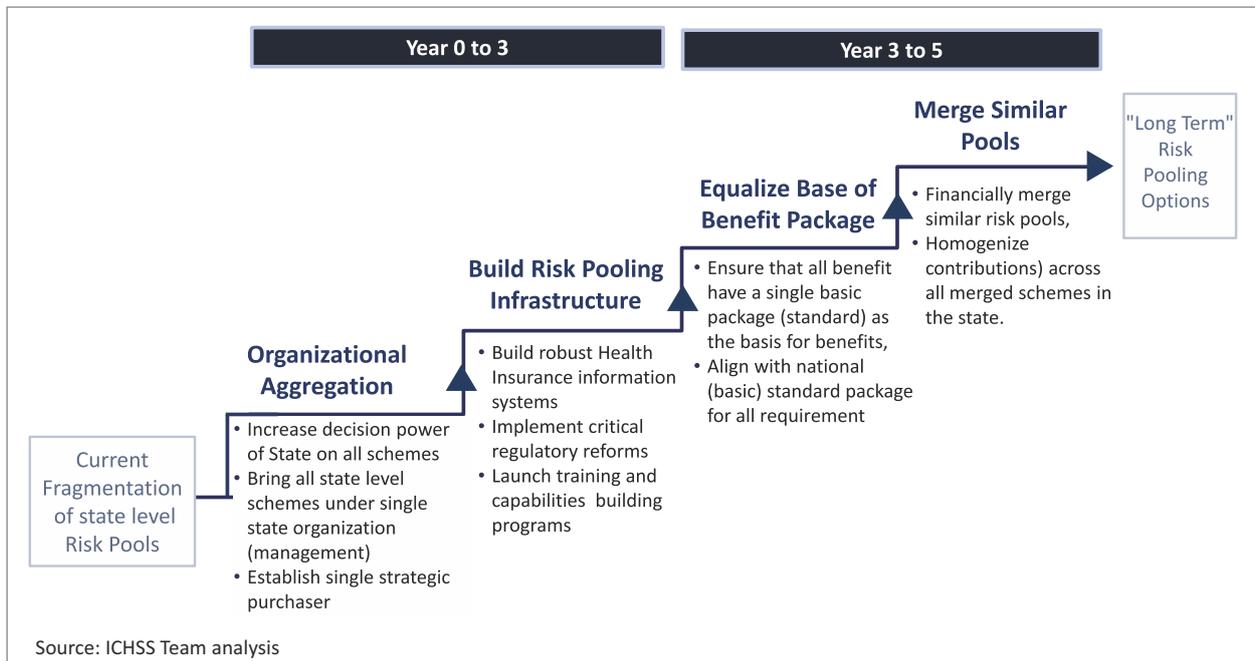
A transition for integrating fragmented risk pools, and benefits packages, is essential at the state-level, building basic support systems, reducing transaction costs and dispersion of scarce state talent and capabilities. Specifically, four action steps are recommended:

- Increase organizational aggregation. a) Increase state-level oversight and increasingly decision-making power of states over all schemes they manage and/or fund substantially. This can be achieved by bringing them initially under a common co-ordination arrangement managed by the state. Increasingly move all of them under single rules, in line with the overall single rules' regulatory transformations in all of India, eventually also including PM-JAY and NHM. No financial merging yet; b) transition to establish single strategic purchasing rules for all of them, eventually having a single strategic purchaser even if pools continue to be separated financially; c) create a national level TA contestable fund as incentive and support for states to integrate their risk pooling schemes, critical to mitigating capability shortages at the state-level in this process.
- Build risk pooling infrastructure. a) Build robust Health Insurance Information Systems (HIIS) including beneficiary identification; enrolment; revenue collection and management; Strategic Purchasing including provider payment mechanisms; b) Implement critical regulatory reforms in line with the overall risk pooling regulatory transformation identified earlier in this report; c) Launch massive training and capability building programmes for the risk pools included in the organizational aggregation step as well as for the large providers being contracted by them.
- Incrementally equalize basic (standard) benefits package. a) Incrementally ensure that all benefits packages of the organizationally aggregated risk pools have the same standard (basic) package as basis of coverage for all populations in the pool, notwithstanding benefits that the state may want to fund as additional coverage from their own funds; b) Align those packages with the (basic) standard package regulation to be introduced for all in India under the above recommended regulatory reforms for risk pooling.
- Finally, merge functionally and financially all similar risk pools previously organizationally aggregated. Incrementally homogenize and equalize contributions (from beneficiaries, state and union, if available) across all merged schemes so that household contributions in contributory schemes are the same for the same package and the subsidized per capita fiscal contributions are also the same for the standard (basic) benefits package.

All of the above steps aim at incrementally merging the risk pools-at the initial stage, a “virtual merge” under single management and rules, and then as an “actual financial merge” at an appropriate time when such a merger would be efficient and equity enhancing.

Figure 2.19 summarizes the sequencing and timing of these actions.

Figure 2.19: A Four steps transition for aggregating risk pooling and packages at state level, building basic support systems, and reducing high transaction cost, and dispersion of the scarce state talent and capabilities



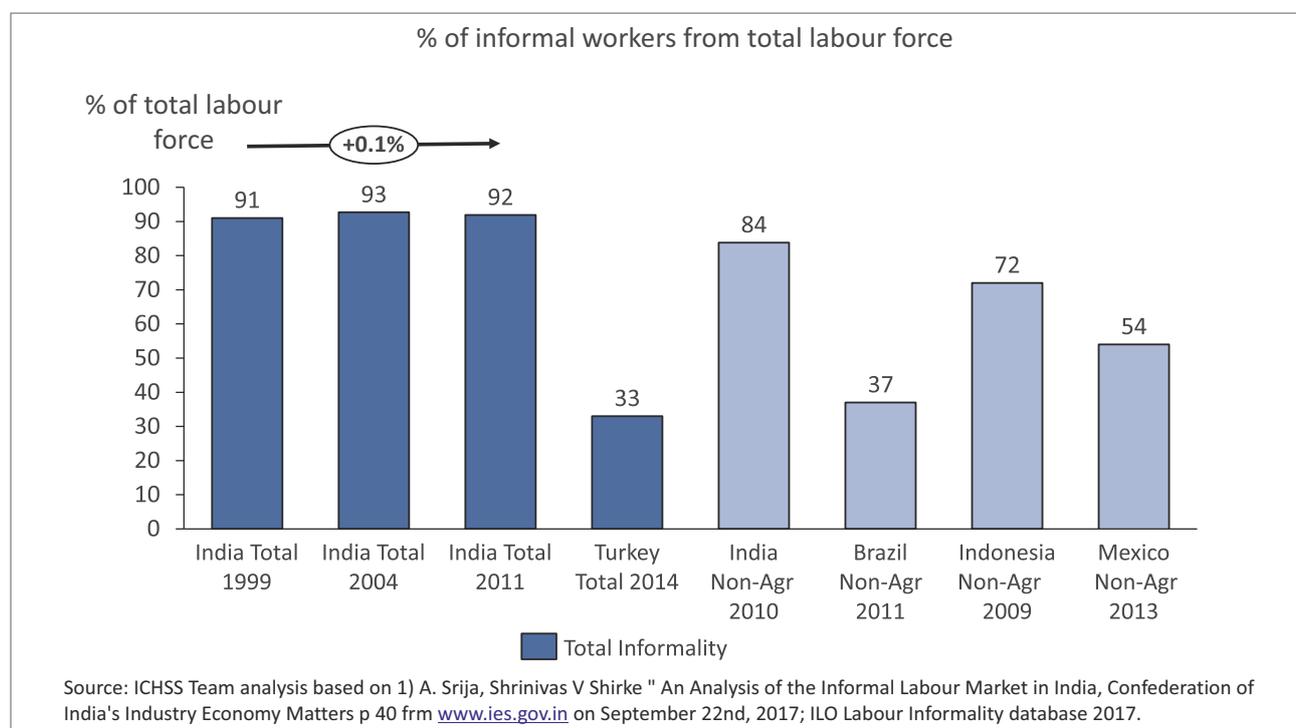
**4. Improve incentives and test options for informal non-poor participation in contributory risk pooling.**

*Opportunities and challenges*

India’s labour informality (as defined by ILO and shown in ILO’s labour statistics of 2017), is among the highest in the world (more than 90 per cent total labour force and more than 84 per cent for non-agricultural labour force). Such a high level of informality poses significant constraints for options for growing and improving risk pooling in the country. First, the use of salary related contributions (e.g. payroll-tax) as a revenue source is very limited by definition. Second, it significantly reduces income tax collection, severely limiting growth of fiscal funded risk pooling. Third, mandatory participation in contributory risk pooling is unenforceable, with informal workers participating only when incentives to do so make it desirable for them to join the schemes (as it is likely happening with pre-payment commercial schemes that existing in the market today). Innovations in revenue collection will be essential for creating the necessary incentives to participate. Fourth, the ease of transitioning out of formality for workers, calls for very careful consideration before introducing increased direct and indirect taxation in general and for healthcare financing.

The very high level of informal labour as well as limited fiscal space in the short and medium-term compounded by the need to increase targeting effectiveness of public subsidies, means that any significant growth in risk pooling for insurable events (and pre-payment for non-insurable large events) will need to come from the informal non-poor in India. As pre-payment is already the predominant form of health insurance in India (which needs regulatory improvements), the challenge is how to channel and facilitate informal non-poor funding (mostly out-of-pocket today) towards contributory risk pooling.

**Figure 2.20: India faces very high and persistent labour informality in both, the agricultural and the non-agricultural sectors, severely limiting the role of mandatory contributory risk pooling solutions**



The inclusion of the informal<sup>11</sup> non-poor in contributory risk pooling health insurance is essentially a problem of emerging market economies with a large proportion of informal labour, which intend to base or already based their risk pooling system on predominant contributory social health insurance models (SHI). Informality decreases as GDP per-capita increases, although not equally for all countries as drivers of informality vary among countries. This is due to differences in labour legislation and regulation, governance, and country tax collection capacity.

In general, although most high-income countries faced the problem of how to include the informal non-poor in contributory health insurance at one point in their development path, they have solved it through economic growth and social development as well as the accompanying labour market formalization process rather than by the implementation of effective informal non-poor specific programmes in the health sector. Although there is an almost unanimous opinion among international health financing experts that financing a system through fiscal proceeds is the most efficient and equitable way to funding it, waiting for such a substantial additional fiscal space as the only alternative, would mean that India would need to wait for decades until macroeconomic conditions allow for it. Simply put, there is no other funding source other than non-poor OOPs to grow risk pooling in the short and medium term.

Most high-income countries, especially those that follow the contributory social health insurance route to

<sup>11</sup>Informal defined as those workers and entrepreneurs without a formal employment relationship and/or for whom authorities (tax, benefits, and other authorities) do not have means of verifying income and/or wealth status, making it impossible to enforce participation or contribution in income tax systems of contributory schemes. Often the condition of being informal reflects more the lack of capacity and systems in the country to identify and link earnings and wealth to those workers rather than an insurmountable structural characteristic of that segment of the labour force. Therefore, for example, self-employed populations and agricultural activities are often included in informality statistics but, as ID and other systems progress, they cease to be part of the informal labour population.

universal health coverage, concentrated their efforts initially on the higher income formal workers. Coverage was increasingly expanded to the whole population as the socio-economic situation improved (e.g. South Korea, Taiwan, Germany). In these cases, the countries implemented beneficence schemes and/or basic population health programmes (with shallow service coverage) for lower income and informal workers as well as the poor until the inclusion of those populations in the contributory SHI system was feasible. Countries with National Health Service systems, fully funded by government fiscal financing, do not face this challenge in the health sector as the issue of informal non-poor is elevated and dealt with at the national level across sectors. This is done through income identification as well as tax collection policies and systems, rather than at the health sector level.

Low and middle-income countries face this challenge today and cannot wait for decades until growth and socio-economic development solves the problem of informality for them. Today's socio-political dynamics are significantly more pressing for democratic governments than they were 60-80 years ago for developed countries. Thus, middle-income countries in general, and those with rapid economic growth, as is the case of India, have less political space and time to solve the problem.

Country experience in including informal non-poor in contributory SHI is complex, demanding, and produces mixed results. It requires strong management and innovation capacity along with substantial legal and regulatory changes in traditional SHI arrangements. None of them have so far been fully successful. The jury is still out on what the most effective arrangements are for including the informal non-poor in contributory health insurance, beyond economic growth and labour formalization.

Growing risk pooling participation is very different in countries which have a large share of formal as compared to informal labour force:

- **Income or salary verification.** While income or salary verification is feasible among the formal labour population through enforceable mandatory business or professional licensing and other forms of mandatory identification, it is infeasible for the informal labour force. This is because, by definition, there are no employment, business licensing, or other formal identification processes for making income or salary data more readily available.
- **Mandatory participation.** Mandatory participation is enforceable through employment site, business or professional licensing or other enforceable mandates for formal workers. Mandating participation for informal labour, however, is unenforceable as they do not have a formal relationship with employment sites or professional licensing. Thus, their participation is in essence voluntary. For this to happen, informal workers need to be of the opinion that the gap between their perceived contribution and perceived benefits from participation is small or even negative (they get more than what they have contributed).
- **Very different effects of bundling health insurance with other contributory schemes such as pension.** Bundling may be positive (specially for higher income formal workers who stay in the formal labour force for long) or neutral, as they are likely to be eligible for long-term benefits of the additional schemes. In contrast, most informal workers have a negative view of bundling health insurance with other long-term benefits, especially when staying for long in the informal labour force (with very long gaps in contributions to pension and other benefits), as they perceive that they

## India Health Sector Risk Pooling

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will not be able to fulfil the minimum requirements for those benefits. For them, mandatory contributions to bundled pension and similar schemes become simply a tax. In some cases this is a very regressive tax as their contributions will see no benefits but will fund benefits for those who are eligible in the formal sector.

- **Contributing mechanisms.** While labour status and workplace contributions such as payroll-tax are feasible for formal workers (as community ratings and risk rated contributions are), workplace related, and salary related contributions are infeasible for informal workers. Payroll-tax and income tax (to fund risk pooling from government general revenues) is infeasible as a source of funding from the informal sector, except for VAT to a certain degree. This is because the capacity to enforce and collect VAT greatly covariates with the capacity to collect income tax from the general population. Informal labour households need to want to contribute, and a specific amount of contribution would be required for participation. That contribution also needs to be perceived as having the smallest possible gap between the perceived benefits and perceived contribution, ideally a negative one (bigger benefits than contribution). The only viable mechanism then is a form of risk-rated premium or contribution, which is the predominant contributory mechanism among commercial health insurance in India today. Community rated contribution (one that charges the average risk of a small group such as an association or village) is a preferred option of risk rating (of groups) as it is operationally feasible. It also mitigates equity concerns of individual risk rated premiums however, depending on the composition of the group, it may increase the benefit-contribution gap and reduce incentives for participation for part of the group.

### *Recommendations*

Success with including the informal non-poor, although with mixed results so far globally, depends entirely on the provision of incentives for them to join. The informal non-poor do have the option to join or not (inherent to their condition as informal) and therefore ultimately it is up to them to decide. Thus, the entire effort needs to be focused on creating positive incentives and removing the disincentives for the informal population to join a contributory scheme. This implies, focusing on closing the perceived gap for informal workers between contributions (direct and indirect costs) and benefits of joining the scheme. Figure 2.21 summarizes the overall set of options for reducing the perceived contribution-benefit gap. Some of them are quite challenging, especially in the political economy of social security policy debates for traditional SHI and, therefore, have been implemented in only a few countries so far, mostly under private or community health insurance schemes.

**Figure 2.21: Key Policy options for incentivizing informal non-poor workers to join contributory health insurance (reducing the contribution-benefit gap)**

Strategy	Instrument	Challenge	Remedy
<ul style="list-style-type: none"> <li>● De-link risk pooling mandate from labor status</li> </ul>	<ul style="list-style-type: none"> <li>- Shift away from payroll-tax towards general taxation (if feasible) or risk rated premiums</li> </ul>	<ul style="list-style-type: none"> <li>- Fiscal sustainability</li> <li>- Equity (in Risk rated Premiums)</li> </ul>	<ul style="list-style-type: none"> <li>- VAT as main fiscal source when enforceable</li> <li>- Targeted public subsidies</li> </ul>
<ul style="list-style-type: none"> <li>● De-Link Health Insurance mandate from Pension</li> </ul>	<ul style="list-style-type: none"> <li>- Allow workers to pay health insurance without bundling it to pension contribution</li> </ul>	<ul style="list-style-type: none"> <li>- Reduction in pension contributions</li> </ul>	<ul style="list-style-type: none"> <li>- Incremental growth of mandatory package</li> <li>- Reform regressive pension requirements</li> </ul>
<ul style="list-style-type: none"> <li>● Mandates Mandate a minimum package rather than a minimum contribution</li> </ul>	<ul style="list-style-type: none"> <li>- Move away from mandating expenditures (e.g. payroll-tax and mandate consumption of a package)</li> </ul>	<ul style="list-style-type: none"> <li>- Equity: those who cannot afford the package</li> <li>- Political economy of package setting</li> </ul>	<ul style="list-style-type: none"> <li>- Incremental growth of mandatory package</li> <li>- Targeted subsidies to poorest workers</li> </ul>
<ul style="list-style-type: none"> <li>● Reduce perceived costs</li> </ul>	<ul style="list-style-type: none"> <li>- Eliminate administrative barriers</li> <li>- Avoid small risk pools</li> <li>- Unbundle health insurance from Pensions</li> <li>- Partially subsidize the premium</li> <li>- Increase efficiency, lower technical costs</li> </ul>	<ul style="list-style-type: none"> <li>- Fiscal sustainability</li> <li>- Political Economy of strategic purchasing</li> </ul>	<ul style="list-style-type: none"> <li>- Incremental growth of mandatory benefit package</li> <li>- Reform regressive pensions benefit requirements</li> </ul>
<ul style="list-style-type: none"> <li>● Increase Perceived Benefits</li> </ul>	<ul style="list-style-type: none"> <li>- Increase access, quality and responsiveness of network providers</li> <li>- Bundle health insurance with desirable benefits such as burial insurance</li> <li>- <b>Add benefits to package only for contributors (e.g. choice of providers)</b></li> </ul>	<ul style="list-style-type: none"> <li>- Fiscal sustainability</li> <li>- Political Economy of strategic purchasing</li> <li>- Risk selection by providers</li> <li>- Political economy of choice in public policy in health</li> </ul>	<ul style="list-style-type: none"> <li>- Incremental growth of mandatory benefit package</li> <li>- Well planned transition in strategic purchasing</li> </ul>

Source: ICHSS Team analysis adapted from C. Baeza & T. Packard, 2006

Two specific actions are recommended for improving incentives for informal non-poor to join contributory schemes in India:

- a) Pilot an informal non-poor contributory scheme in ESIS, and further improve those existing in selected states (within the next 3 years).
- **Including key services in the standard benefits package.** In line with the development and launching of the basic (standard) benefits package discussed under the regulatory section of this report, include health services that are desirable by the informal-non-poor population. For this, a much deeper understanding of the drivers of behaviour of the informal non-poor population towards health service and insurance demand is essential.
  - **Create additional non-health services benefits in addition to the standard benefits package.** Create an additional package for those who contribute comprising a choice of private providers, upgraded hospital rooms etc. Such options do not affect the technical quality of healthcare but do affect its perceived quality. A differential benefits package between contributing and non-contributing (one that adds additional non-health services benefits) has proven to be critical for incentivizing the informal non-poor to join contributory schemes. Why would an informal non-poor choose to contribute if they can get the same benefits package for free if they continue to declare themselves as poor?
  - **Charge the informal non-poor on the basis of actuarial risk with risk rated premiums, ideally as small groups rather than individuals** either as household premiums (more complex but

smaller benefit-contribution gap) or community rated premiums (average actuarial risk premium for a community or small group (less complex but, likely to increase the perceived benefit-contribution gap for some members of the group, reducing incentives to join and contribute). As much as feasible, in light of fiscal constraints and the need to target fiscal subsidies to the poor, price the risk-rated/community-rated premium below the actuarial cost, creating a negative benefit-contribution gap. Any contribution from the informal non-poor is an improvement from the current situation as they are presently getting the services for free in the public sector or at very high OOPs in the private sector.

- **Provide technical support and an effective regulatory framework for commercial insurers and public and private providers for them to develop products that include better coverage of out-patient care, which seems to be the main driver of high OOPs and demand for health services.**
- b) Improve existing commercial pre-payment and risk pooling to boost demand from the informal-non-poor.
- **Unbundle health insurance from other contributions.** Remove any additional obligation for pensions or other “benefits” and let health insurance stand alone. This will help reduce de-facto (often regressive) taxation of health insurance for the informal non-poor.
  - **Accelerate commercial insurance regulatory changes that would boost consumer trust.** Current low burning ratios and accumulation of large reserves or administrative costs in the context of low utilization rates are noticeable by consumers even if all the details are not available. The identified commercial insurance regulatory actions included in this report will go a long way in improving consumer protection as well as data and performance transparency. This will contribute towards improving trust and eventually increasing demand at the margin.
  - **Potentially revise the differential application of GST to health services at the provider level vs. commercial insurance products (benefits packages).** GST seems to be currently applied in a differential manner to health services provided by commercial providers as compared to benefits packages covering the same services sold by commercial insurers. Services provided by commercial health service providers are exempt from GST while commercial insurer products with the same services are taxed with GST. This creates a price increase at entry for insurance products as compared to purchasing the same services directly by households as OOPs (a much more inefficient and often inequitable form of paying for health services). Taxing commercial insurance products with GST creates a high insurance load even before the traditional administrative load is added to the premium calculation. If that load is not added to health services provided by commercial providers and, given that most commercial insurance products in India today behave more as pre-payment products rather than risk pooling insurance products, there might be a substantial incentive for households not to purchase commercial insurance coverage. It is important to study whether this is in fact true and reassess the differential application of GST between insurers and providers. This will help decide whether to exempt both or apply GST to both at current or lower rates.

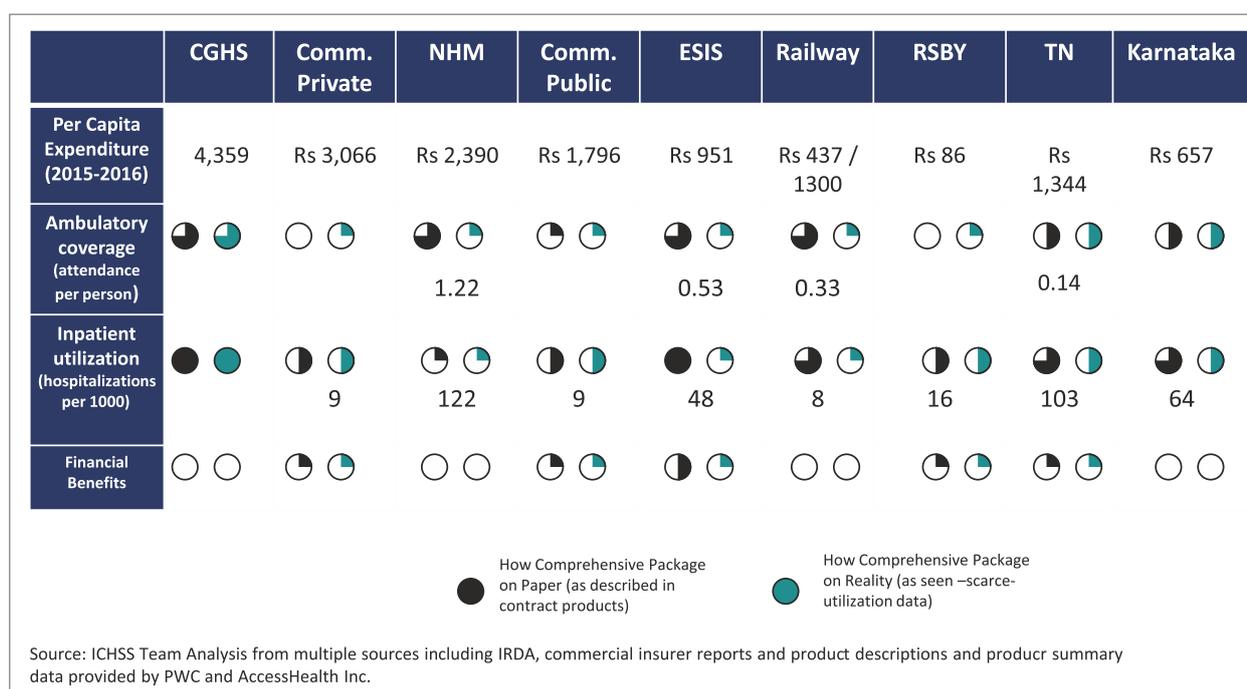
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II. Policy and Risk Pooling Architecture Options for India in the Long-Term

Efficiency and equity importance of a Standard (basic) Mandatory Benefit Package

India has a fragmented and low level of risk pooling which feeds into highly fragmented and shallow benefits packages. This benefits package fragmentation occurs in voluntary commercial health insurance (which traditionally provides a diverse set of health insurance products) and in publicly-subsidized schemes, giving rise to public-funded inequity in coverage (see figure 2.22).

Figure 2.22: India has highly variable and fragmented benefit packages, without an agreed basic package serving as a floor of coverage for publicly subsidized or for commercial insurance



In a complex federal country such as India, it is likely that fiscal space and wealth differences among states (provinces, regions or districts) allow some states to provide better publicly funded coverage than other. In that context, there are often significant differences in per-capita public funding for healthcare among states. India is not an exception. There is a 400 per cent difference between the lowest public expending state (Uttar Pradesh) and the highest public expending state (Kerala), with Uttar Pradesh spending more in terms of state GDP (1.2 per cent) than Kerala (0.98 per cent).

Most large federal countries face these differences across states and, in most of them there is agreement that the federal level needs to play an active role in reducing inter-state inequality by targeting the poor in the poorest states with higher funding contributions for healthcare through conditional or unconditional fiscal transfers. Key examples of such equalization roles include Canada (federal differential conditional health grants to the provinces); Brazil (with differential allocation formulas to states, although facing substantial technical challenges); USA (with Medicaid transfers, increased under the ACA-Obamacare reforms); Germany (with federal conditional subsidy grants), and Mexico (with poverty targeted per-capita allocations to states under Seguro Popular).

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Differences among states in India does pose the question of what role the central government wants to play in inter-state equalization of healthcare for the poor. In fact, the central government already plays a modest equalization role through the newly announced PM-JAY scheme and through NHM, both being enhanced by the government as a sign of higher priority for healthcare. However, the relative weight of these schemes is small vis-a-vis the very large differences among states and, despite their popularity and equity objectives there is still a need to fully comprehend how effective these schemes have been in the past and what needs to be done to improve their performance, if anything.

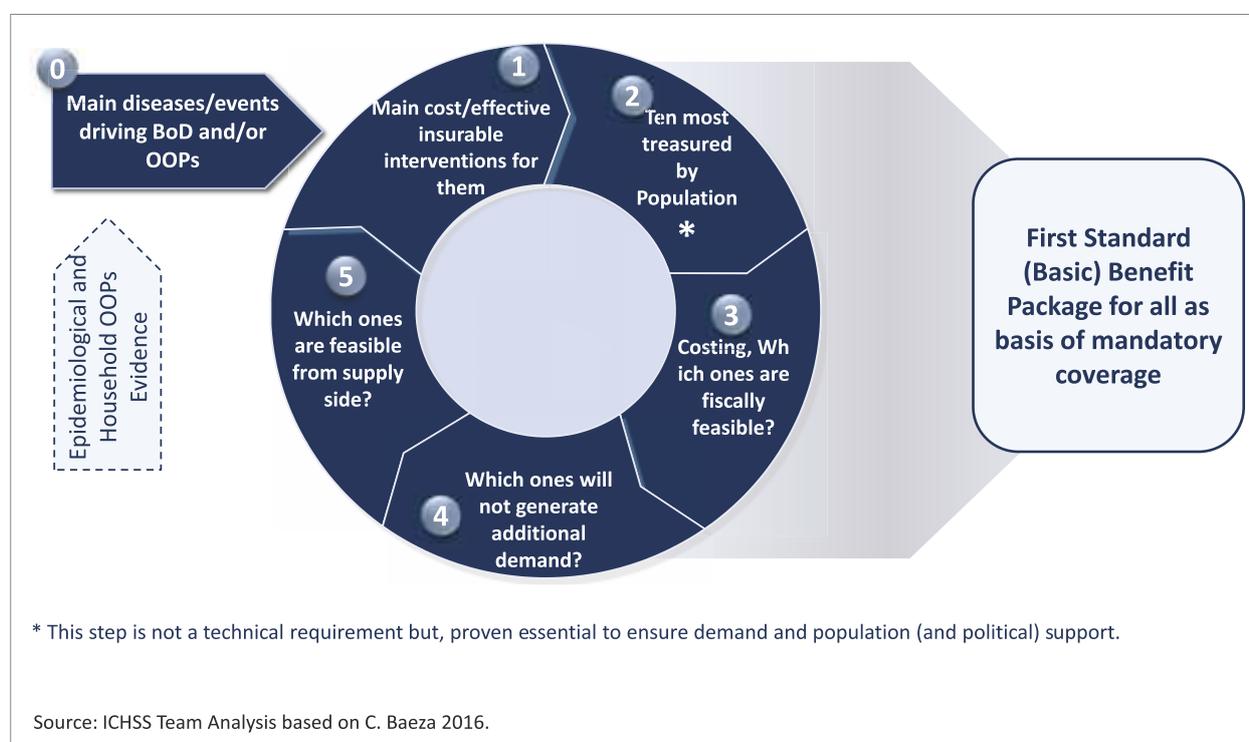
If the central government continues to play its current equalization role and more so if it decides to scale it up, it is very difficult to do so in the absence of a standard benefits package, which would set the minimum level of services that India wants all members of society to have and can afford. Both the benefits package set by PM-JAY on the demand-side, as well as, the less explicit benefits package set by NHM on the supply-side are in fact preliminary versions of a potential standardized benefits package. However, it is unclear how these packages are planned to be used for equalization purposes across states. This would likely require actuarial-cost-based poverty-targeted differential transfers for the equalization role to be fully played, and a likely substantial scale-up to have a significant effect. This policy dialogue is usually a difficult one and it is still at a preliminary stage in the country. GoI may want to further explore it as part of key conditions for future risk pooling options (identified below), as in the absence of such standardized reference and gap identification, it is impossible to judge where the gaps that the central government equalization role needs to target are.

Such a standard package can also play a substantial role in guiding the future development of commercial health insurance, ensuring consumption of essential insurable events under risk pooling commercial arrangements rather than current in-patient-only coverage, mitigating the traditional consumer blindness tendencies from households and the shallow coverage of unregulated insurance. The absence of minimum benefits mandates in commercial insurance is making consumers believe they have insurable-events coverage when actually they have some pre-payment coverage. These consumers, when faced with an unexpected high-cost health shock in the future, are likely to drop to publicly funded care (when India is a richer country), with substantial risk dumping to the public sector and fiscal risk. This, when they could have afforded coverage by a more insurable event benefits package. Therefore, the standard minimum coverage is also essential for the healthy development of commercial insurance. Most OECD countries do have a mandatory reference coverage set of benefits. This has been at the centre of the policy debate in the context of the ACA-Obamacare reform in the US during the recent years.

Transitioning to a mandatory standard (basic reference) benefits package is necessary but complex technically, financially, and politically. The initial steps in setting up the package are critical to mitigating those risks. Figure 2.23 summarizes the key steps used in prioritizing services to be included in the initial packages under fiscal constraints as done in several emerging market economies that have introduced them (or are in the process of doing so) including Colombia, Chile, Mexico, Saudi Arabia, among others. Higher income countries do not usually go through this process as their packages are already very comprehensive and the fiscal space is not as limited. However, modifications of existing entitlements do go through a comparable process (e.g. changes in the Medicare benefits in the US). Introducing the initial version of a standard package needs to examine the health and financial protection impact of initial services, people

preferences, costs, supply-side and operational feasibility, among others.

**Figure 2.23: What should be included in the first standard (basic) benefit package?: Need for a systematic and periodic multi-step approach to prioritization**



## 1. Risk pooling architecture: For long-term design options for India.

Long-term options for improving risk pooling in India require a complex transition and careful attention to key principles resulting from, or shaped by, the country and health system constraints discussed above. Ignoring the realities of these constraints will greatly jeopardize the technical, fiscal, and political feasibility of future options in risk pooling. Options also need to be credible steps for improving (actual or virtual) the integration of a currently fragmented risk pooling system as well as to provide credible improvements to the people of India. The aim is to overcome, in time, the challenges in system fragmentation, portability of benefits, continuity of care, lack of financial protection, consumer protection, and governance.

### Principles guiding risk pooling options for India

Key principles for guiding feasible long-term options were identified, taking into account India's country context and likely health system constraints over the next decade, as well as the country's revealed preferences resulting in the current system equilibrium. The principles are as follow:

- a) Although not explicitly stated as a country policy, it is assumed that India wants to achieve comprehensive and equitable risk pooling to enable access to timely, affordable, essential health services for all—Universal Health Coverage. No doubt it will be decades before India can achieve universal and comprehensive coverage for all, but for policy and political reasons it is critical that reforms serve (and are communicated to serve) this long-term objective.
- b) Although a focus on immediate action is essential, it is also critical to have a vision about the desired

## India Health Sector Risk Pooling

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- risk pooling system as a check point for transition milestones and to avoid locking-in transition designs that would make the vision infeasible.
- c) Options need to realistically address existing country and health system legacy constraints. Ignoring constraints and focusing on desirable but infeasible options is a major obstacle for country health system reforms.
  - d) India needs to design its own journey to ensure continuity and resilience in policy and vision. International experience is useful regarding specific design components and system functions, but no country overall reform is applicable to India given its size, complexity, as well as the current and likely future macroeconomic and socioeconomic situation. India's uniqueness will require unique innovations.
  - e) Transition steps need to move the system towards increasing integration and achieving a credible and better experience for patients and consumers.
  - f) Given the limited fiscal space, informality, and poverty, transitions will require initial differential approaches to the poor, the informal non-poor, and the formal non-poor. No single transition design will be able to respond with only one instrument for all these populations.
  - g) Given fiscal space limitations (to stay for the next decade), high OOPs and very high labour informality, most risk pooling and health insurance growth needs to come from bringing informal-non-poor to contributory risk pooling schemes.
  - h) The benefits package will need to constitute a central element of the risk pooling architecture transition likely needing differential packages for different populations, with a basic one as the basis for all packages. Additional benefits may be introduced to incentivize contributory participation.
  - i) Similarly, limited fiscal space and high informality will require innovations in contributory mechanisms, some of them potentially controversial in the traditional social insurance policy space. These innovations are not by choice in India, but they are a reality of certain country context constraints. Innovations in contribution mechanisms may create inequalities that need to be effectively addressed from inside the health sector but, more likely from outside national equity and poverty alleviation policies.
  - j) No matter how innovative and creative a risk pooling architecture design India can create, no good risk pooling architecture will work under a deficient governance and regulation context. It is essential to tackle governance and regulatory challenges and design options accordingly.

### Long-term risk pooling options

Based on country objectives and health system legacy constraints as well as derived options principles, four long-term options for risk pooling architecture were identified for a time frame of 10-15 years. A longer time frame for risk pooling trends in India becomes unpredictable given its current starting point. They have certain common characteristics as summarized in figure 2.24.

**Figure 2.24: Five core characteristics common to four possible long-term risk pooling options for India**

- a** All options are pluralistic risk pooling architectures: Multiple risk pools converging to single functional rules. The single risk pool (public monopoly) for entire India option was analyzed and deemed unfeasible within the 10 to 15 years timeframe (and possibly undesirable given the size, federal nature and diversity of India)
  - b** All options have risk pooling schemes co-existing at state and national levels
  - c** In all of them, there are Public and Private (commercial and non-profit) risk pooling arrangements co-existing in the system, with differences in their roles for each of the six options
  - d** All options have differential benefit packages (regulated for minimal quality and content) – until a desired single comprehensive package for all can be achieved
  - e** In all options, public funding (subsidies) are mainly to follow the poor (more effectively than the BPL mechanism currently in place), with the exception of some level of subsidization to informal-non-poor to increase incentives to participate in contributory risk pooling
- Source ICHSS Team Analysis

**Option A** already presented in this report, aggregates all immediate and urgent actions and is seen not as an option but as a group of no-regret actions that are necessary conditions for moving to the preferred long-term option.

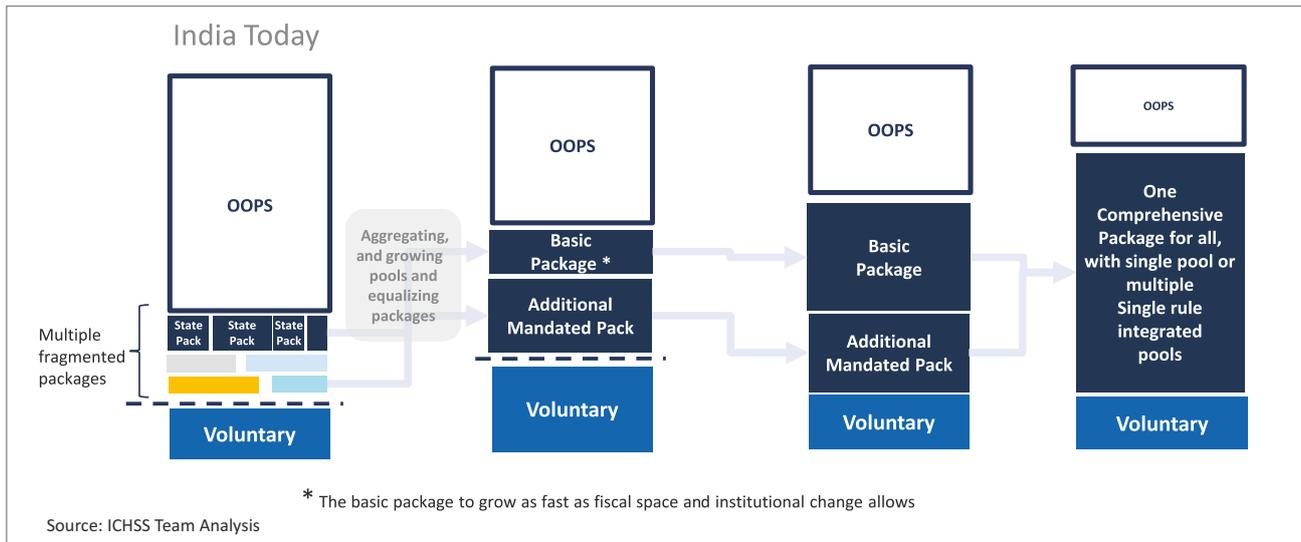
**Option B** was identified and analysed as a possible single risk pool scheme for the entire country (single payer), which would de-facto replace all existing national and state-level schemes. This option was deemed infeasible within the 10-15 years’ timeframe of this analysis and, possibly undesirable given the population of India, its marked federal nature, diversity, as well as the implications on hard country constraints such as fiscal space and federalism. However, option F, a national “second floor” insurer that would collect all contributions and distribute them to multiple national and state-level competing risk pools based on risk-adjusted capitations is a complex form of a single pool system (extremely demanding operationally and regulatory). More is described in the corresponding F option section below.

There are many possible entry points to describing the four identified options. The options are described using the benefits package (s) as its central defining characteristic and choice (of scheme or providers) as a secondary element. The need to introduce a standard basic package was discussed earlier as critical for better formulating an equalization mechanism across states, ensuring better targeting for the poor and, as a key component, to directing future growth of commercial health insurance while also mitigating some of its traditional shortfalls. Beyond the standard package, an additional package is identified as a key component of supplementary benefits for contributing members and is critical for increasing incentives for the informal non-poor to contribute. It is a pragmatic solution to the fact that the standard package is likely to be initially relatively shallow given fiscal constraints and the cost of labour constraints. The additional

# India Health Sector Risk Pooling

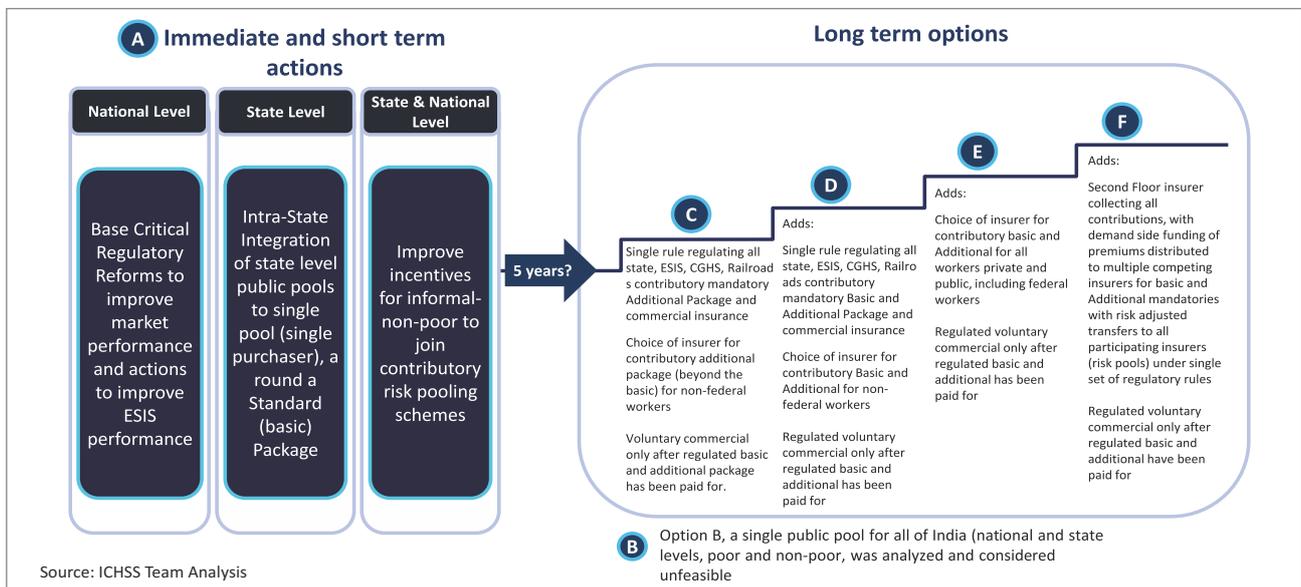
package would ideally also be mandatory for contributory members and would diminish in the long-term as the standard package grows with possible improvements in India’s fiscal space and macroeconomic conditions.

**Figure 2.25: Convergence towards less fragmented and more comprehensive standard (basic) package is essential but, given India’s fiscal constraints it needs to grow incrementally, beginning with aggregation of pools and equalization of basic benefits**



On top of the standard and additional mandatory packages, access to voluntary additional benefits (non-mandatory) can also be offered. In most options, access to voluntary benefits would be allowed only after contributory members have been covered by the standard and additional mandatory packages. This feature is important as an incentive for participation of informal non-poor in contributory risk pooling of insurable events. Figure 2.26 schematizes the long-term options, to be seen as a continuum, that increases functional integration and choice for participants, especially contributors to the system.

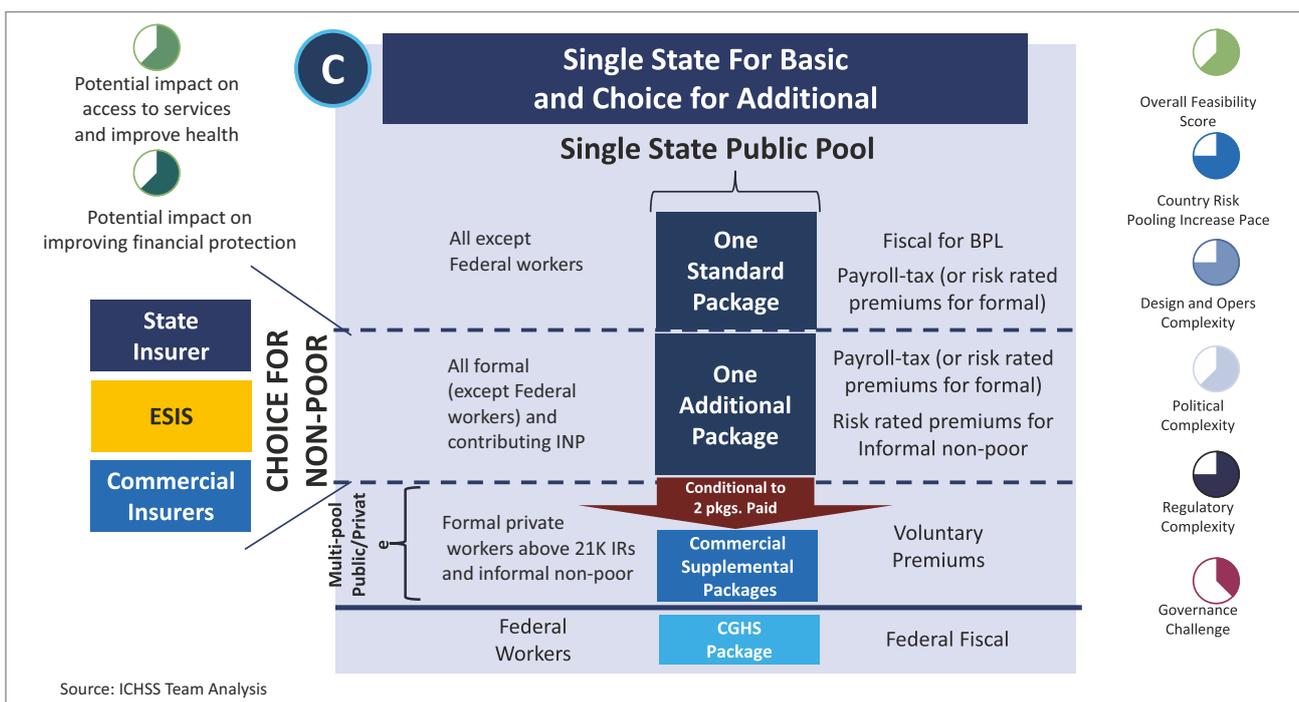
**Figure 2.26: Selecting from at least four long-term risk pooling options to follow the implementation of critical no-regret reforms**



**Option C** schematized in Figure 27, includes a national standard (basic) mandatory regulated package as well as a mandatory additional contributory package. The standard package would be mandatory for all at the state-level. Paying for it will be a requirement for accessing the more attractive additional package. An additional incentive will be provided with respect to choice of the insurer for the additional package among the corresponding state-level scheme, ESIS or commercial insurers for all formal and informal contributory workers. Exceptions to this will be CGHS and Railways who will not have a choice and will remain with their current benefits packages. Commercial insurers would also provide voluntary insurance (in addition to be among those who can be chosen for the additional package), requiring careful regulation for the standard and additional package interaction.

In option C there would be one public pool per state for the standard mandatory package, folding PM-JAY funding, and as much as feasible, NHM funding, into the state pool. There would be a choice of insurer for the additional package for all formal workers (except federal workers) and for the contributing informal-non-poor. This choice would be conditional on proof of payment of Standard Mandatory Package to the state. This option retains all other existing national schemes but, the schemes would now compete for the preferences of contributing members for the additional package. This would include competition among the state pool, ESIS and commercial insurance now participating as a regulated member of the overall Indian risk pooling mandatory system. CGHS and Railways would remain as they are today. Commercial insurance would also be able to provide supplemental voluntary insurance conditional on proof of payment of the standard package to the state and additional package to the competing pools. This will substantially contribute to integration as compared to the current situation as it creates a single virtual (pluralistic) pool operating under single rules, except for federal schemes. It will also provide additional incentives for informal non-poor self-identification for an attractive additional package and choice of insurer.

**Figure 2.27: Single state for basic package for the poor and choice of insurer for basic and additional for contributing non-poor Option C**



Source: ICHSS Team Analysis

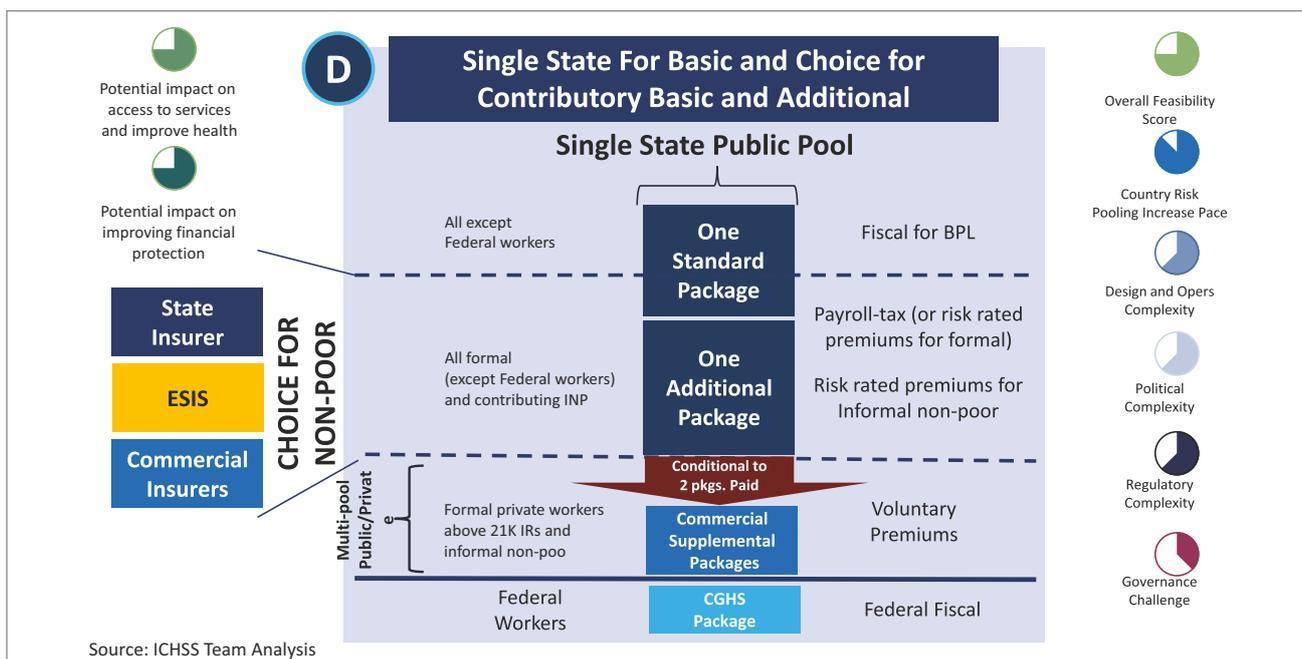
## India Health Sector Risk Pooling

Revenue collection would be achieved through multiple contributing arrangements. Existing and additional expansion of fiscal space would be used to fund and grow in the future the standard package provided by the single state pool for the poor. This would imply incrementally shifting NHM current supply-side funding to demand-side (money to follow the patient) funding to be used by the state pool strategic pooling function to purchase the standard package services for the poor. Payroll-tax would be used in this option for all formal workers to contribute to the state pool for the standard package, however, they would have the choice of insurer for the additional package. Group risk rated premiums would be used for the informal non-poor (who identify themselves as such to access an attractive additional package, paying for the standard package to the state pool and having a choice of insurer for the additional package). CGHS and Railways fiscal funding would continue, despite it being arguably regressive. This option's revenue collection has strong incentives for the informal non-poor to contribute, if the additional package and choice of insurer is designed with their preferences in mind (and as the voluntary supplemental door is closed unless they prove payment to the state pool).

**Option D** schematized in figure 2.28, is very similar to option C with the following changes:

- Contributory participants (formal and informal) would now have the choice of insurer for both standard and additional packages together (rather than only for the additional as the standard remains at state pool level in option C).
- This makes for more efficient management of continuity of care by purchasers in these schemes and, reduces some of the demanding challenges of pluralistic pool competition as compared to option C where the standard and the additional package would be split, making it much more complex regulatorily, operationally, and from a delivery perspective.
- It keeps all existing risk pooling actors in the system but, their future depends exclusively now on their performance for beneficiaries.

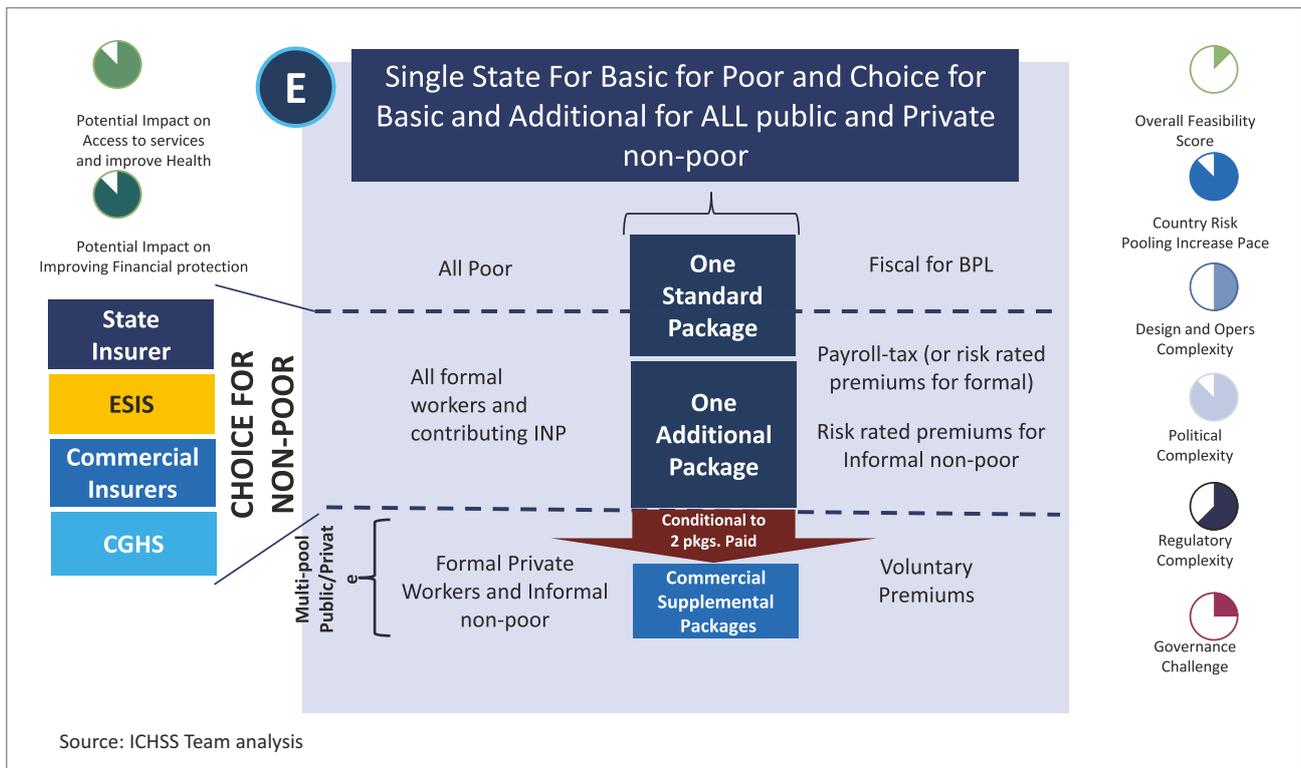
**Figure 2.28: Single state for basic package for the for poor and choice of insurer for basic and additional for contributing non-poor, Option D**



Option E schematized in figure 29, is very similar to option D with the additional features that:

- There would be choice for both standard and additional packages for all contributing workers, informal-non-poor and for all formal workers without exception, including federal workers who were excluded from choosing an insurer in option D.
- Central Government workers’ schemes (CGHS and Railways) are no longer excluded from choosing their insurer from ESIS, commercial insurers, and state schemes. CGHI and Railways schemes would no longer exist.

Figure 2.29: Single state for basic for poor and choice for basic and additional for ALL public and private non-poor, Option E

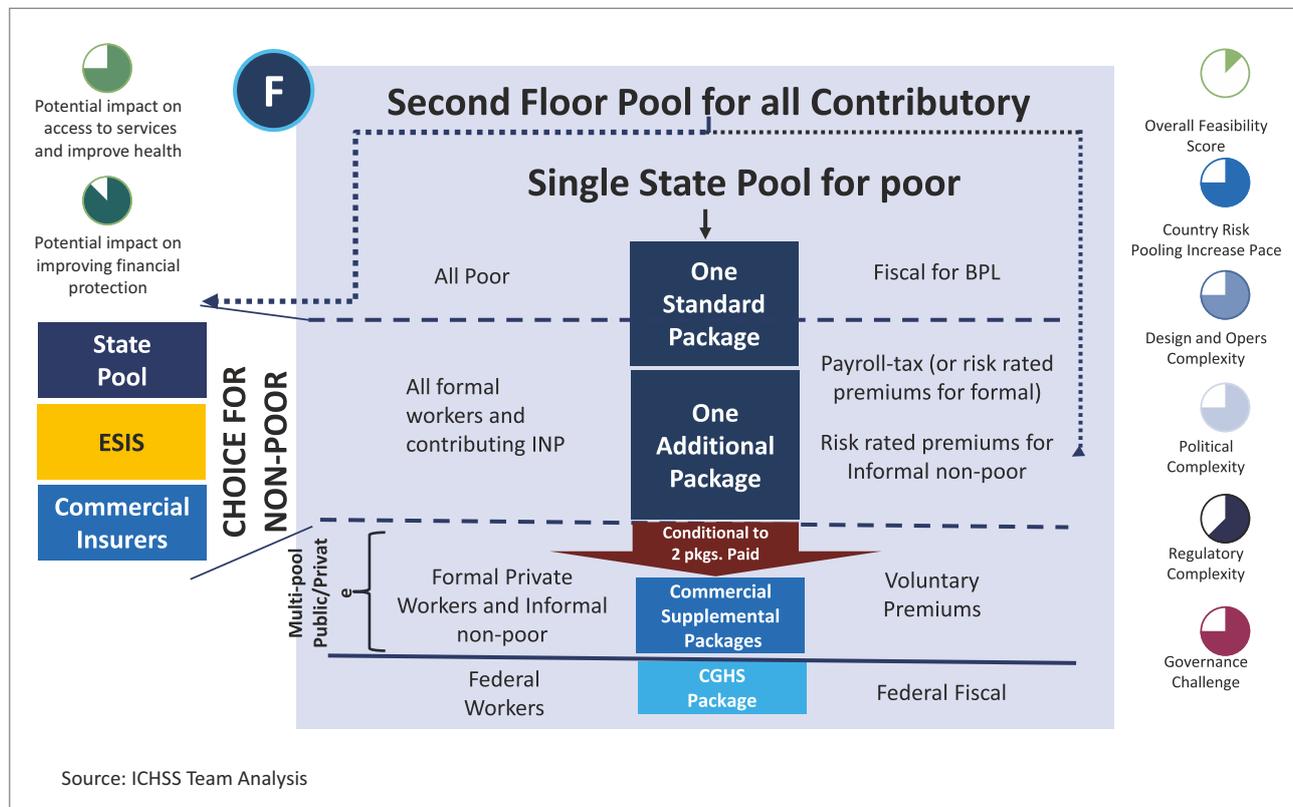


Option F schematized in figure 30, is very similar to option D with the additional features:

- There would be a “second floor” insurer, a national fund collecting all contributions from formal workers and transferring capitations on a risk-adjusted basis to multiple competing “first floor” insurers chosen by each household (e.g. ESIS, commercial insurer, state schemes).
- Choice of first floor insurer for the standard and additional package for all contributing members (formal and informal) except for central government workers in CGHI.
- The fact that the second-floor insurer would be a public monopoly can be largely mitigated by making the process of distribution functioning virtually rather than organizationally.
- The experience of India with RSBY substantially improved at a larger scale under PM-JAY, which has de-facto functioned as a basic second-floor insurer, may make this option more feasible.
- However, this is the most complex option from a design operation, regulations, and governance perspective, which would make it a less attractive option in the short-term.

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Figure 2.30: Second Floor collecting all contributions, transferring risk adjusted capitas to multiple competing first floor insurers. Choice of insurance for contributory Standard and Additional for ALL public and Private non-poor, Option F



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## India Health Sector Risk Pooling

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सत्यमेव जयते

**NITI Aayog**

# CHAPTER 3

## Strategic Purchasing

### The Way Forward

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Health System for a New India: Building Blocks  
*Potential Pathways to Reform*

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### Introduction

The success of the financing process for healthcare services depends on the performance of three important functions: revenue collection, pooling of resources, and purchasing of services and interventions. Chapter 2 discussed revenues and pooling. In this chapter we discuss purchasing of healthcare services through available resources

India's ability to effectively source, pool and purchase health services is becoming more important as its population has a rising middle class which demands better access and higher quality, especially as the population ages. Moreover, with the recent launch of the PM-JAY scheme, it is all the more important for India to ensure that it maximizes value for money invested in this large programme. This will ensure availability of resources for multiple investments needed for the health system. This is similar to other countries in Asia which will face fiscal pressure to deliver more healthcare with existing resources. This chapter focuses on the third function of health financing – “purchasing” – as it is a powerful lever to help achieve more equitable and efficient health outcomes with the same level of spending. If implemented well, it can optimize the quality of care. In other words, this chapter discusses how governments at the central and state-levels can deliver better-quality health services with existing resources/funds.

Any act of spending on health is considered to be a form of purchasing. It could be out-of-pocket spending by a citizen, donors, third-party payers such as government social health insurance agencies, or government tax budgets. Traditionally, the Health and Family Welfare and Finance ministries of India, and in other low-income countries (LICs) as well as low- and middle-income countries (LMICs), healthcare has been purchased passively. Spending has been allocated based on line-item inputs (salaries, drugs, utilities linked to facilities) with little accountability or link between supply-side funds and the type of services, quality of health services delivered and health outcomes. Spending of precious resources passively is not aligned to a vision of service delivery for better population health management. Due to the lack of flexibility and transparency in passive purchasing, it is common for up to 25 per cent of health budgets to be unspent across states. For the spending that does occur, it is in many cases allocated in an inequitable and inefficient manner, with greater focus on costly secondary or tertiary care (see, for example, Bhawalker and Jha, 2016).

The health coverage provided lacks a systematic approach in passive purchasing. It is often accompanied by “user fees”. This could have a bearing on health system efficiency and equity for services and supplies that are covered in passive purchasing arrangements. Unfortunately, too often the service or supply is not available or affordable. Passive purchasing rations healthcare in an unsystematic manner. It is also cost ineffective and does not address the needs of the population. In contrast strategic purchasing is a method of providing healthcare services effectively, with a focus on cost-effectiveness and needs, in addition to other important criteria (see, for example, Glassman, Giedion, and Smith, 2018).

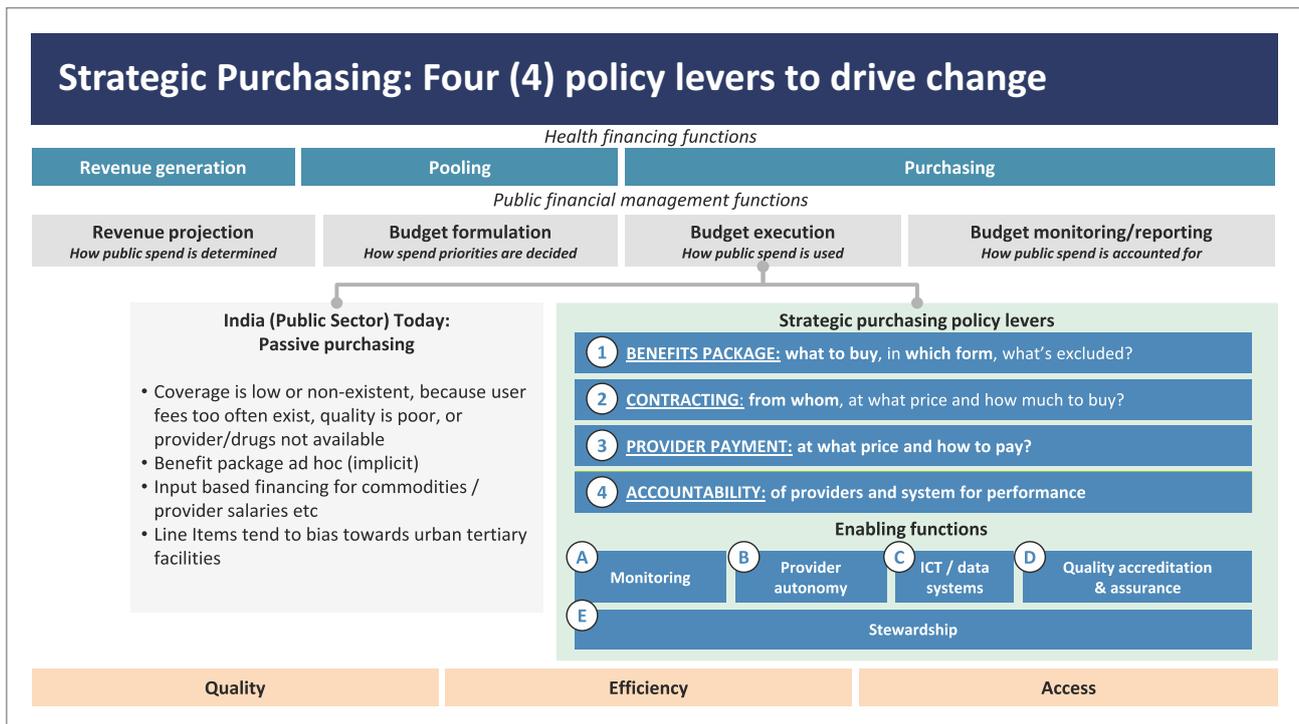
Strategic purchasing is understood as a type of allocation of financial resources to providers. It moves from passive line-item budgeting exercises reflecting last year's inputs with annual inflation adjustment, to more demand-driven (or service-driven) approaches. It encourages activities and outputs to improve equity of access, efficiency of delivery, quality, improve financial protection as well as (ultimately) health outcomes and population gain. Essentially ‘strategic purchasing’ is an active decision-making process that aims to use

## Strategic Purchasing

the four policy levers (Figure 3.1) to reallocate resources to the areas of greatest need. It also indicates to the market what is expected in terms of cost and quality of services to be provided.

Increasingly, there is a marked difference across countries in terms of how they structure systems for purchasing strategically. Thailand uses strategic purchasing policy levers; Pakistan does not, but relies on traditional line items in a passive public sector delivery system. Strategic purchasing is a function increasingly utilized by countries across every income level, be it Germany, Ghana, Estonia, Indonesia, or the Democratic Republic of Congo.

**Figure 3.1: What is Strategic Purchasing?: Policy levers**



### Strategic purchasing framework

Many countries have adopted a general strategic purchasing for health services framework that specifies a number of dimensions to utilize funds more effectively in paying for health services. These include:

- Core policy characteristics or policy levers that purchasers can utilize for allocating resources across geographic areas or directly to providers;
- Organizational characteristics of purchasers and providers and the incentive regimes within organizations and,
- Institutional characteristics or stewardship embedded in the transactions that occur between different organizational units emanating from the government and across both public and private sectors.

A fourth dimension, and one that cuts across the three aforementioned components, is management. It is very much intertwined with the institutional environment (stewardship, governance etc.).

This chapter focusses on the core policy levers that the government could exercise for the required organizational and institutional characteristics to complement the framework. In the short- and medium-

run, the government should focus on developing a foundation first and subsequently initiating improved use of the core policy levers it has at its disposal. For example, in India the National Health Authority administering the Pradhan Mantri Jan Arogya Yojana (PM-JAY) scheme, provides a new and important institutional dimension. Its new role will be discussed in this chapter.

**Table: 3.1**

Policy levers related to the allocation of health financing funds

### Core policy levers

- Supply or “benefits package” (the what to buy, in which form, and what to exclude)?
- Factor and product markets or “contracting” (the from whom, at what price to buy, and how much to buy)?
- Prices and incentive regime or “provider payment systems” (at what price and how to pay)?
- Accountability measures to assure funds are spent efficiently and achieve optimal levels of quality.

Source: Adapted from Preker and Langenbrunner, 2005

#### a. What to buy? Establishing and refining the benefits package

While countries would like to offer a comprehensive benefits package to all citizens, budget constraints impose restrictions on what services can be purchased. Defining the benefits package involves making decisions about who will benefit from publicly financed services (breadth of coverage), the types of services to be financed (depth of coverage), and the levels of out-of-pocket contributions beneficiaries will need to make. These decisions are influenced by economic, social and political factors specific to each country. In low- and middle-income countries, budget constraints become binding at relatively low levels of expenditure per capita calling for rationing either through user fees, the volume of services provided or service quality. Difficult trade-offs have to be made for the poor and near-poor. The choice involves covering fewer poor and near-poor with a comprehensive package (deep coverage) or covering more of them with a less comprehensive package (broad coverage) (Hsiao and Shaw, 2012).

The Government of India has established the details of the basic benefits package under the PM-JAY. As is evident from PM-JAY’s design, India has chosen to ensure protection against large, financially catastrophic medical expenses for the poor and near poor, which is seen as a pressing economic and societal inequity issue requiring urgent redressal.

Given low levels of health spending in low- and middle-income countries, as in India, a widely held view is that the state should first finance a small package of services for universal coverage, essentially encompassing public goods, goods with externalities and other interventions with proven impact; all other clinical care and catastrophic expenditures would be financed for the poor using some targeting mechanism (Gottret and Schieber, 2006). However, current and past experiences from low- and middle-income countries suggest that targeting mechanisms (e.g. user fee exemption schemes) are rarely perfect. A strategy of relying entirely on targeting mechanisms to deliver expensive hospital care services for the poor may not provide adequate financial protection. This is because impoverishment may stem from chronic care issues

that require buying drugs from outside the hospital (see, for example, World Bank, GFF Report, 2018).

While the PM-JAY benefits package may grow over time to be comprehensive, it should be continually reviewed to ensure that it is responsive, and able to address both disease burden and societal preferences. Ongoing review is necessary both to keep up with the fast-evolving science of medicine, and to identify cost-effective interventions. Globally, technology assessment organizations are working in tandem with purchasers. Organizations such as the United Kingdom's National Institute of Clinical Excellence (NICE) help countries improve the cost-effectiveness of a package of healthcare benefits. As the burden of disease increasingly shifts to non-communicable diseases and prevalence of chronic diseases in India, primary care, preventive and screening services become more important. The provision of early treatment can prevent longer-term complications, and can help reduce costs. Ideally, the package should be standardized across geographies, income groups and purchasers. Once standardized, it should be reviewed on an ongoing basis.

The Government of India has established a small organizational unit for technology assessment within the Department of Health Research, Ministry of Health and Family Welfare (MoHFW) to formally and rigorously assess issues of benefits as new technologies and procedures become available. The unit can develop assessments based on internationally recognized analytic methods such as cost-effectiveness analysis, technology assessment, and evidence-based protocols.

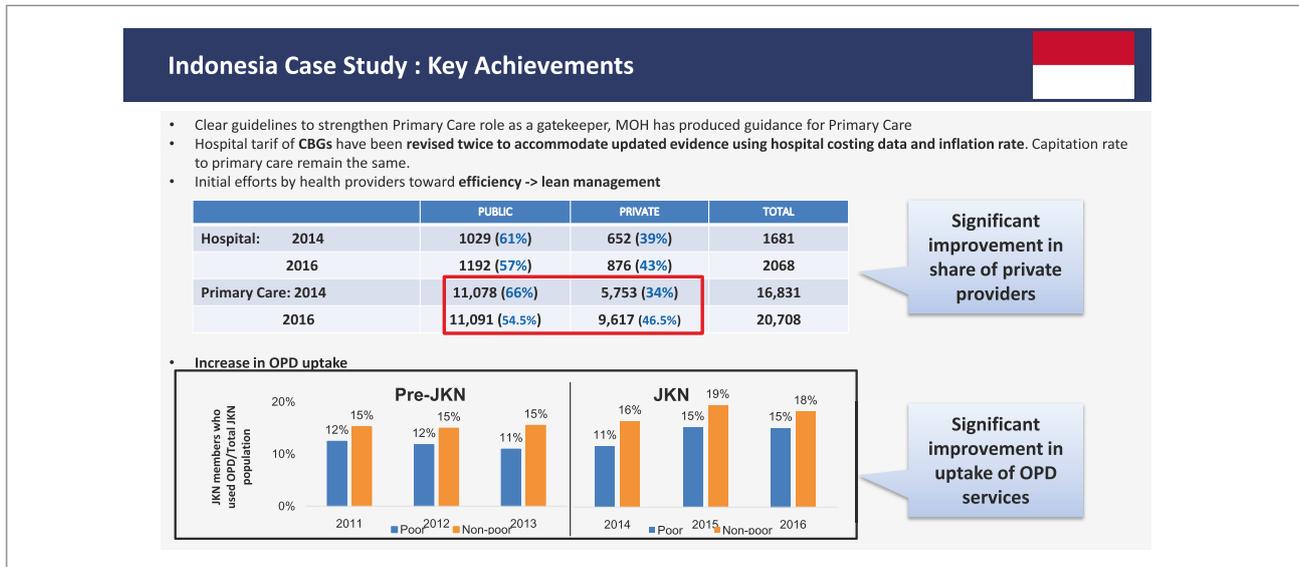
### **b. From whom to buy? Contracting for improved cost and quality**

To ensure that services are delivered based on criteria such as quality, price, and data reporting standards, it is important to ascertain that appropriate contractual arrangements are in place. Such conditions should apply uniformly across the public and private sectors to ensure a level playing field for health system providers to promote optimal performance.

A contractual system can ensure that the minimum standards required in terms of staff qualifications and infrastructure are met by both insurers and purchasers. Purchasers can establish service-specific standards whereby providers are reimbursed for particular services only if they are performed by staff with adequate qualifications and in a manner consistent with established practice protocols and prescription guidelines. At a second level, contracts can be utilized to develop benchmarks and performance standards with an organization such as a hospital or clinic. This could be used as part of a civil service code or outside of it in the case of private and non-governmental organizations.

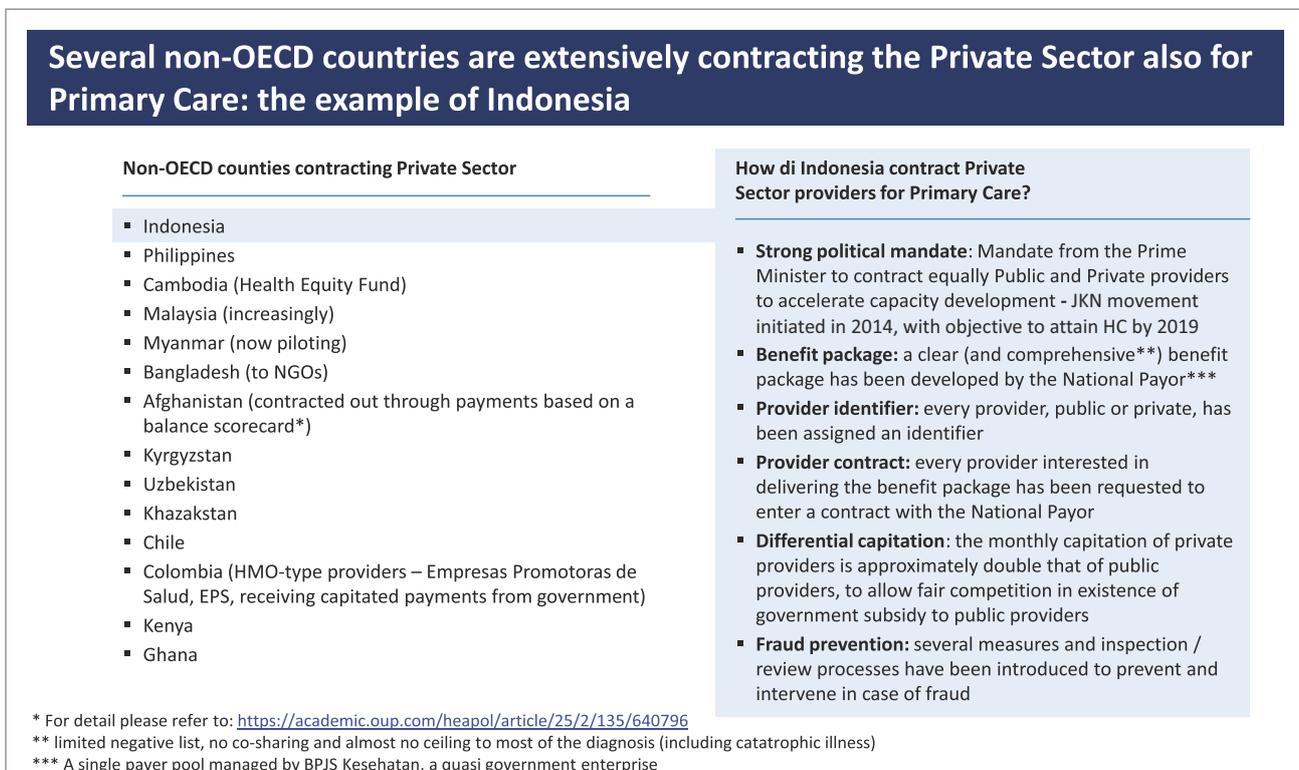
To illustrate how the lever of contracts can be effectively deployed, it is worth looking at Indonesia which has a single payer model since 2014 called Badan Penyelenggara Jaminan Sosial (BPJS), and other country insurance schemes. Figure 3.2 shows the remarkably rapid uptick on primary healthcare (PHC) contracts in Indonesia and the complementary roles played by the purchaser BPJS and the Ministry of Health (MOH).

Figure 3.2: Indonesia case study: Key achievements



The lever of issuing contracts in India can be utilized to integrate the public and private delivery systems which currently exist in silos. This is especially true of contracts for primary care services. Figure 3.3 illustrates how these contracts are awarded in low- and middle-income status countries of Asia, the Americas, and Africa.

Figure 3.3: Learnings from international case studies –2) Contracting



Progress with public and private contracts can be found in countries such as Germany, Thailand, Malaysia, and Mongolia in addition to other high-income countries of Japan, South Korea, and Taiwan (China).

Private providers dominate the healthcare sector in high-income countries.

Contracts must be issued with caution. Based on global experience some pre-conditions to consider are:

- A competitive environment
- Well-defined services
- Coordination with public and private sector activities
- Assessment of quality
- Specification of service standards
- Close monitoring of contract performance

Contracts for health service provision in India have been complicated given the fragmented nature of health systems. There is limited evidence of selective contracting on the basis of quality and performance. Soft, relational contracts where there is an expectation from both sides (purchaser and provider) to automatically extend contracts for ensuing years have been predominant. PM-JAY's contractual conditions of ensuring pre-entry level accreditation under National Accreditation Board for Hospitals and Healthcare Providers (NABH) is a step in the right direction, especially in view of its pan-India mandate.

India may wish to expand the development of contracting internally with public sector organizations such as hospitals and clinics. Other than a few pilots in states like Rajasthan, not much has happened in India related to internal contracts with staff of public facilities. The contracts would be used in the first 2-3 years to assess performance and provide feedback. After three years, contracts would be used to improve the flexibility of inputs for better hiring and firing personnel according to performance and input needs for care services.

### **c. How to pay? Implementing new incentive payment systems**

Provider payment systems serve as behavioural signals to promote delivery of adequate volume and quality of services. In some cases, it ensures that these are targeting the intended population groups. Though evidence does establish some of the best practices, such payment systems may need to evolve over time as policy objectives such as efficiency, quality and outcomes change.

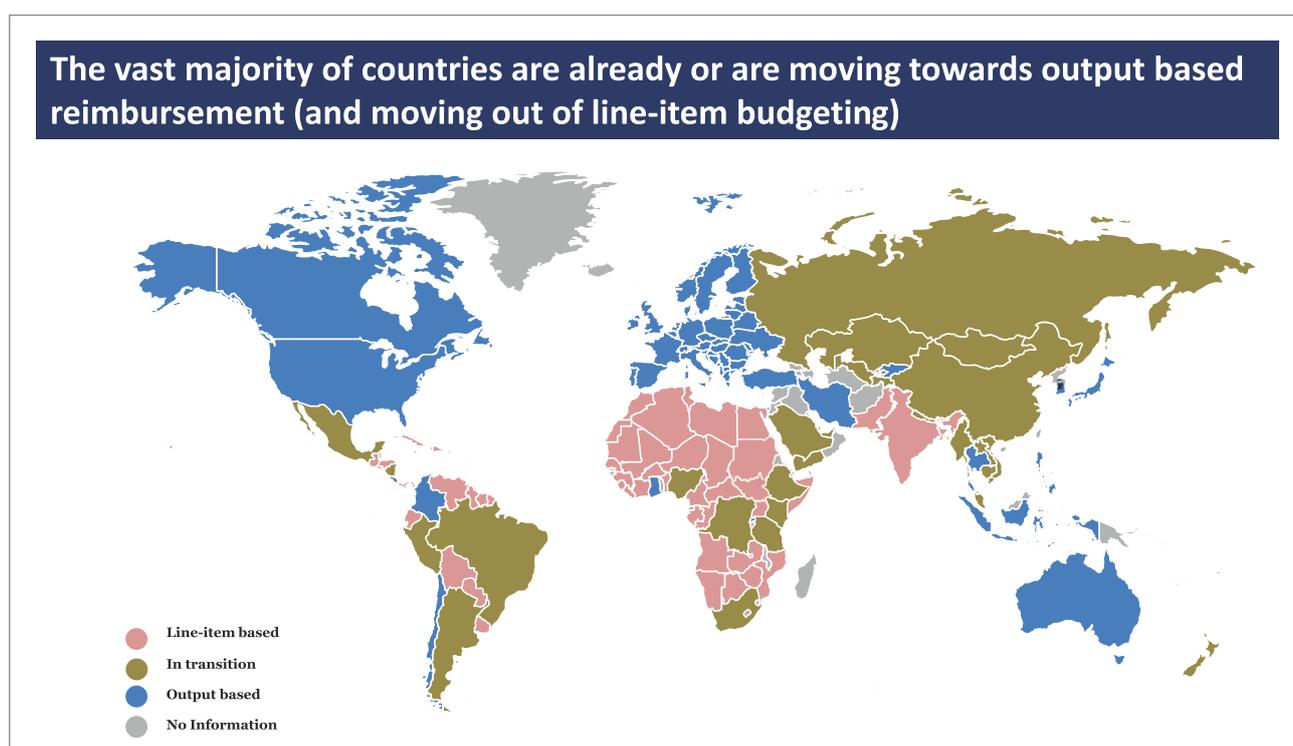
India has a long history of line-item budgeting. Too often, in India and in other countries, the notion of public sector worker performance has been limited to compliance with line-item budgetary appropriations as well as the literal observance of rules and regulations. Line-items impose rigidity and discourage innovation. They also preclude the objective of a coordinated public and private delivery sector because private providers will not accept line-items as reimbursement. India's private delivery sector is growing fast, and is being increasingly integrated with the onset of PM-JAY.

A limitation of working on a line-item budget is that the ultimate objectives of public expenditures are replaced by a culture of means rather than the ends. Global evidence suggests that in such a system it is often difficult to reach the poor., Additionally, there is scope of Fraud and corruption depending on how the line items are formulated.

In response to these concerns, India as well as other countries have started experimenting with a variety of

organizational and payment reforms in the health sector including worker remuneration policy. Except for sub-Saharan Africa and parts of South Asia such as India and Pakistan, several countries have moved away from input-based budgets and salaries for providers. While India has started taking a few steps, there is still a long way to go in this regard, especially relative to other countries at similar levels of development (Figure 3.4). For example, Rashtriya Swasthya Bima Yojana (RSBY) and the PM-JAY) scheme utilise use new forms of

**Figure 3.4: Learnings from international case studies –3) Provider Payment (DRGs)**



payment e.g. per package payment or fee-for-service. Different models provide differing incentives for services to be delivered in an efficient manner.

Certain payment systems have emerged over the last few decades which move payment from inputs to

**Figure 3.5: Different Output-Based Options to Pay Providers Each creates certain risks and Incentives**

Payment mechanism	Risk Borne by		Provider incentive to			
	Payer	Provider	Increase No of patients	Decrease number of services per payment: Units	Increase Reported Illness Serverty	Select healthier patients
Fee for service	All risk borne by payer	No risk borne by Provider	✓	✗	✓	✗
Case Mix Adjusted Per Admission (e.g., DRG)	Risk of Number of Cases and Case Severity Classification	Risk of Cos: of Treatment for a giver case	✓	✓	✓	✓
Per admission	Risk of number of Admission	Risk of Cos: of treatment for a giver case	✓	✓	✗	✓
Per-Diem	Risk of number of days to stay	Risk of cost of services within a given day	✓	✓	✗	✗
Capitation	Amount above ' Stop Loss' celing	All risk borne by provider up to a given celing (Stop loss)	✓	✓	N/A	✓
Global Budget	No risk borne by payer	All risk borne by provider	✗	N/A	N/A	✓

payment for outputs and outcomes. Figure 3.5 summarizes some of the more recent models. New payment models should be put in place in response to an explicit hierarchy of policy priorities as well as practical considerations. First, purchasers have to decide on the policy objectives such as increased revenues, efficiency, cost-containment, access, quality, administrative simplicity<sup>12</sup>, or some combination thereof. The payment system chosen and incentives designed have to address one or more health sector policy objectives at a given time. Related to this are incentives that must be chosen in tandem with other factors such as improved knowledge about clinical outcomes, cultural factors, and providers' professional ethics.

On the practical side, due to asymmetry of information, payments are often linked to outputs, which are more easily observable and verified (by both parties), as compared to the attainment of health outcomes or policy objectives, such as improved efficiency or equity. In addition, when purchasers begin to consider new incentives, decisions are typically based on factors such as:

- readily available information
- technical capacity
- time available to design, implement, and monitor payment systems

More recently, Performance-Related Pay (PRP) or sometimes called Pay-for-Performance (P4P) directly links payment to the performance and the contribution of healthcare providers. Ideally it is linked to outcomes even though measurement is difficult, so it is more often based on some ideal process of care delivery. PRP or P4P can be used to pay either individuals directly or groups of people (e.g. primary care facility). Performance is measured by how well a specified task is implemented against the set target (all immunizations provided to a child), or some established threshold (e.g. 90 per cent of children immunized). The P4P programmes can and should be used as an integral part of the new incentive structures within the health sector. The choice of payment model is highly contextual to the systems within which they operate. Annexure 1 provides a detailed insight into some of the various considerations under which different countries have adopted their payment systems.

Payment is just one of the factors that motivate the medical profession. Participation, job enrichment, recognition, working environment, and autonomy in allocating resources can be equally important in motivating people.

### **a. Recent developments: moving to “blended” payment models**

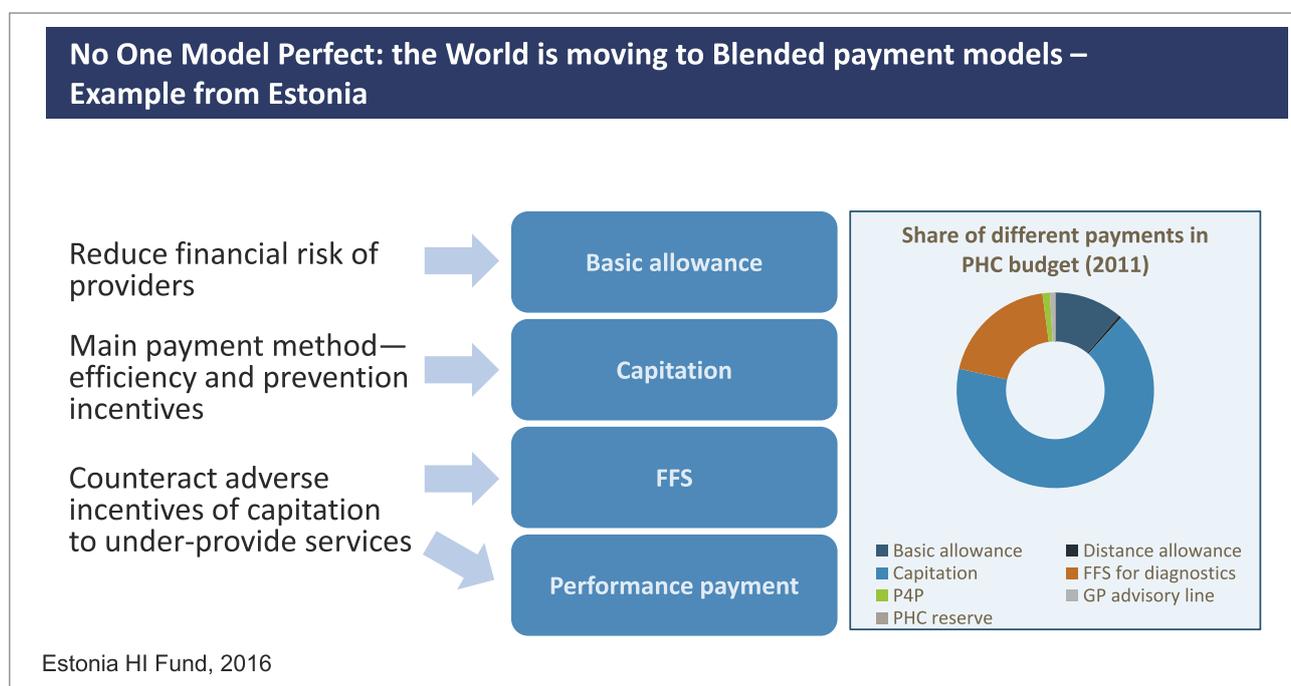
Which payment system works best? Unfortunately, there is no one best payment model. No single set of incentives will address the multiple objectives of purchasers, providers, and patients (Figure 3.5 above shows relative advantages and disadvantages of each).

In response, blended payments are increasing utilized in Organisation for Economic Co-operation and Development (OECD) countries and other middle-income countries as well. Blended payments mix different models to discourage negative incentives as well as encourage optimal allocations and performance. For primary care, blended payments include capitation plus fee-for-service for immunization and preventive care, plus P4P for containing referrals. The Estonian mixed model is illustrated in Figure 3.6.

<sup>12</sup>It is less burdensome in way of capital and resource requirements to run particular models. Line item is administratively simple but not efficient from a systems perspective. Resource requirements could include data and people, as well as more complicated governance arrangements such as multiple agencies.

On the hospital side, a blend of case-mix and global budgets are used throughout Europe, China-Taiwan, and Thailand (Langenbrunner and Somanathan, 2011).

**Figure 3.6: Learnings from international case studies –3) Provider Payment (Primary Care)**



However, sophisticated payment systems may lead to higher transaction costs. There will also be the need to expand capacity to use information and management systems. This is true both for purchasers and providers as the unit of payment increases and risk necessarily shifts relative to providers. Management information systems cannot always be designed and implemented quickly.

Finally, this section has addressed incentives in the context of a single purchaser of services. If the health sector has multiple purchasers, as in many/most states in India, providers may face multiple incentives at a time. The precise impact of these multiple competing incentives will be unknown, and only situation specific. The new National Health Authority can help address this issue, as discussed later in this chapter.

#### **b. Challenges to successful implementation, or the importance of enablers and avoidance of choke points**

The best planned and implemented payment incentives and systems may fail due to a variety of other related factors in the delivery of health services. Unless these other delivery system issues are addressed, the impact will be diluted or neutralized. Technicians and policymakers will need to address these potential choke points. At the same time purchasers will rely on a set of enablers in any implementation and refinement process (Dixon, Langenbrunner, and Masiolis, 2002). These issue areas were introduced in Figure 3.1 and include:

##### **Enablers**

- Operational autonomy of providers (see, e.g., Harding and Preker, 2003). This issue is germane in the Indian public sector context with its line-items and minimal flexibility in the public sector delivery system. Timely information through routine management and information systems. (This

is discussed in Chapter 4: Organization and Provision.)

- Quality assurance systems to identify and offset unintended consequences created by new incentives
- Good monitoring and evaluation systems to create the dynamic of improvement over time

### Choke Points

- Fragmented public sector pooling and purchasing as discussed in Chapter 1
- Poor complementarity of design across service settings (e.g., inpatient and outpatient)
- Institutional or governance impediments. This is discussed in Chapter 4
- Lack of technical capacity and management skills

### c. How to hold the sector and providers accountable? Establishing a culture of accountability

It is essential to establish systems and processes for tight monitoring of performance for the healthcare system to deliver good quality care in an efficient manner. There should also be provision for escalation mechanisms in case of lack of performance. This includes:

- Inappropriate admissions treatable at lower levels of care
- Measurement of volume (and type) of service delivered
- Measurement of outcomes—from basic indicators e.g. hospital mortality and infection rates to more complex measures e.g. 30/60/90-day readmission rates, especially for major procedures
- Tracking of financial performance against budgets
- Prevention, detection, and deterrence of fraud
- A measured escalation process in case of lack of performance – from an initial warning, to auditing, publication of relative performance, to commissioning interventions, to new agreement plans, and even potentially closure / services interruption.

Once in place, these mechanisms foster the creation of a widespread culture of performance in the healthcare system.

Often, purchasers can collect many of these performance indicators through routine claims payment systems as in South Korea (Table 2). South Korea reviews 24 indicators for every provider through its routine claims data processing system. Another notable example is that of Monitor in the UK<sup>13</sup>, responsible for tracking the performance of healthcare providers in the NHS (specifically the NHS Trusts), providing technical assistance and demanding performance turnaround of underperforming Trusts. Monitor can even intervene to the extent of assuming temporary management responsibility. Outcomes are routinely published. Details on UK's Monitor system of accountability covered in Annexure 2.

Lack of proper accountability systems and culture is a key area for improvement in the Indian healthcare system. Public and private payers as well as providers are subject to minimal requirements in terms of reporting, mostly limited to basic accounting monitoring, with essentially no monitoring of quality/outcomes. Lack of minimal but essential data – due to a lack of standards and underdeveloped IT systems, as well as the absence of contractual requirements and regulations – is one of the key hurdles to setting proper monitoring in place. Nonetheless, the review encountered very few examples of

<sup>13</sup>Monitor does not work in isolation. It works jointly with the Care Quality Commission (CQC) to operate a joint licensing regime of providers of NHS care, and to cooperate in the operation of their regulatory regimes.

independent assessments of the performance of public or private programmes, reinforcing the argument regarding a widespread lack of culture of accountability.

**Table 3.2: Routine monitoring indicators of Korean Health Insurance Organization using claims data**

Categories	N	Indicators	Explanation	
Quality (13)	Process (5)	1	Proportion of the patients with medical problems	% of the No. of patients with medical problems (when one or more condition exists among blood pressure, pulse, body temperature, pain, surgical site haemorrhage and surgical site infections) within 24 hours before discharge
		2	Ratio of length of stay (LOS)	The ratio of the actual LOS to average LOS of total hospitals
		3	Rate of pre-operative medical services provided	% of the No. of basic healthcare services provided*
		4	Comparison between costs paid by DRG and converted costs from FFS	% of the actual costs per the average costs of total hospitals (when convert DRG into FFS)
		5	Appropriate timing of prophylactic antibiotics for surgery	The review of an appropriate use of prophylactic antibiotics for surgery (different criteria on each DRG)
	Quality (13)	6	Accident rate during ospitalization	% of the No. of case with accidents (fall, blood transfusion, medication and anaesthesia related)
		7	Infection rateduring hospitalization	% of the no. of cases with infection during hospitalization
		8	Surgical complication or adverse event rate	% of the no. of cases with surgical complication or adverse events during hospitalization or within 14 days after discharge
		9	Readmission rate	% of readmission with the same primary diagnosis of previous hospitalization or complication within 14 days (or 30come days) after discharge at the same or another hospital
		10	Surgery or procedure rate for complications during hospitalization	% of the No. of cases with surgery or procedure due to complications
		11	Rate of emergency department (ED) visits after discharge	% of the No. of emergency department visits within 14 days (or 30 days) after discharge at the same hospital
		12	ICU Utilization rate during hospitalization	% of the No. of Intensive Care Unit (ICU) utilization during hospitalization
		13	Mortality rate	% of the No. of deaths during hospitalization or within 30 days after discharge
Claim or Physician's behaviors change (4)	14	Rate of severe level	% of the No. of patients with severity 1 or over (severity of disease ranges from 0 to 4)	
	15	Case-mix index per healthcare facilities	The ratio of the No. of cases in each hospital to the total No. of cases in the whole hospitals by disease categories	
	16	No. of ambulatory visits before/after discharge	The ratio of the No. of outpatient visits within 14 days before and after hospitalization and to its total No. of cases(4)	
	17	Ambulatory expense before/after discharge	The ratio of the outpatient costs within 14 days before and after hospitalization and to its total costs	
Clinical Documentation (1)	18	Accuracy of coding & documentation	% of the No. of concordant cases between claim data or quality measurement and medical records Documentation (1)	

**A. When get general/spinal anaesthesia**

- i. Seven DRGs: CBC, U/A, LFT, Electrolyte, BUN/Cr, PT/PPT or Coagulation, ABO/Rh, Chest PA, EKG
- ii. Lens procedures: (add) Fundoscopy, Keratometry, Slit lamp exam, Tonometry
- iii. Tonsillectomy and/or adenoidectomy: (add) Impedance Audiometry (for otitis media patients)

**B. When get local anaesthesia**

- i. Seven DRGs (except lens procedures): CBC, PT/PPT or Coagulation

- ii. Lens procedures: (add) Fundoscopy, Keratometry, Slit lamp exam, Tonometry

### 3) India: the current situation

Strategic purchasing in India is currently in its infancy, with much to be done, as discussed below. An assessment of the four levers of strategic purchasing (discussed above) in India shows that there are multiple challenges in institutionalizing and operationalizing strategic purchasing in the country.

#### a. India: assessment by purchasing levers

##### Benefits package

In public sector schemes, packages are mostly implicit as they are driven by supply. Explicit packages are defined as in RSBY when based on a positive list<sup>14</sup> of predefined service bundles which are cost-controlled through caps with significant variability among states. The definition of the packages and relative pricing will require better alignment with the disease burden as well as costing, market pricing analysis and health technology assessment (HTA). In the private sector, the benefits package includes many inpatient services, but has several drawbacks including waiting periods, co-payment clauses, and lack of coverage for outpatient and preventive care.

##### Contracting

Public provider contracting follows MoHFW (or NHM) guidelines with prescriptive accounting (1000+ line-items). The result is many limitations in autonomy, no cost-volume contracting and quality monitoring. There is limited contracting of the private sector particularly with primary care providers. In the commercial insurance sector, contracts are guided by Insurance Regulatory and Development Authority (IRDAI) norms, but contract terms vary depending on negotiation between purchasers and providers. There are limited quality/outcome reporting requirements. Currently, Third-Party Administrators (TPAs) are dominant in managing the contracts (close to 75 per cent of the claims), particularly group contracts, although private insurers are starting to develop in-house capabilities for entering into and monitoring contracts.

##### Payment models

Traditional public providers are mostly paid as per line-items (supply-side financing), based on historical allocation, with limited/no volume and quality incentive. There is a high percentage of pooled funds (60-70 per cent) under line-items through government spending as discussed earlier. State health insurance schemes reimburse private providers based on package payments. As previously noted, the definition of the packages and relative pricing would require better alignment with actual costs and health technology assessment (HTA) evidence. Currently, pricing is based on negotiation, though PM-JAY has introduced elements of costing within its current list of procedures.

Commercial insurance, meanwhile, reimburses private providers mostly on a fee-for-service basis, with package rates being introduced driven by General Insurance Public Sector Association (GIPSA), an association of public commercial insurers who are using their collective bargaining power to ensure better rates under various schemes.

<sup>14</sup>Things exclusively listed and covered under a benefits package. Everything outside of the positive list is not usually covered.

### Accountability

The extent of regulatory/financial oversight by the centre and states varies. These levels of government perform basic provider’s inspections, with a focus on fraud prevention and ensuring that empanelment requirements are met. Programs related to quality assurance and quality improvement are inadequate, although this is also changing in schemes like PM-JAY. With commercial insurance, IRDAI regulations plus TPA/in-house capabilities have helped to bring in some initial accountability measures, such as regular audits, but these are mostly for fraud prevention. (This is discussed in Chapter 4.)

There is inadequate sharing of data among payers, though IRDAI collects and stores an enormous amount of data. However, this remains inaccessible to the wider public. To date there is no structured output/outcome reporting for public or private providers. There is a new state performance index created and disseminated by NITI Aayog which represents a good first step in assessing performance. The state health index<sup>15</sup> helps states to assess and compare their health system performance along vital indicators such as outcomes, governance and processes.

### How adequate are the “enabling” factors?

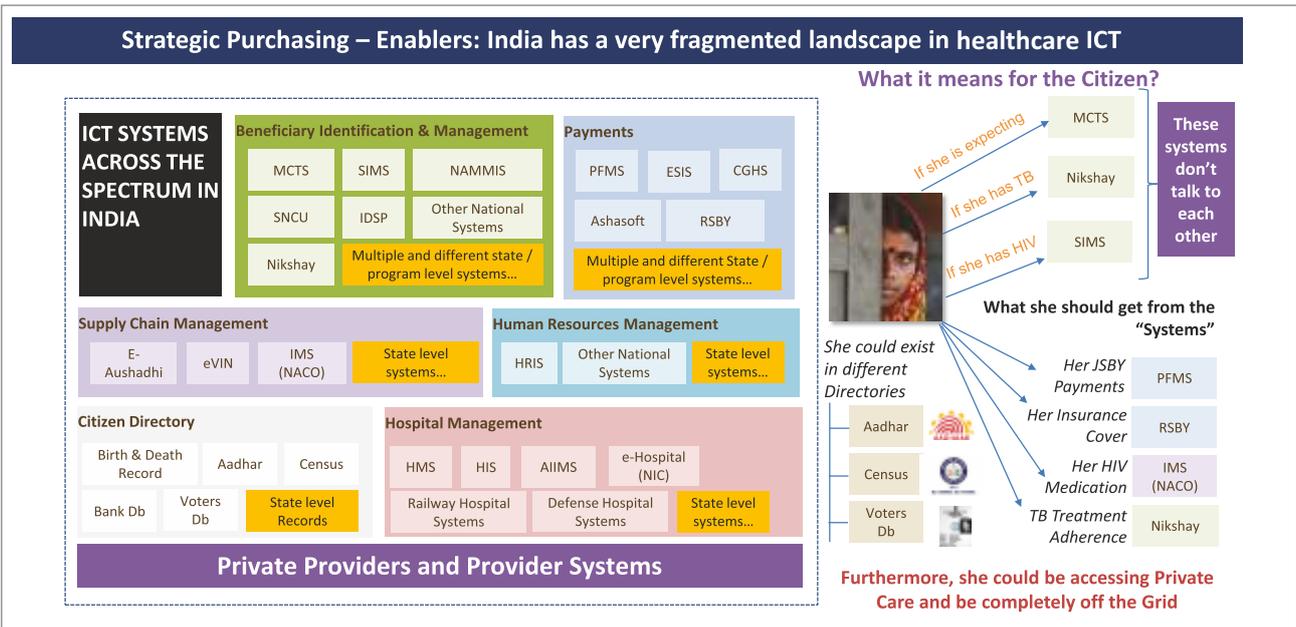
Challenges exist vis-à-vis availability of an enabling environment for strategic purchasing (Table 3.3). These include:

- Lack of an integrated ICT structure for providers and payers, with no data dictionary or minimum data standards agreed upon as yet (Figure 3.7)
- Limited standards and quality guidelines and only partial implementation of the Clinical Establishments (Registration and Regulation) Act, 2010. Limited reporting of quality indicators and inadequate quality assurance or accreditation processes. (This is discussed in Chapter 4)
- Limited monitoring and evaluation
- Insufficient autonomy for public providers and limited financial planning and management by public providers

Table 3.3 Situation in India

Strategic Purchasing – Enablers: India today lacks several enablers for implementing			
A	B	C	D
Monitoring	Provider autonomy	ICT / data systems	Quality accreditation & assurance
<ul style="list-style-type: none"> <li>Public purchasing organizations perform (in general*) <b>very limited monitoring activity</b>:                             <ul style="list-style-type: none"> <li>Mostly limited to audits</li> <li>Limited data collection (if any), and not standardized</li> <li>Limited capacity / capabilities for analysis</li> <li>Limited financial review, beyond line-item accounting</li> </ul> </li> <li>Private purchasing organizations have more developed but <b>still improvable</b> practices:                             <ul style="list-style-type: none"> <li>Mandatory reporting to IRDAI</li> <li>Regular claims review / audit by insurers / TPAs, with focus on fraud prevention</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Limited autonomy of <b>Public Providers</b> in:                             <ul style="list-style-type: none"> <li>Using funds due to line-item budget</li> <li>Hiring / firing of personnel</li> <li>Pricing of services</li> </ul> </li> <li>Limited <b>financial planning capabilities</b> at public and (most of) private providers</li> <li><b>Compulsory reservation of 25% of beds for EWS</b> (Economically Weaker Sections) in private hospitals <b>limiting efficient capacity utilization and fostering fraud</b></li> </ul>	<ul style="list-style-type: none"> <li>Lack of <b>(integrated) ICT infrastructure</b> for providers and payors</li> <li>Non existence of standardized <b>data dictionary</b></li> <li>Limitations with existing <b>EMRs</b> (Electronic Medical Records)</li> <li>Only basic tools for <b>actuarial function and financial planning</b></li> <li><b>Automation still limited, been introduced</b> in commercial payors and larger private providers:                             <ul style="list-style-type: none"> <li>Core Underwriting</li> <li>User enrollment and management</li> <li>Claims Processing</li> <li>Fraud prevention (triggers)</li> <li>Interface payor-hospitals</li> <li>Other support functions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Clinical Establishment Act</b> setting guidelines but implemented only in <b>9 states</b></li> <li><b>Lack of standards / guidelines</b> e.g. treatment protocols, costing guidelines, etc.</li> <li><b>HMIS**</b> is used to collect data in <b>Public facilities</b> – with concerns on accuracy of data reported</li> <li><b>Private hospitals self-report few quality indicators</b>, not subject to independent validation</li> <li><b>State Quality Assurance Units (SQUA)</b> exist but with limitations:                             <ul style="list-style-type: none"> <li>No facility field assessments in 5 states</li> <li>Inactive (no review meetings in last 3 years) in 12 states</li> <li>Not existing in 3 states</li> </ul> </li> <li><b>Medical Doctor registration</b> is mandatory but with <b>ambiguity and rules flouting</b> at State level</li> <li><b>NABH / NABL</b> provides guidelines and accreditation to hospitals / laboratories, <b>but with limited utilization</b> (480 facilities in 2017)</li> </ul>
<p>* Some examples exist of good monitoring practices, e.g. in Karnataka and Tamil Nadu                      ** Health Management Information System</p>			

Figure 3.7: Situation in India



**b. Distribution of use of funds**

Figure 3.8 below provides an overview of the current situation regarding the distribution use of funds in India, as well as the payers and schemes that comprise the purchasing ecosystem in the country. While a multitude of purchasers exist, widespread pooling in India is non-existent. There are government schemes (e.g. National Health Mission) and compulsory contributory schemes (e.g. Railways, ESIS), social health insurance schemes (e.g. civil servants) and numerous state and local bodies. There are public allocations for capital expenditures at the central, state and local levels. There are voluntary healthcare payment schemes which are both government and private sector based. However, almost two-thirds of purchasing is direct out-of-pocket payments from individuals and families, which may signal inequity in financial access to services across the population.

Figure 3.8: Situation in India –Landscape of players and flow of funds

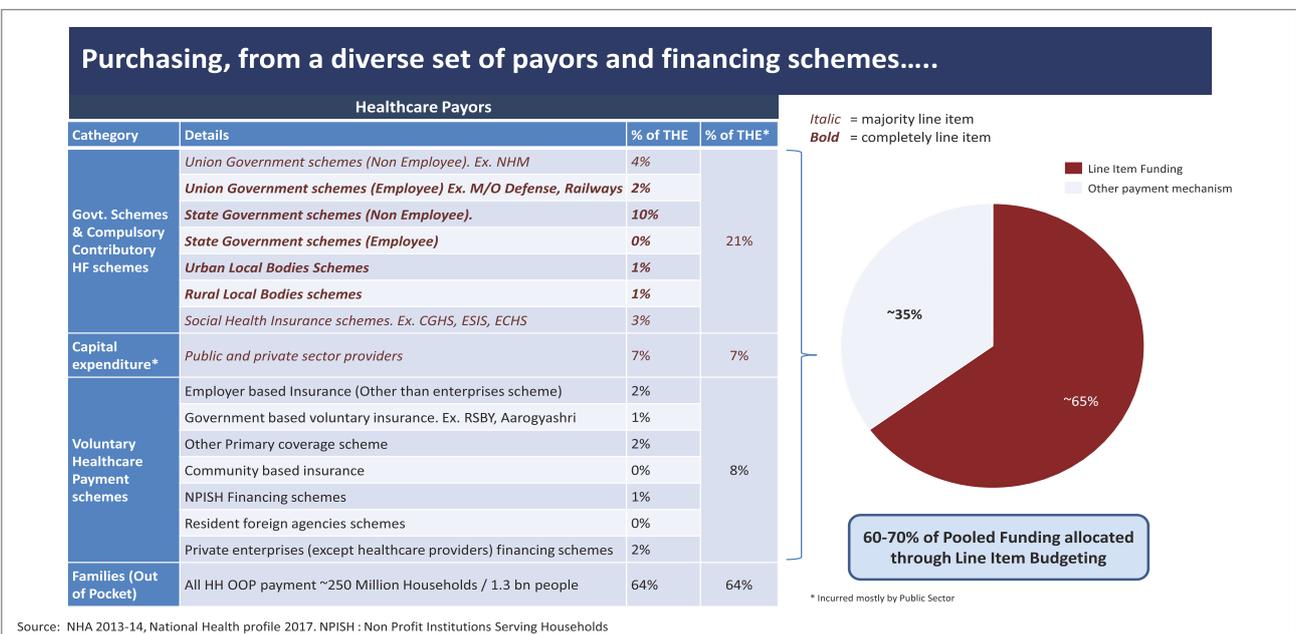
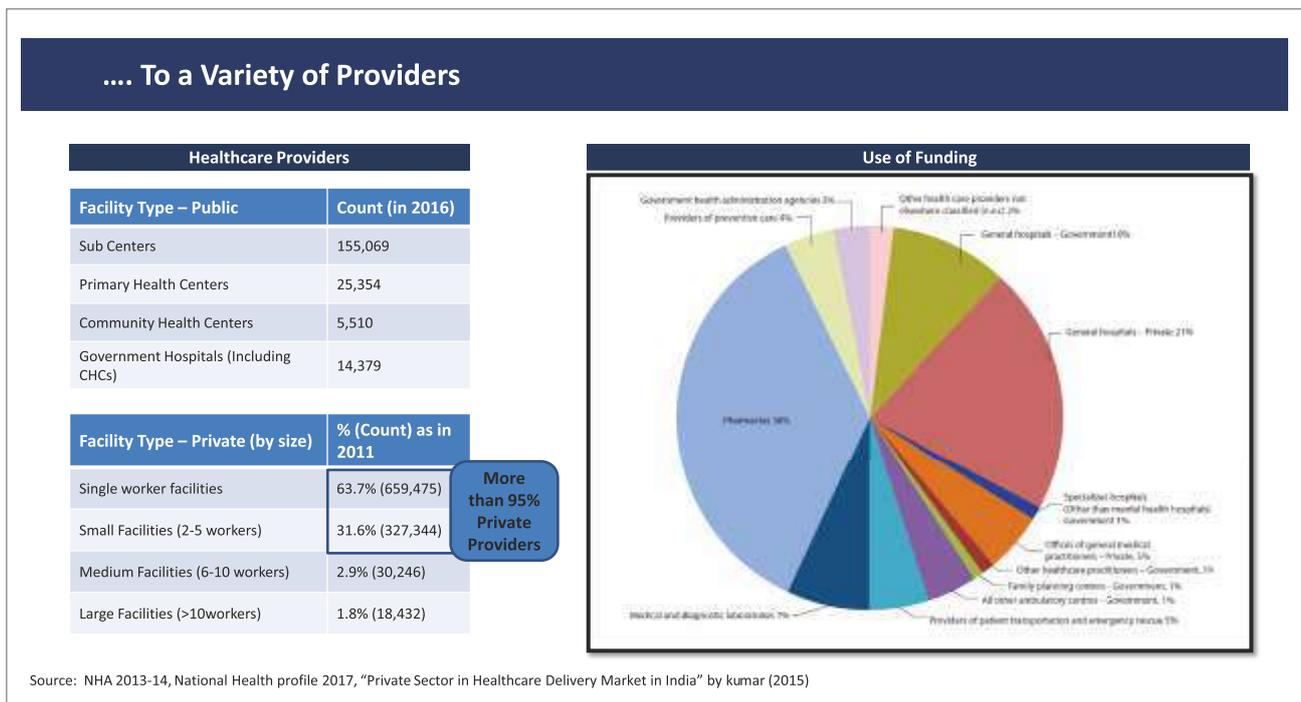


Figure 3.9: Situation in India –Landscape of players and flow of funds



It should also be noted that 60-70 per cent of prepayment funds are allocated through line-item budgeting in the Ministry and Department of Health budgets.

Figure 3.9 shows the landscape of providers and the flow of funds. It shows the facility count of public and private providers and the use of funding. Notable is the fragmentation of private providers and an overwhelming number of small providers discussed in greater detail in Chapter 4. The provider organizations of 1-5 workers comprise over 95 per cent of private providers. Two-thirds of all funding flow is to pharmacists and general hospitals predominated by the private sector. The landscape and flow of funds (Figure 3.9) shows evident complexity and variability in incentives for providers.

Figure 3.10 below shows Madhya Pradesh as one example of how funds are routed to various providers within the state’s health system. However, this holds true in most part, across states in India. However as seen in Figure 3.11 deployment of such funds at a functional level shows a lot more variability across the state: Odisha spends almost half of its funds on pharmaceutical and medical goods, for example, while Maharashtra spends less than one quarter. Conversely, Maharashtra’s relative allocation for inpatient care is triple that of Odisha, signalling diverging priorities for health within the country.

Figure 3.10: Situation in India –Landscape of players and flow of funds

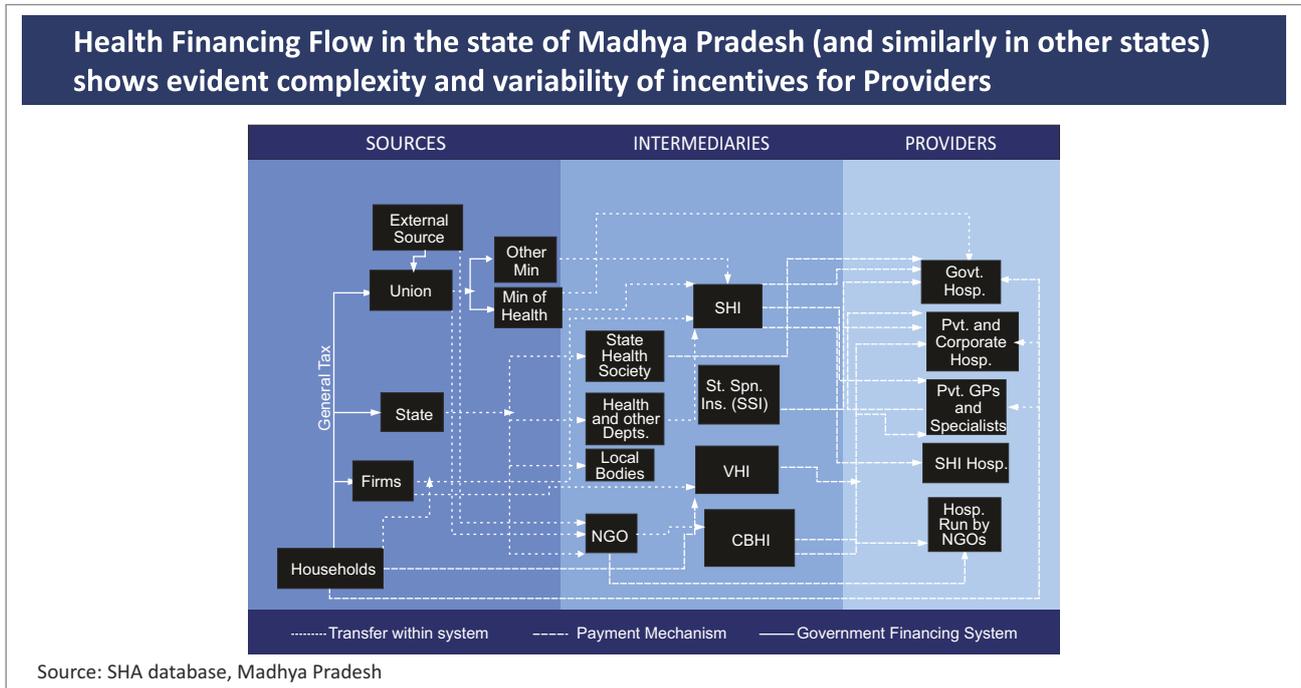
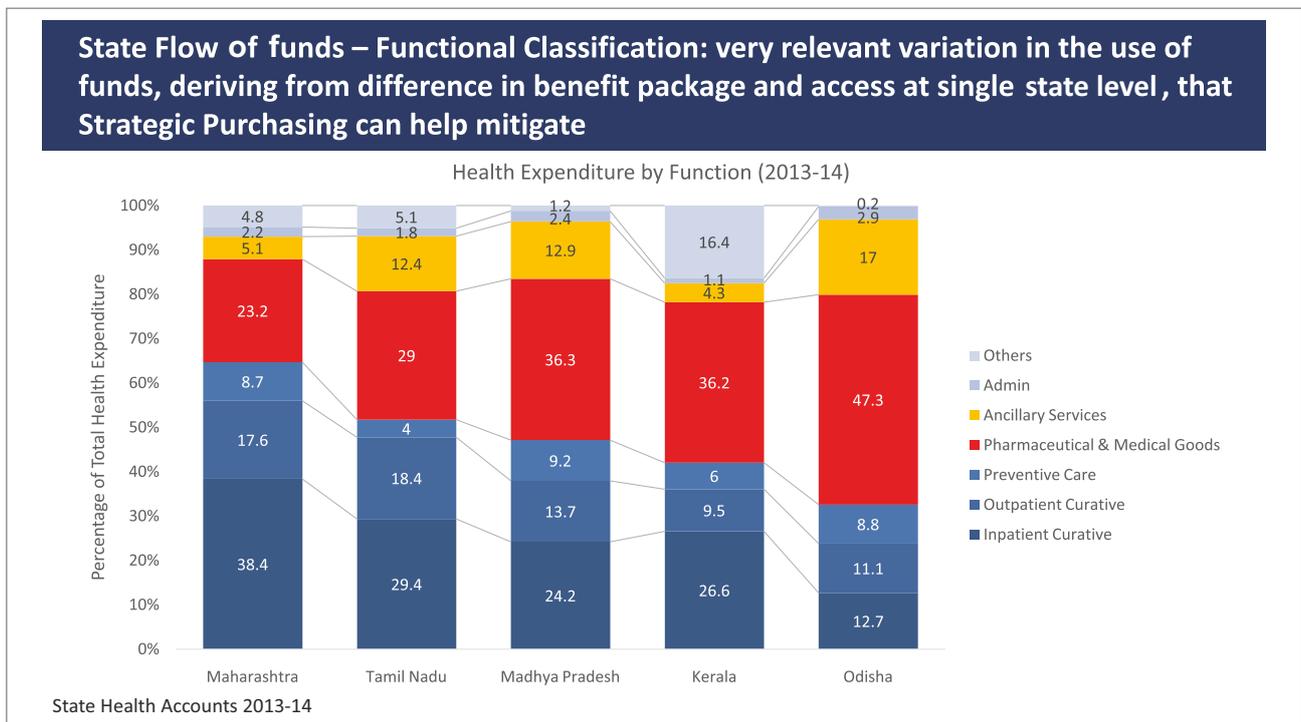
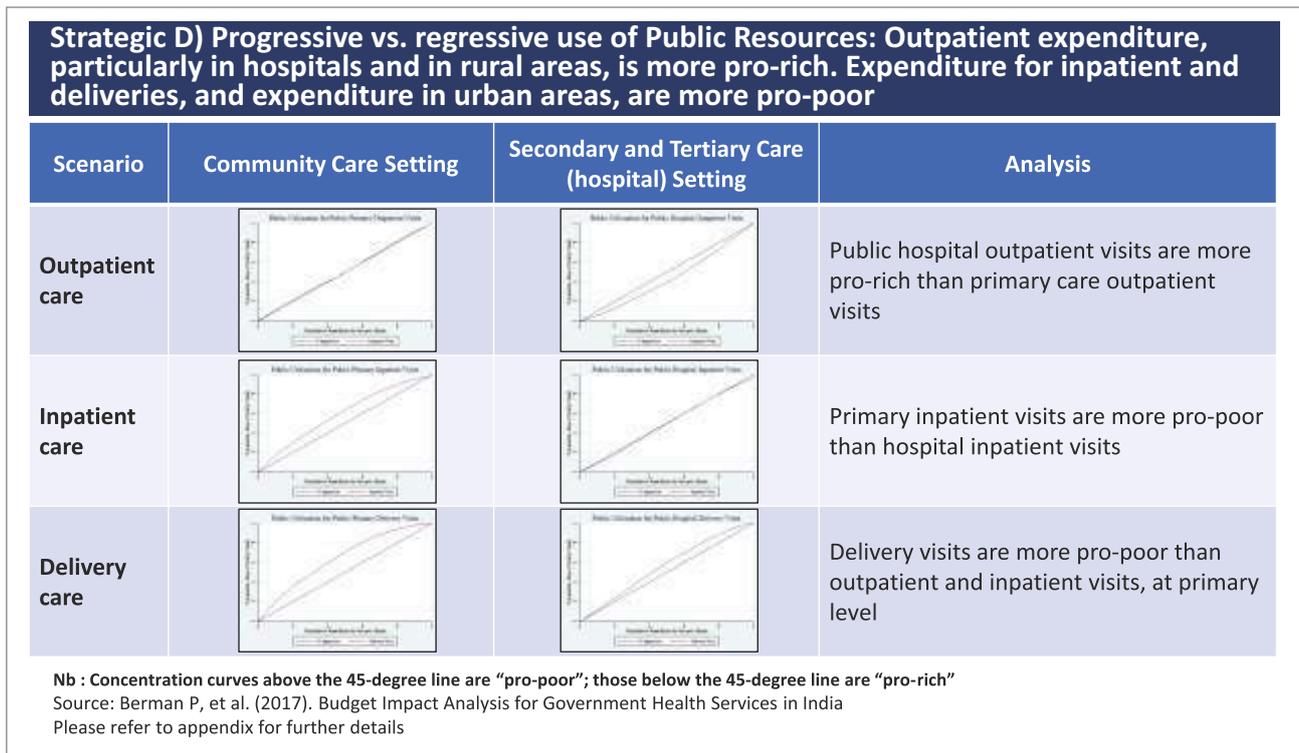


Figure 3.11: Situation in India –Landscape of players and flow of funds



While ideally the public system tends to serve the poor (‘money follows the poor’), monitoring to ensure this is inadequate. Some special analyses by Bhawalker and Jha (Harvard, 2016) in Figure 3.12 below indicate that most state public spending is regressive overall, and most states are regressive with regard to the focus on key priority areas such as maternal and child health. While public funding and delivery programmes are justified based on reaching the poor and assuring equity, the current evidence base suggests just the opposite.

Figure 3.12: Important to intervene now



**c) Promising innovations in India: “green shoots”**

Despite these challenges, there are innovations in each of these areas, and the examples of these multiple innovations are provided in Tables 3.4 and 3.5 below. These figures place challenges and selected innovations side-by-side, so as to understand where and how these opportunities for change are taking hold.

Table 3.4: Situation in India

**Strategic Purchasing – Policy Options (1/2): India today shows a very fragmented and diverse situation State by State, with limited incentives for financial / quality performance**

	Status in India today	Examples of innovations
<p>1</p> <p><b>BENEFITS PACKAGE:</b> what to buy, in which form, what's excluded?</p>	<ul style="list-style-type: none"> <li>In the Public Sector Schemes:                             <ul style="list-style-type: none"> <li>Benefit packages are <b>mostly implicit</b> (driven by supply)</li> <li><b>When explicit</b> packages are defined, it is based on <b>positive list</b> of predefined service bundles, cost-controlled through <b>caps</b>, with Significant <b>variability</b> existing among states</li> <li>The <b>definition</b> of the packages and relative pricing would <b>require</b> better alignment with the <b>disease burden</b> as well as <b>costing, market pricing</b> analysis, Health Technology Assessment (<b>HTA</b>)</li> </ul> </li> <li>In the Private Sector, the benefit package <b>includes many inpatient services</b>, but has several <b>drawbacks</b> including waiting periods, co-payment clauses, and lack of coverage for outpatient and preventative care</li> </ul>	<ul style="list-style-type: none"> <li>CMCHIS in Tamil Nadu uses weighted assessment of utilization patterns for benefit package designing</li> <li>Packages specifically designed for disorders like Dengue by private insurance companies</li> <li>Premium discounts (cash-back) for prevention introduced by standalone Health Insurance Players</li> <li>OPD cover being introduced as part of certain packages (e.g. Day to day care plan by Apollo Munich)</li> </ul>
<p>2</p> <p><b>CONTRACTING:</b> from whom, at what price and how much to buy?</p>	<ul style="list-style-type: none"> <li>Public providers contracting follows MoHFW guidelines (or NHM guidelines), with prescriptive accounting (<b>1000+ line items</b>) and <b>limited autonomy, and limited / no volume and quality monitoring</b></li> <li>Limited <b>contracting of Private Sector</b>, particularly in Primary Healthcare</li> <li>In Commercial Insurance:                             <ul style="list-style-type: none"> <li>Contracting is guided by <b>IRDAI norms</b>, but with contract terms varying depending on negotiation between Payors and Providers</li> <li><b>Limited quality/outcome reporting requirements</b></li> <li><b>TPAs</b> are dominant in <b>managing</b> the contracts (<b>~75% of the claims</b>), particularly group contracts, although private insurers are starting developing in-house capabilities</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>In Maharashtra, high-end procedures are preferentially reserved for public facilities only</li> <li>4 public insurers* have formed a consortium to increase purchasing power in the market</li> <li>Role of TPAs expanding:                             <ul style="list-style-type: none"> <li>Engaged in offering Preventive Health Checkups</li> <li>Under RSBY, expected to conduct IEC activities (Information, Education and Communication)</li> </ul> </li> </ul>

\* Oriental Insurance Corporation of India, National Insurance Co. Ltd., New India Assurance Co. Ltd., United India Insurance Co. Ltd.

## Strategic Purchasing

The announcement of the PM-JAY scheme under the stewardship of NHA is also been a platform to call for improved steps for IT and information standards, costing systems, improved contracting across sectors etc. In time further deliberation will be necessary around new payment models such as capitation for primary care and the use of Diagnosis Related Groups (DRGs) for hospital care.

Illustrations of green shoots in the public sector include:

- Benefits package: coverage of pre-existing diseases from day 1; no clauses on age limits; some states have covered the entire population under the benefits package
- Contracting: PPPs for providing specific services (diagnostics, dialysis, etc.), and for running primary health centres

Payment and accountability: package rates vary/adjusted for hospital grading/accreditation; setting up of a strong purchasing body at the state-level, such as in Tamil Nadu, Karnataka and Meghalaya (more discussion below); use of data analytics by some of the states.

The World Bank report of December 2018 on fraud management in government insurance schemes, reported that both Maharashtra and Tamil Nadu (under the Chief Minister’s Comprehensive Health Insurance Scheme, CMCHIS) have implemented strong processes for provider accountability as well as for preventing, detecting, and deterring fraud. Tamil Nadu’s CMCHIS regularly reviews morbidity and mortality outcomes across both public and private providers.

**Table 3.5: Situation in India**

Strategic Purchasing – Policy Options (2/2): India today shows a very fragmented and diverse situation State by State, with limited incentives for financial / quality performance		
	Status in India today	Examples of innovations
3 <b>PROVIDER PAYMENT:</b> at what price and how to pay?	<ul style="list-style-type: none"> <li>Public providers are <b>(mostly) paid line-item</b> (supply-side financing), based on <b>historical allocation</b>, with limited / no volume and quality incentive</li> <li>State Health Insurance Schemes reimburse Private providers base on <b>package payments</b>; the definition of the packages and relative pricing would <b>require better alignment</b> with actual <b>costs</b> and Health Technology Assessment (HTA)</li> <li>Commercial insurance reimburses private providers mostly <b>Fee For Services</b>, with <b>package rates</b> being introduced driven by GIPSA</li> </ul>	<ul style="list-style-type: none"> <li>Costing done for NHM programs</li> <li>GIPSA rates: in 4 public insurers*, payment mechanism is determined by the insurers, based on “predefined packaged rates”</li> </ul>
4 <b>ACCOUNTABILITY:</b> of providers and system for performance	<ul style="list-style-type: none"> <li>Central &amp; State Funds:               <ul style="list-style-type: none"> <li>have <b>low level of autonomy</b>, with <b>diversity of regulatory / financial oversight</b></li> <li>They perform <b>basic providers inspection</b>, with focus on fraud prevention and empanelment requirements</li> </ul> </li> <li>In Commercial Insurance, IRDAI regulations plus TPA / in-house capabilities have helped in bringing some <b>initial accountability measures</b> (regular audits, mostly for fraud prevention)</li> <li><b>No / minimal sharing of data among Payors</b></li> <li><b>No structured output / outcome reporting exists for public or private providers</b></li> <li><b>No (public) monitoring for delivering services to the Poor</b> (“money follow the poor”)</li> </ul>	<ul style="list-style-type: none"> <li>Utilization of de-empanelment to enforce change (with potential severe implication of providers to lose all Public business)</li> <li>Quality Council of India started collecting quality data</li> <li>Rankings of hospitals by Tamil Nadu into 6 different categories based on quality of care offered</li> <li>Higher CGHS** rates given to NABH accredited Hospitals</li> <li>Medical Audit performed by some Health Insurance Companies</li> </ul>

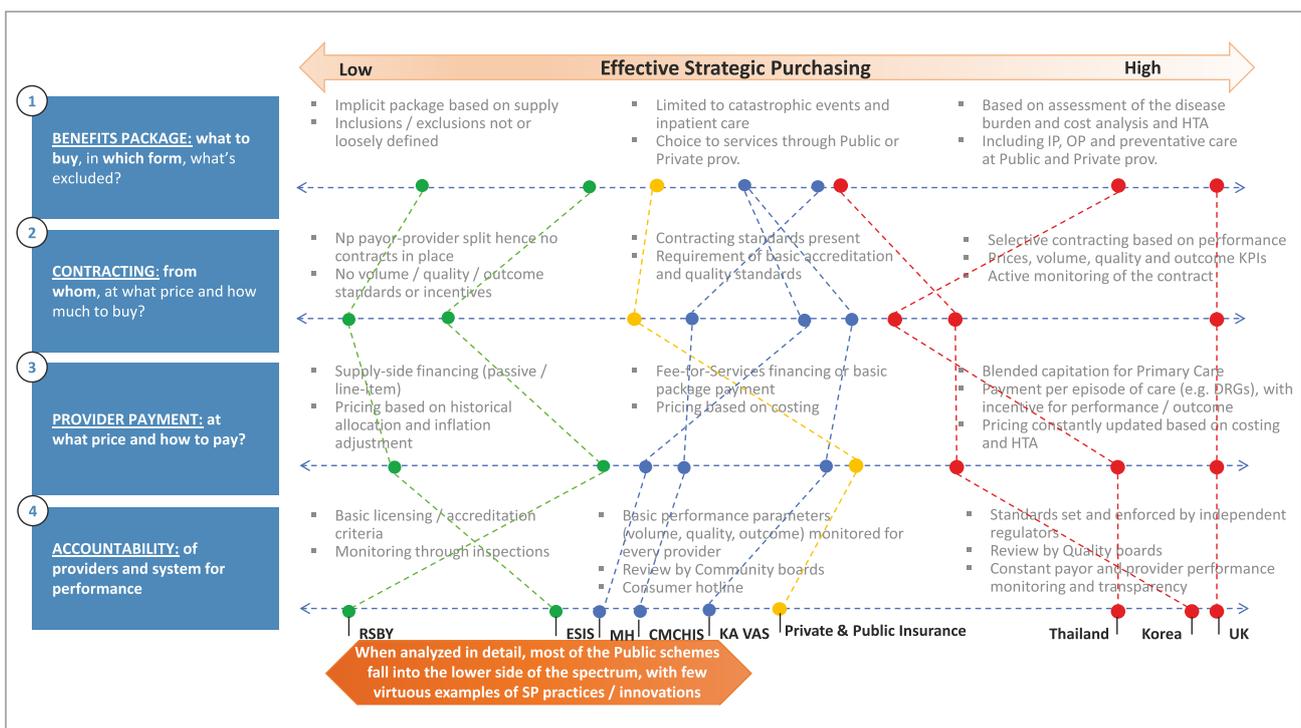
\* Oriental Insurance Corporation of India, National Insurance Co. Ltd., New India Assurance Co. Ltd., United India Insurance Co. Ltd.  
 \*\* Central Government Health Scheme

In the private sector:

- New package products for outpatient care, and extended coverage for critical care; inclusion of a wellness component in insurance products;
- Contracting and payment and accountability: In cases where TPAs are involved, a tripartite agreement is signed (that is, no agreement can exist without the participation of insurance providers); all 4 current public general insurers approach hospital empanelment processes through a single body, GIPSA, (which provides them with greater negotiating power). These insurers, owing to large volumes are able to drive GIPSA rates (these are heavily discounted) with majority billing under package rates; use of technology for fraud detection.

Finally, Figure 13 looks at selected schemes such as RSBY, ESIS, and others and compares them with best practices internationally. While some progress is notable, schemes have not moved entirely to the right of the graphic, which signifies strong strategic purchasing.

**Figure 3.13: Certain states have initiated the journey to effective Strategic Purchasing, but with not sharing of best practices**



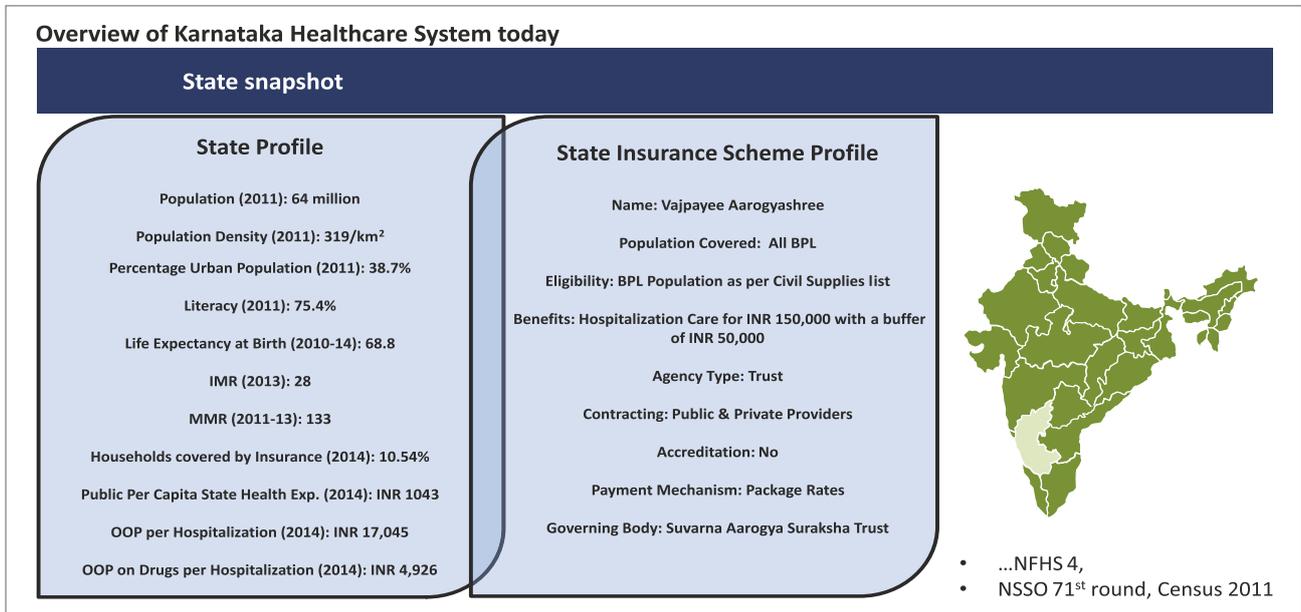
In addition to the green shoots defined above, some states have launched more systemic reforms. These include states such as Andhra Pradesh, Tamil Nadu, Maharashtra, etc.

For the purpose of this study, the two states of Karnataka and Meghalaya were studied in greater detail to understand how these health systems are slowly moving towards structures more attuned to strategic purchasing. The two states chosen provide an example of how despite vast differences in size, geography, economic status as well as social and cultural milieu, the right effort can help advance the agenda of strategic purchasing in the health sectors across Indian states.

Case Study 1: Karnataka (Suvarna Aarogya Suraksha Trust - SAST)

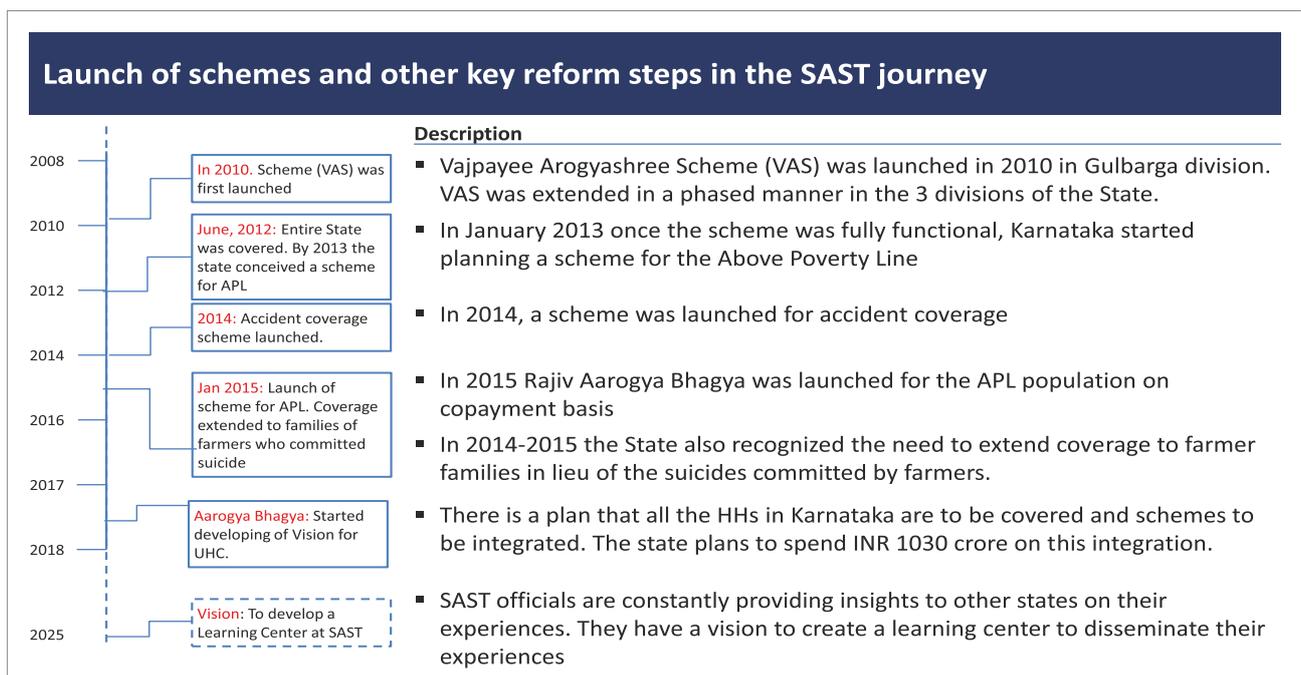
The state snapshot of demographics and the health sector is provided in Figure 3.14.

Figure 3.14: Situation in India: Landscape of players and flow of funds



Historically, Karnataka had a large number of payers/schemes, causing considerable inefficiencies. Limited insurance coverage and high OOPs was a threat to financial protection. People belonging to the Below Poverty Line (BPL) group were facing financial barriers and inadequate access to quality medical care. A full 14.1 per cent of the households in Karnataka reported catastrophic expenditure, compared to less than 2 per cent in Thailand but relatively low compared to some states in India such as 20 per cent in Kerala and 16 per cent in Andhra Pradesh.

Figure 3.15: SAST Healthcare Financing Reform: Timeline



The objective around a decade ago was to improve access of BPL families towards tertiary medical care and provide treatments for identified diseases through a network of healthcare providers. The state aspired to provide universal coverage to the BPL population, about 78 lakh families. The state also wished to cover catastrophic illnesses not covered by other health insurance schemes and provide super speciality surgical care to BPL families. Finally, SAST saw special challenges for people living in border areas close to other states, and empanelled hospitals of neighbouring states to improve their access to care. The reforms have evolved over time and a vision going forward has been developed (Figure 3.15). Coverage to groups and benefits covered have expanded over time.

Key elements of the reform process (Table 3.6 below) included:

- Drugs covered in the benefits package
- Reallocation of funds for vulnerable populations and creation of medical camps
- Selective contracting and selective empanelment of providers
- Payment reforms through package rates
- Claims review and authorization
- Development of IT systems to flag suspicious claims
- Simplified referral systems

Reforms have now been expanded to include the APL population and the state wants to achieve universal coverage.

**Table 3.6: Key elements of SAST Reform**

Vajpayee Arogyashree Scheme (VAS)		Detailed in backup	
	Description		Description
Focus on BPL	<ul style="list-style-type: none"> <li>All citizens registered for a BPL card with the Food &amp; Civil Supply Authority are automatically enrolled in the plan</li> </ul>	Empanelment of providers	<ul style="list-style-type: none"> <li>Empanelment of all public hospital and doctors</li> <li>Selective online empanelment of private providers based on defined criteria</li> <li>Continuous review of empanelment status</li> </ul>
Focus on Tertiary Care	<ul style="list-style-type: none"> <li>Easier to define packages and pricing and monitor utilization</li> <li>Maximum impact on catastrophic health expenditure</li> </ul>	Claims authorization	<ul style="list-style-type: none"> <li>Medical staff (physicians) pre-authorizing 100% of claims</li> <li>All evidence has to be provided</li> <li>Medical review is also performed ex-post on a random sample of the claims</li> </ul>
Inclusion of Drugs in the benefit package	<ul style="list-style-type: none"> <li>Drugs are covered by the Scheme and available as a part of the package</li> <li>This includes oncological drugs, which are among the highest source of expenditure</li> </ul>	Automation of processes / procedures	<ul style="list-style-type: none"> <li>Limited automation in claims processing</li> <li>Now introducing automatic flagging on e-claims</li> </ul>
Reimbursement based on package rates	<ul style="list-style-type: none"> <li>Package rates and ward rate equal for all providers</li> <li>Inclusive of follow-up care for 1 year for 60 procedures</li> <li>Inclusive of travel and transport</li> <li>Incentives based on quality (2%-3%-4%)</li> </ul>	Overall cap to health expenditure	<ul style="list-style-type: none"> <li>Cap of 200,000 IRP per family per annum</li> <li>Special exceptions made on case to case basis</li> </ul>
Use of available (and large unutilized) funds	<ul style="list-style-type: none"> <li>Use of fund for marginalized castes including scheduled tribes, largely underutilized due to over-allocation:                             <ul style="list-style-type: none"> <li>Funds utilized for organizing special medical camps, with involvement of top Indian doctors</li> </ul> </li> </ul>	Simplified referral system	<ul style="list-style-type: none"> <li>Bypass of the standard 5-level referral system:                             <ul style="list-style-type: none"> <li>Every officer has available the full registry of providers for every procedure</li> <li>One officer can refer at any level</li> </ul> </li> </ul>
Expansion to APL in 2015 onward	<ul style="list-style-type: none"> <li>Kept focus on BPL for the first phase</li> <li>Reduce resistance of private providers and private insurance companies at the beginning of the Scheme</li> <li>Provide resistance of users by introducing copayment</li> </ul>	Scheme set-up as independent Trust	<ul style="list-style-type: none"> <li>Independence important to streamline decision making process and execution</li> <li>Trust status providing higher flexibility compared to insurance scheme (e.g. on inclusions, pricing, etc.)</li> </ul>

Finally, Karnataka has innovated in governance through its independent trust which has allowed flexibility and innovative decision making. The Suvarna Aarogya Suraksha Trust (SAST) is looking to bring all schemes under a single payer umbrella over the next decade. Results to date have been impressive with gains in utilization, lowered mortality and morbidity as well as robust signals of improved financial protection and responsiveness. Measures of efficiency have also improved. The summary of results is presented in Table 3.7 below.

**Table 3.7: Impact of the SAST Reform**

Overall impact of the SAST Reform on Karnataka healthcare system	
<p><b>Access to Services for Good health outcomes</b></p>	<ul style="list-style-type: none"> <li>▪ Significant increase in <b>utilization of tertiary care</b></li> <li>▪ Significant improvement of quality of care for the VAS eligible conditions* – most pronounced for cardiac cases:               <ul style="list-style-type: none"> <li>– 64% reduction of the <b>mortality rates</b></li> <li>– 6.74% reported lower <b>infection rates</b></li> <li>– Lower <b>readmission rates</b></li> </ul> </li> </ul>
<p><b>Financial protection</b></p>	<ul style="list-style-type: none"> <li>▪ Highly significant <b>reduction in OOP</b> expenditure among eligible households               <ul style="list-style-type: none"> <li>– 64% OOP reduction for long term hospitalizations</li> </ul> </li> </ul>
<p><b>Responsiveness (patient satisfaction)</b></p>	<ul style="list-style-type: none"> <li>▪ Reported improvement of <b>satisfaction and general well-being</b> among patients interviewed after hospitalization for VAS-eligible conditions</li> </ul>
<p><b>Efficiency (Sustainability and Country competitiveness)</b></p>	<ul style="list-style-type: none"> <li>▪ The Average <b>Length of Stay</b> in Karnataka has reduced significantly – for public and private hospitals respectively, from 8.9 and 9 days in 2004 to 5.6 and 6 days in 2014</li> <li>▪ Increase in <b>hospitalizations needing less than 2 days</b> of hospital stay – from 38 percent in 2004 to 50 percent in 2014</li> </ul>
<p><b>Equity</b></p>	<ul style="list-style-type: none"> <li>▪ Utilization of funds for most <b>marginalized casts</b></li> </ul>

\* Based on a study comparing VAS eligible and VAS ineligible hospitalizations  
 Source: Sood, N., Bendavid, E., & Mukherji, A. (2014). Government health insurance for people below poverty line in India: quasi-experimental evaluation of insurance and health outcomes. *British Medical Journal Open Access*, 1-12. Retrieved October 20, 2014, from <http://www.bmj.com/content/349/bmj.g5114>

The lessons from this multi-year journey in Karnataka mirror some of the issues discussed in this chapter as key to improved purchasing, including:

- Clarity of benefits and standardization of benefits
- Selective contracting with public and private sectors on the basis of cost and quality
- Standardized and improved ICT systems
- Levels of autonomy for purchasers and providers
- Well-developed list of markers of accountability (Table 3.8)
- Stewardship

Table 3.8: Key success factors of the SAST Reform

Detail on Accountability measures	
	Description
Medical Audit and Mortality Audit	<ul style="list-style-type: none"> <li>Medical review of claims                             <ul style="list-style-type: none"> <li>Performed on a sample of claims</li> </ul> </li> <li>Review of every mortality case:                             <ul style="list-style-type: none"> <li>Every empaneled provider required to have a mortality and morbidity committee</li> <li>Providers to submit information to SAST on every death within 24 hours, for SAST to pursue further investigations and take actions as needed</li> </ul> </li> </ul>
Penalties for fraudulent claims	<ul style="list-style-type: none"> <li>Empanelment &amp; Disciplinary Committee (EDC) constituted to take disciplinary action against hospitals.</li> <li>The committee stops payment to hospitals on account of fraud. Finally they are de-listed and lastly suspended from the scheme</li> </ul>
Complaint on Drugs	<ul style="list-style-type: none"> <li>Drugs are available free of charge as part of the Scheme</li> <li>If patients complain of excessive cost of drugs, investigations are performed on physicians prescribing them, and disciplinary actions are taken when necessary</li> </ul>
Transparency on de-empanelment	<ul style="list-style-type: none"> <li>List of all de-empaneled providers made public on SAST website</li> </ul>
Transparency on Governance	<ul style="list-style-type: none"> <li>Transparency of decisions / resolutions from governance committees:                             <ul style="list-style-type: none"> <li>Reports of committee activities made public on SAST website</li> </ul> </li> </ul>
Cancellation of visits	<ul style="list-style-type: none"> <li>Penalty for unmotivated cancellation of visits, to avoid inefficient use of public resources</li> </ul>

Karnataka has implemented it methodically. The state has also created a vision for system reform over the next decade. Finally, during the monitoring and evaluation phases, the leadership has learned, responded, and understood this sector to be dynamic. To optimize care, new information and technologies must be constantly integrated into an updated sector. Table 3.9 provides an overview of lessons for India.

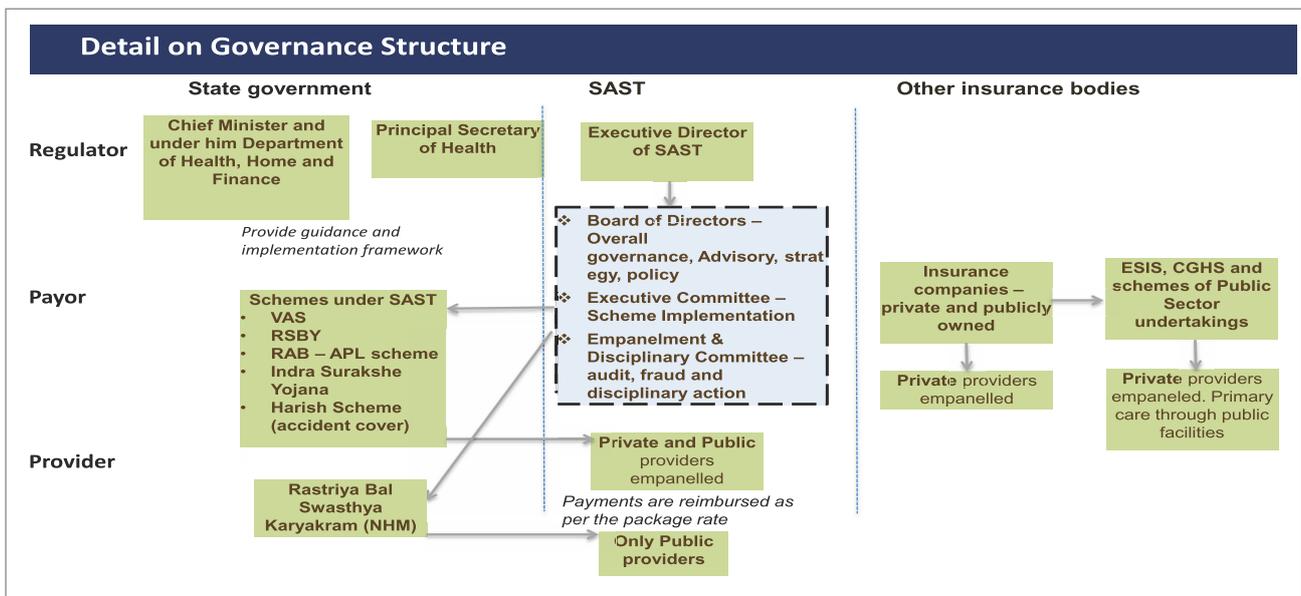
Table 3.9: Key success factors of the SAST Reform

Several lessons learned during the SAST Reform along a multi-year journey	
	Description <span style="float: right;">Detailed in the following</span>
Strong political support based on a well defined vision	<ul style="list-style-type: none"> <li>Stable political environment, reducing the risk of changes of priorities</li> <li>Support of the Secretary of Health for the State</li> <li>Well defined vision for the reform</li> <li>Over 3 years of preparation before launch</li> </ul>
Progressive, step-wise implementation	<ul style="list-style-type: none"> <li>Initial focus limited to BPL</li> <li>Progressive expansions to other segments of the population (APL) and other services (other SC/TC, and later to Diagnostic / Screening and Primary Care)</li> </ul>
Independent Trust with strong governance	<ul style="list-style-type: none"> <li>Suvarna Arogya Suraksha Trust established as a separate body under the aegis of Health and Family Welfare Department, headed by an IAS officer</li> <li>Governance and managerial functions handled by a board and executive committees</li> <li>Simpler governance (e.g. set-up of committees, hiring and firing, etc.)</li> </ul>
Strong organization providing core capabilities for execution	<ul style="list-style-type: none"> <li>~175 people to manage the scheme (large synergies if managing multiple schemes)</li> </ul>
Accountability mechanisms	<ul style="list-style-type: none"> <li>Monitoring, transparency and enforcement at every level of the organization</li> </ul>
Autonomy of public providers in use of the funds	<ul style="list-style-type: none"> <li>Given autonomy to providers to use the claim funds, within guidelines:                             <ul style="list-style-type: none"> <li>70% for facility improvement</li> <li>30% for incentives to the entire team</li> </ul> </li> </ul>
Continuous changes to respond to market dynamics and learning	<ul style="list-style-type: none"> <li>Continuous adjustment of the packages and pricing, considering utilization trends and feedback from providers and other stakeholders</li> <li>Flexible organizational set-up, e.g. with initial use of TPA, then replaced by internalization of staff and functions due to lack of performance</li> </ul>

## Strategic Purchasing

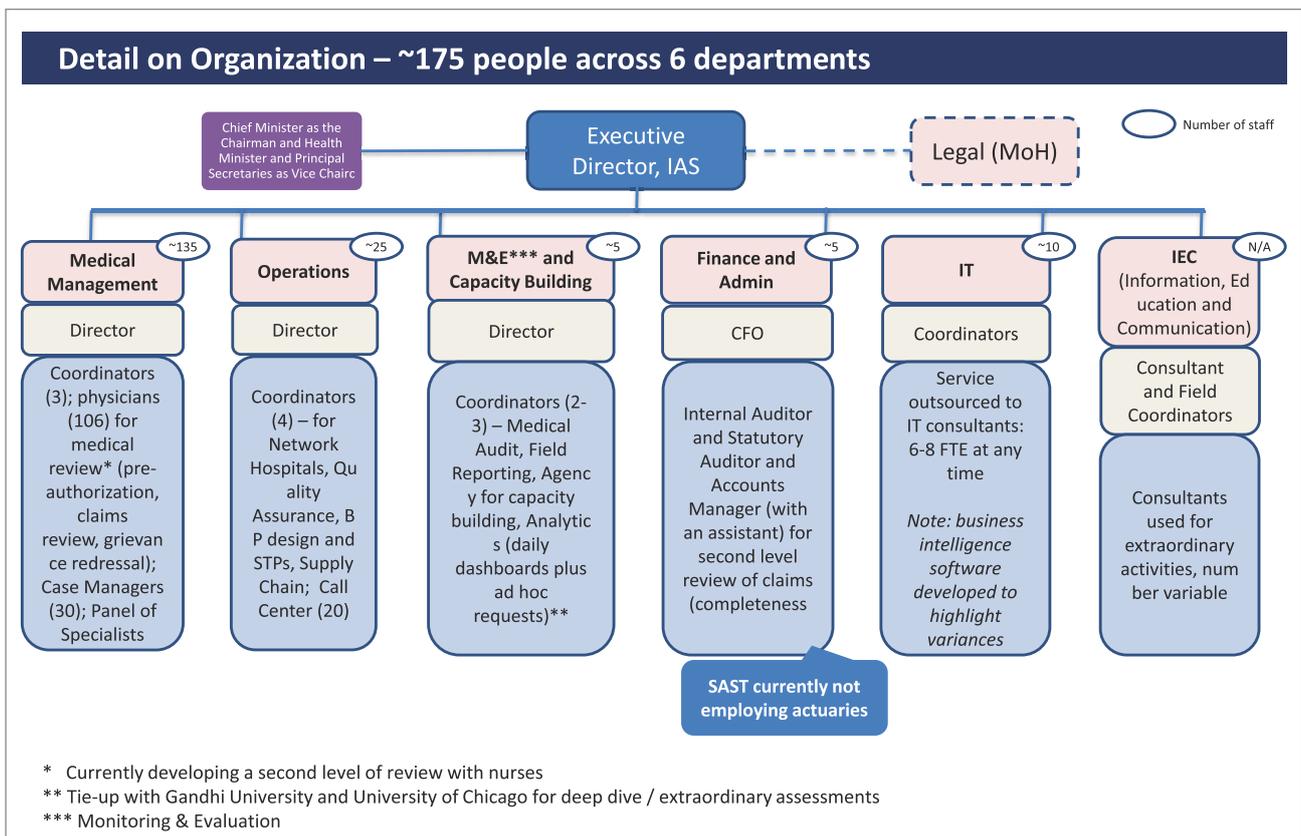
A key lesson from Karnataka is the autonomous governance structure of SAST. Its relation to the rest of the government is outlined in Figure 3.16. Its governance structure shows that most of the schemes are under the SAST umbrella. It remains to be seen if all schemes will eventually be under the SAST umbrella to provide a unified purchaser for all-BPL and APL. At the least, it is one model for the new National Health Authority (NHA) to review.

**Figure 3.16: Key success Factors of the SAST Reform**



Notable, too, is the number and specialization of staff supporting the SAST, as shown in Figure 3.17 below.

**Figure 3.17: What is Strategic Purchasing?: Policy levers**



The Karnataka case study provides great insight and a very good model for thinking about the new national health agency and state health agency structure under the PM-JAY reforms announced recently. Key dimensions include its autonomy in the sector, the deep specialization of its staff, its flexibility and dynamism, its careful step-by-step experience and its ongoing vision.

### Case Study 2: Meghalaya (Meghalaya Health Insurance Scheme – MHIS)

Despite the small size of the state, Meghalaya's Health Insurance Scheme (MHIS) deserves attention for its strategic purchasing as it integrates the four policy levers. Currently it is not possible to assess the actual impact of MHIS as it requires an independent evaluation for assessing the implementation of the scheme as well as measuring its impact in terms of financial protection, quality of care (i.e. driving provider performance), and equitable use of resources (targeting).

Meghalaya is one of the smallest states in India, with a population of approximately 3 million and a good literacy level of about ~75.5 per cent, which is just above India's national average. With good natural resources, it has undergone steady economic development in the past decade, with GDP per capita growing fast at 14 per cent per year (at current prices) between 2004-05 and 2011-12<sup>16</sup>. Although this is still below the Indian per capita average of just above INR 79,000 as opposed to the India average of INR 113,000. As with other states, Meghalaya's healthcare system could improve its performance, as reflected for example in an infant mortality rate of 47 per 1,000 live births.<sup>17</sup> In 2012, the state of Meghalaya launched the Meghalaya Health Insurance Scheme (MHIS) with the following main objectives:

- Universal access to healthcare, going beyond the officially recognized BPL to cover all citizens (except government employees)<sup>18</sup>
- Convergence with existing schemes, leveraging the Government of India funding for BPL and the robust IT system architecture of the existing scheme
- Incentives for better enrolment and utilization, for service providers, local officials, patients (to improve health seeking behaviour)
- Enhanced benefits package, including catastrophic illness as trauma, cancer, heart and expanding financial cover
- Increased availability of quality care to citizens, improve hospitals within the state, empanelling hospitals outside the state

A new State Nodal Agency (SNA, other than NHRM – the State Nodal Agency already in charge of RSBY since 2009) was charged with the implementation of MHIS, in 2 phases: MHIS 1, launched in December 2012; MHIS 2, launched in May 2015 following an in-depth analysis of MHIS 1.

The main elements of the reform across the four policy levers of strategic purchasing include:

#### 1. Benefits package

What to buy, in which form, what's excluded? Before the reform, RSBY (financed by the Government of India) provided a good coverage of secondary care (in particular, maternal and child health), but did not

<sup>16</sup>Source: CMIE, 2013.

<sup>17</sup>Source: [http://www.censusindia.gov.in/SRS Bulletin \(September 2014\).](http://www.censusindia.gov.in/SRS Bulletin (September 2014).)

<sup>18</sup> Already covered under CGHS.

## Strategic Purchasing

fully or practically cover high-end trauma and tertiary care or catastrophic illness. Also, the coverage with a cap of INR 30,000 was only available to the BPL population.

MHIS 1 expanded the existing RSBY coverage:

- It increased the number of inpatient packages by 10 per cent (106 additional packages, mostly focused on cancer care)
- Introduced coverage for outpatient as well as preventive and wellness procedures
- Expanded coverage to all citizens (beyond BPL, excluding government employees), in exchange of a nominal fee
- Raised the coverage cap to INR 160,000 (with sub-caps by type of expense)

MHIS 2 further expanded the coverage by adding over 400 packages compared to MHIS 1 (with an increase of 150 per cent compared to RSBY). It increased coverage for heart diseases as well as follow-up care. It also raised the cap to INR 200,000 (with sub-caps by type of expense). The two figures (3.18 and 3.19) summarize respectively the evolution of the benefits package, with detail on the criteria utilized to select the procedures, and the structure of coverage of MHIS 2 reaching a total cap of INR 200,000.

**Figure 3.18: Learnings from Indian case studies - Meghalaya**

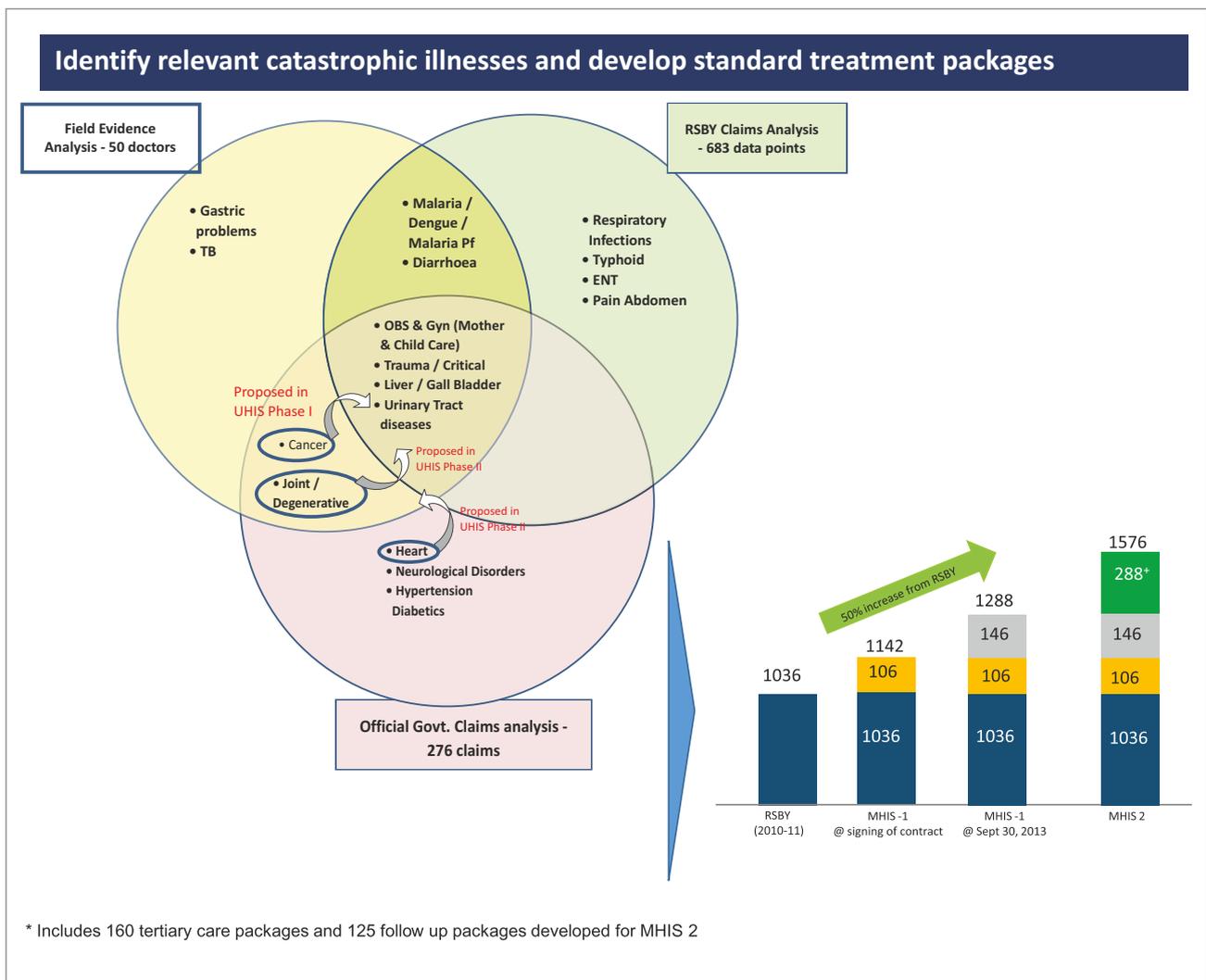
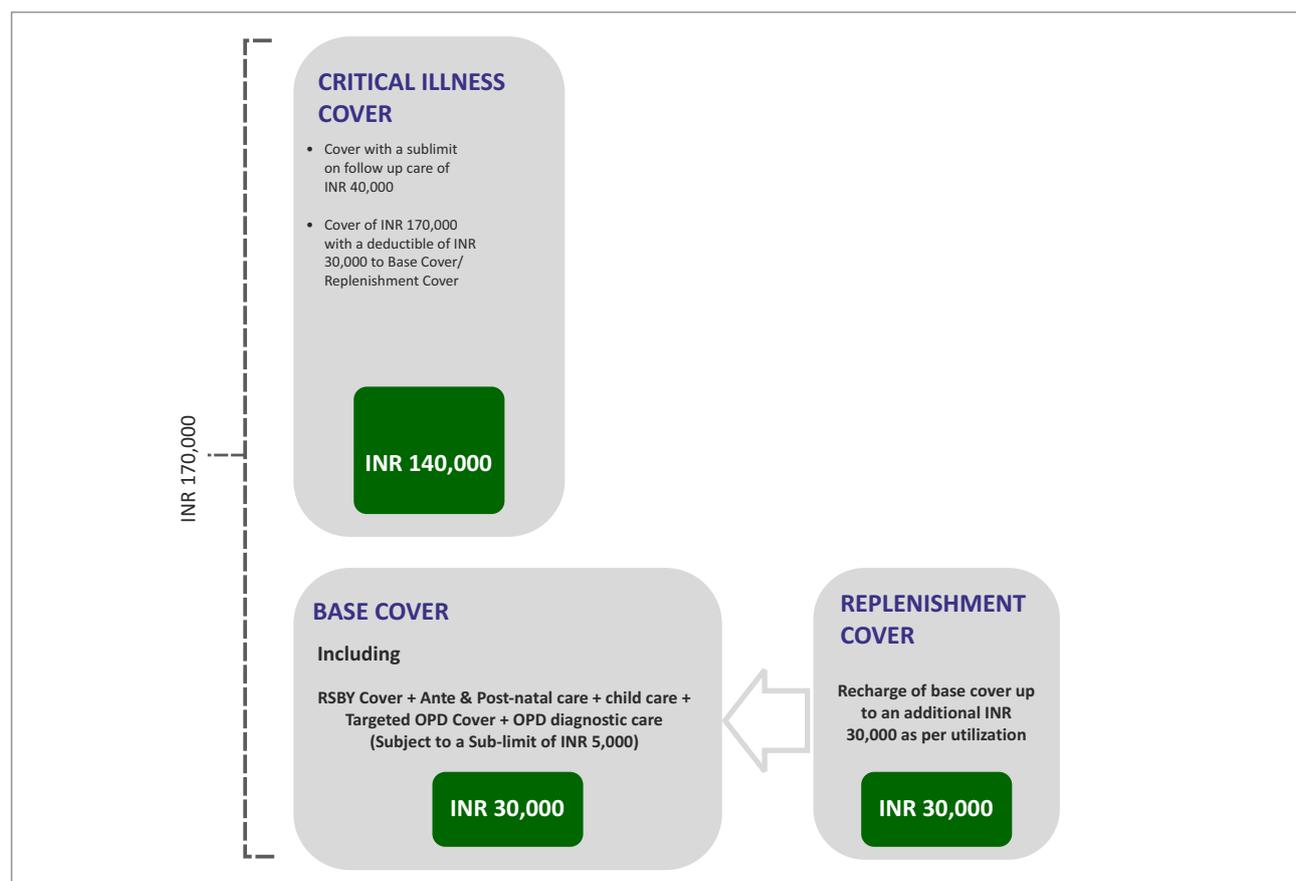


Figure 3.19: Critical Illness Cover



It is to be noted that the definition of the benefits package was the result of an actuarial financial (and fiscal) impact assessment commissioned by the Government of Meghalaya. This assessment was based on utilization and cost data from RSBY and MHIS 1 and took into consideration different scenarios in terms of service utilization.

## 2. Contracting

from whom, at what price and how much to buy? An insurance company was hired through a public tender to manage the scheme and contract providers. Both public and private providers were contracted. These contracts were extended to providers outside of Meghalaya to consider the phenomenon of migration and medical tourism.

Table 10 shows the minimum empanelment criteria for providers and requirements for the empanelment of the insurance company. These requirements aimed at setting minimum standards of quality and patient safety for providers (e.g. minimum number of beds for hospitals, and specialties to be provided). At the same time, it posed clear minimum targets to the insurance company in terms of number of hospitals empanelled (in order to ensure access to services).

**Table 3.10 : Minimum Empanelment Criteria**

Minimum Empanelment Criteria (for Providers)	Minimum Empanelment Requirements (for Insurer)
<p>A. Minimum Empanelment Criteria for healthcare providers for provision of Base Cover and Replenishment Cover (excluding tertiary care and Critical Illness Cover):</p> <ol style="list-style-type: none"> <li>All hospitals and day-care centres, whether public or private to have at least 10 in-patient beds in towns with population of less than 10,000 and at least 15 beds in all other areas</li> <li>Fully qualified doctors and nursing staff under its employment</li> <li>Operational pharmacy and diagnostic test services</li> <li>Fully equipped operation theatre if surgical procedures undertaken</li> <li>System for maintaining and providing medical and other beneficiary related records to the insurer, the TPA or their representatives and the State Nodal Agency.</li> <li>Additionally, standalone day-care centres and private hospitals to be registered under the Meghalaya Nursing Homes (Licensing and Registration) Act, 1993, if situated within Meghalaya; and under the Clinical Establishments (Registration and Regulation) Act, 2010 or other similar state acts if situated outside Meghalaya and also registered with Income Tax authorities.</li> <li>Public hospitals to have bank account operated through Rogi Kalyan Samitis</li> <li>Other terms and conditions as per the prevailing guidelines of RSBY</li> </ol> <p>B. Additional Minimum Empanelment Criteria prescribed for following listed specialties:</p> <ol style="list-style-type: none"> <li>Oncology Surgery and Cancer Therapy</li> <li>Cardiothoracic Surgery and Cardiology</li> <li>Neurosurgery and Neurology</li> <li>Nephrology and Urology Surgery</li> <li>Orthopaedics</li> </ol>	<p>A. Adequate number of hospitals across different blocks of a district to be empanelled</p> <p>B. Subject to minimum empanelment criteria, Insurer shall empanel:</p> <ol style="list-style-type: none"> <li>All public hospitals, CHCs and PHCs previously empanelled under MHIS1, catering to 7 basic specialties</li> <li>At least 1 healthcare provider for every 8,000 BFUs</li> <li>At least 2 healthcare providers in each block</li> <li>At least 6 private healthcare providers in Meghalaya and on best effort basis all private healthcare providers empanelled under MHIS1</li> <li>2 Specialty Hospitals in Guwahati for all listed specialties</li> <li>At least 2 Specialty Hospitals for each listed specialty in Delhi, Kolkata and at least 3 of following cities: Mumbai, Bengaluru, Hyderabad and Chennai</li> <li>At least 2 NABH accredited hospitals across India</li> <li>At least 2 oncology surgery and cancer therapy anywhere in India</li> </ol> <p>C. Liquidated Damages payable for failure to empanel adequate number of healthcare providers (Refer to slide on Liquidated Damages)</p> <p>D. Empanelment process refined: Prevailing RSBY guidelines will apply, unless specified otherwise</p> <ol style="list-style-type: none"> <li>Preparation of empanelment form by Insurer (indicative form provided in Insurance Contract)</li> <li>Interested healthcare provider (not de-empanelled in previous 1 year) to provide consent and complete empanelment form</li> <li>Insurer's empanelment team to review completed empanelment form and complete inspection</li> <li>Entry of details of empanelled healthcare provider on online RSBY portal for issuance of MHC</li> <li>Execution of Services Agreement between Insurer, TPA and healthcare provider</li> </ol>

Table 3.11 shows additional contractual terms for the insurance company, particularly related to the renewal of the contract (contingent to the achievement of the KPIs) and to the premium adjustment (based on actual Pure Claims Ratio). KPIs are obviously important for performance management and accountability of the insurance company. The premium revision is a measure of fairness and allows limiting possible excess profit (or loss) by the insurance company in managing the scheme given the significant uncertainty in terms of service utilization of the newly established scheme.

### 3. Provider payment

at what price and how to pay? The provider payment mechanism selected was the package reimbursement. It was a standard set of packages, across all providers, starting with those covered under RSBY and expanding over time.

To estimate the pricing, particularly of new packages, a costing assessment was done in a sample of hospitals for 20 select procedures. This was then extrapolated to the full set of new packages. Based on the costing, package rates were defined. In particular, for MHIS 2:

- The packages were classified in two categories: i) packages with predefined rates in the draft contract; and ii) packages with indicative rates or no rates in the draft contract and flexibility for the

insurer to fix rates.<sup>19</sup> Conditions requiring hospitalization for which packages were not defined would be covered up to INR 30,000 as per existing RSBY guidelines

- The insurer was entitled to revise package rates for each new policy period based on discussions with empanelled providers and SNA's prior written approval
- Package rates for NABH / Joint Commission International (JCI) / Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accredited hospitals would be 105-120 per cent of established rates, subject to the level of accreditation, following the example of CGHS, for incentivizing quality of service.

Finally, a set of packages were identified to be subject to pre-authorizations by the insurance company, with a possibility for the insurance company to shift from automatic to approved authorization.<sup>20</sup> The OPD diagnostics were available only in approved facilities with referral from qualified government doctors and subject to pre-authorization. The annual limit was INR 5,000 per card or available base sum insured, whichever is lower. Follow-up care and targeted OPD care was also subject to pre-authorization.

**Table 3.11 : Renewal/ Revision of Contract & Premium**

Performance Based KPIs and Renewal of Contract		Fairness: Revision of Premium upon Renewal	
A.	Following key performance indicators defined to determine renewal of Policies:	A.	Insurer entitled to revision of Premium for each renewal Policy Cover Period based on Pure Claims Ratio (PCR)
	<ol style="list-style-type: none"> <li>1. Overall enrolment rate</li> <li>2. Percentage of private healthcare providers empanelled in Meghalaya; number of specialty hospitals in Guwahati; number of specialty hospitals empanelled outside Meghalaya; number of NABH accredited hospitals; and number of healthcare providers with oncology and cancer therapy</li> <li>3. Percentage of empanelled healthcare providers with IT infrastructure</li> <li>4. Number of days taken to provide access to district server to SNA</li> <li>5. Total number of claims settled within 30 days</li> <li>6. Timeliness and maintenance of MIS dashboards</li> <li>7. Submission of monthly reports to SNA</li> </ol>	B.	PCR calculated upon expiry of 6 months of each Policy Cover Period as follows:
			$\frac{\text{Total Claims Paid}}{\text{number of enrolled BFUs} \times (\text{Smart Card costs} + \text{Administrative Costs})} \times 100 \text{ Total Premium collected prorated for 6 months} - *$
		Condition	Renewal Condition (s) actual
		PCR ≥ 90%	<ul style="list-style-type: none"> <li>• Insurer has right to refuse renewal</li> <li>• If renewal not refused, Premium increased in proportion to 5 year average WPI</li> </ul>
		70% ≤ PCR < 90%	<ul style="list-style-type: none"> <li>• Premium increased in proportion to 5-year average WPI</li> </ul>
B.	Scoring methodology prescribed for each KPI	30% < PCR < 70%	<ul style="list-style-type: none"> <li>• Premium remains unchanged</li> </ul>
		PCR ≤ 30%	<ul style="list-style-type: none"> <li>• SNA has right to refuse renewal</li> <li>• If renewal not refused, Premium remains unchanged</li> </ul>
C.	SNA has right to refuse renewal of all Policies if:		
	<ol style="list-style-type: none"> <li>1. Insurer achieves a score of 0 on any 2 KPIs</li> <li>2. Insurer's total score &lt; 70 of a total possible of 110</li> </ol>		* Lower of (Smart Card costs + Administrative Costs) or Rs 120 per card

#### 4. Accountability

Both of providers and of the system for performance. Based on what has been described, the contractual terms provided good incentives and mechanisms for performance management of the insurance company. This included clear (minimum) requirements in terms of empanelment, contract renewal conditional to the achievement of KPIs, and limits to the possible upside (PCR < 30 per cent triggers option for SNA to refuse renewal). The payment mechanism also provided levers for the insurance company to control utilization (and prevent misbehaviours), e.g. adjusting pricing of services and requiring pre-authorization.

Also, for providers some good incentives for quality derived from the empanelment criteria as well as for the differential reimbursement level (higher for accredited facilities). Nonetheless, for both insurance company

<sup>19</sup>Within 30 days of signing and prior to commencement of first policy period, in consultation with the State Nodal Agency (SNA). If insurer failed to propose rates for indicative packages, then CGHS rates prevailing in Kolkata or Guwahati would apply.

<sup>20</sup>Upon annual renewals or at any other time in consultation with the Government of Meghalaya and with the approval of MoLE.

## Strategic Purchasing

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and providers, there is no evidence of efforts to constantly measure and monitor quality of service, especially in terms of outcomes, utilization or patient satisfaction.

MHIS 2 was implemented from September 2015 onwards in Meghalaya. As of mid-2016, the programme had shown good progress in terms of implementation

- It had reached around 49 per cent of the ~740,000 families enrolled in the state
- All government hospitals were included and they participated actively in the project. A total of over 90 PHCs, CHCs and DHs raised claims.
- Over 50 private hospitals participated in the programme-15 in Meghalaya and 35 outside Meghalaya

Notwithstanding some initial issues in the relationship with the insurance company, the programme was proving to be successful and appreciated (and used) by the population. Some important lessons were learned, to be considered for future developments in Meghalaya as well as by other states willing to implement similar programmes:

- The MHIS supplemented, complemented and enhanced RSBY to minimize development costs. For instance, it used paperless identification and authorization through the Health Card. This enhanced fiscal viability, improved execution, and promoted state-level (and national) integration.
- Complexity of enrolment: limited data availability/poor data quality (27 per cent of households were not reachable due to data mismatch) was one of the major issues for implementation. Furthermore, the capacity necessary to for executing the enrolment was severely underestimated. Finally, community involvement and adaptation to the local context was key (enrolment ranged from 0.6 per cent in some villages to 100 per cent in others, due to a number of reasons including local community/director-level involvement, enrolment during agricultural or monsoon season etc.).
- The MHIS required several adjustments. For example, the benefits package and pricing of services, was based on actual utilization and new data made available. It was also based on a rigorous financial/fiscal impact assessment.

### d) Stewardship/Governance

Poor stewardship has been mentioned as a “choke point” to real reforms in purchasing. The World Health Organization (WHO, 2018 website) defines stewardship as a political process that involves balancing competing influences and demands, and includes:

- Maintaining the strategic direction of policy development and implementation
- Detecting and correcting undesirable trends and distortions
- Articulating the case for health in national development
- Regulating the behaviour of a wide range of actors - from healthcare financiers to healthcare providers
- Establishing effective accountability mechanisms

While the scope for exercising stewardship functions is greatest at the national level, the concept also can cover the steering role of regional and local authorities. A systematic review found several areas in need of improvement:

- There is an absence of a nationwide vision for change, with states driving specific approaches. While states may foster new ideas and innovations, no coherent strategy has developed clear goals particularly what defines a successful programme or how to identify and disseminate best practices. However, as mentioned earlier, PM-JAY serves as the ideal platform through which such alignment can be promoted.
- Limited nationwide standards and standard-setting initiatives (particularly relevant in ICT and the fragmentation that is noted above), a precondition to flow of information across states and among public and private purchasers and providers
- Scarce and inadequate strategic collection of data, hampering the ability of understanding and correcting system distortions
- No nationwide sharing of information and best practices
- Loose regulation of providers, particularly private, and loose relative enforcement (e.g. implementation of the Clinical Establishment Act)
- Regulation of payers limited to general insurance regulation by IRDAI - and applied only to commercial payers
- Inadequate health technology assessment, though emergent in the MOHFW currently
- Limited nationwide efforts to drive efficiency
- Limited healthcare management capacity N- in terms of skills for modernizing the system including actuaries, health economists, healthcare managers, coding specialists for claims and quality data
- Limited development and regulation with respect to cost-based pricing of services (with the exception of some essential drugs and procedures as well as some limited state examples)

In late 2018, the National Health Authority (NHA) was established, first under the Ministry of Health and Family Welfare, and in 2019, provided autonomous status. NHA can address some or many of the aforementioned issues, and the chapter below provides additional details for the work of this important organization.

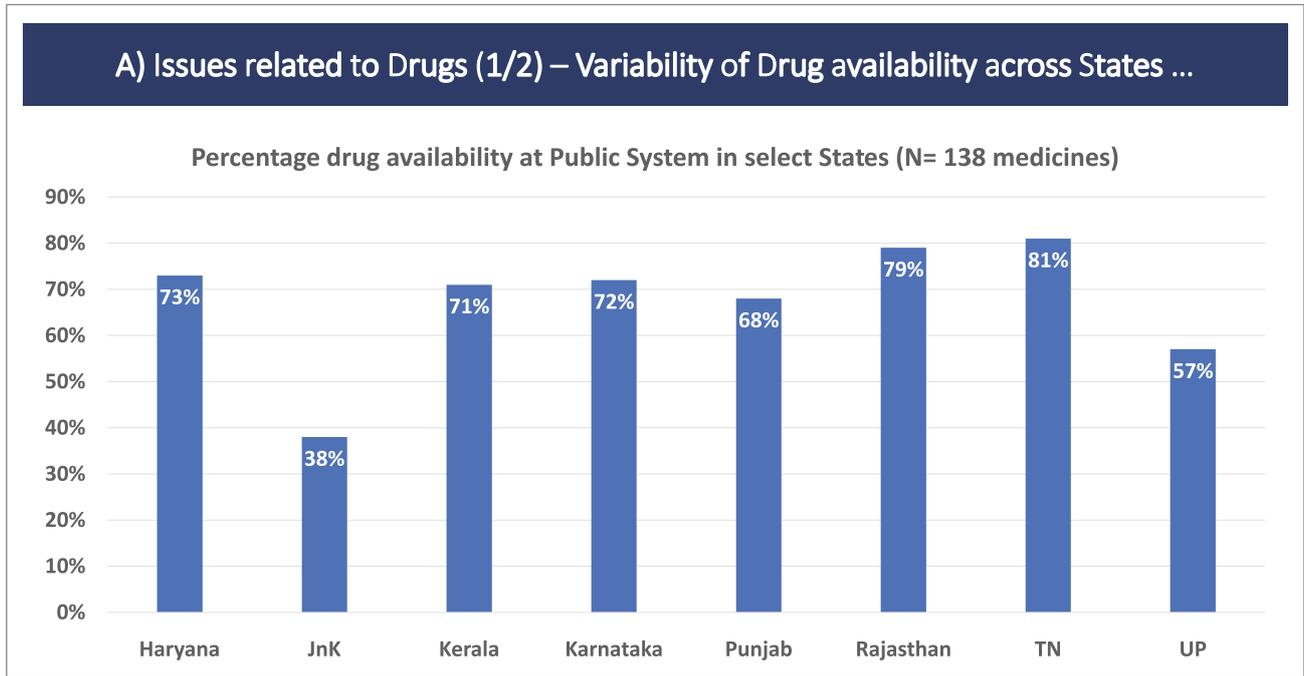
### **Immediate reform is the need of the hour**

Recalling the intermediate (efficiency, equity, quality, access) and final (outcomes, responsiveness, financial protection) goals of a health system in the first few chapters, this systematic review suggests that there are several challenges that need to be addressed.

### **Access to services for ensuring good health outcomes**

- There are variable access conditions across states, driven by differences in benefits packages and capacity. The variations are exacerbated by the limited availability of data pertaining to the population served, providers in the health system and services rendered. This makes it difficult to undertake proper capacity planning and verify access conditions, leading to gaps in coverage and availability of essential services and goods (Figure 3.20).
- There is a lack of integration or coordination across public and private providers, driving issues of continuity of care, quality, and efficiency. (This is discussed in Chapter 4.)
- There is limited data and inadequate measurement of outcomes, hampering the ability to monitor and reward quality of care. (This is discussed in Chapter 4.)

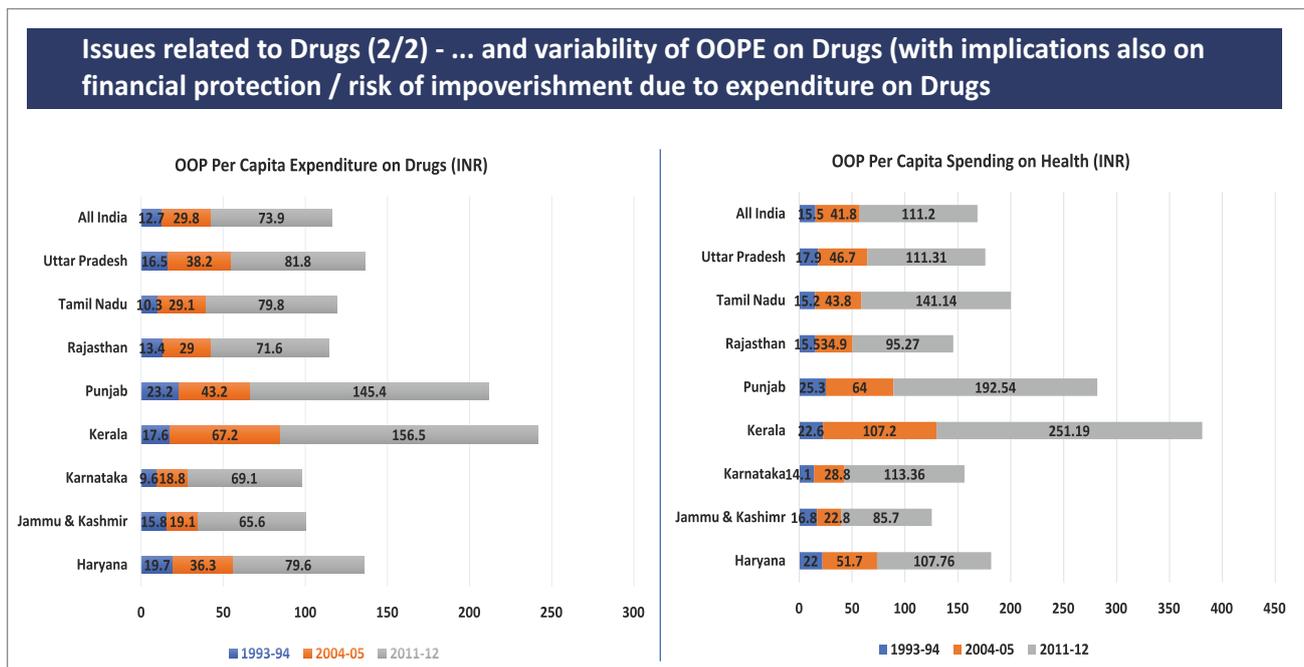
Figure 3.20: Important to intervene now



**Financial protection**

- The benefits package definition under most insurance schemes, is not based on disease burden, and overly focused on inpatient conditions, resulting in lack of coverage for common diseases as well as diagnostic and outpatient care. Berman (2005) found that the management of chronic care and out-of-pocket-spending on medicine led to greater impoverishment of Indians as compared to the more infrequent high-cost hospital admissions and high-cost treatments for catastrophic incidence (Figure 3.21). There are limited incentives to drive the performance of providers, which reduces the

Figure 3.21: Important to intervene now



value for money for the poor. Financial protection is limited by a lack of participation in risk pooling of the large source of out-of-pocket payments currently made directly by households.

### Responsiveness

- Line-item budgeting in the public system is providing limited or no incentives for flexibility, innovation, and high-quality service levels; and
- Until the recent formation of the NHA there had been a lack of necessary governance mechanisms, structure, and standards, that do not allow for transparency and protection for the members of the risk pools and insurers, and therefore reduce incentives to participate in the risk pools

### Efficiency, sustainability and country competitiveness

- There is fragmentation of purchasers across levels of care that varies from public health to primary, secondary and tertiary care. This hampers the possibility of effectively managing the care continuum with impact on costs and outcomes.
- Line-item financing is not incentivizing efficiency in service delivery. Passive purchasing leads to a significant percentage of unspent budget, decreasing efficiency of use of funds at the central and state-levels
- Cost of services and packages is determined mostly based on input and/or provider assessment of the same. Further, costing can rely on limited negotiations with payers, fostering cost escalation/limiting the incentives for efficiency, and causing expanding variation across states (Figure 3.22).

**Figure 3.22: Important to intervene now**

Variation in pricing of procedures: significant variability in pricing, not justified just by the variation of cost of inputs		
Procedure	Scheme	Amount
Appendectomy	Market	INR 40,000 – 70,000
	RSBY	INR 6,000- 12,000
Procedure	Scheme	Amount
Acute Myocardial Infarction with Thrombolysis	Market	INR 75,000 – 100,000
	RSBY	INR 15,000 – 17,250
Procedure	Scheme	Amount
Pericardial Effusion & Tamponade	Market	INR 75,000
	RSBY	INR 25,000
Procedure	Scheme	Amount
C-Section	Market	INR 70,000 – 150,000
	RSBY	INR 4,500 – 18,000*

\* Maximum value in Meghalaya

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- Payment mechanisms are incentivizing hospitalization, creating incentives to push outpatient care to more expensive settings in the hospital, leading to unnecessary admissions and the limited use of more cost-effective day-surgery.

### Equity

- Disparity of healthcare system conditions among states, widening also due to variation in capacity/capabilities across states and no central mechanism to accelerate the strengthening of the weaker state
- Independent and uncoordinated capital investments, with innovations in more progressive states. This could create further political resistance to introducing needed nationwide standards and reforms.
- Little tracking and limited incentives for providers to prioritize the poor in terms of funding or access.

### International comparisons

In analysing the need for reforms, it is helpful to reflect on some of the international examples of how different countries have dealt with the issues related to strategic purchasing. Table 3.12 summarizes some of the challenges facing India as a whole, and ideas for where to look for solutions and new models outside of India. Some, but not all of cases and countries are covered here. Striking in this figure is the fact that there is no one way of addressing the challenges of strategic purchasing. Nevertheless, the figure provides clear patterns of common learnings emerging globally across every policy lever.

**Table 3.12: Learnings from international case studies**

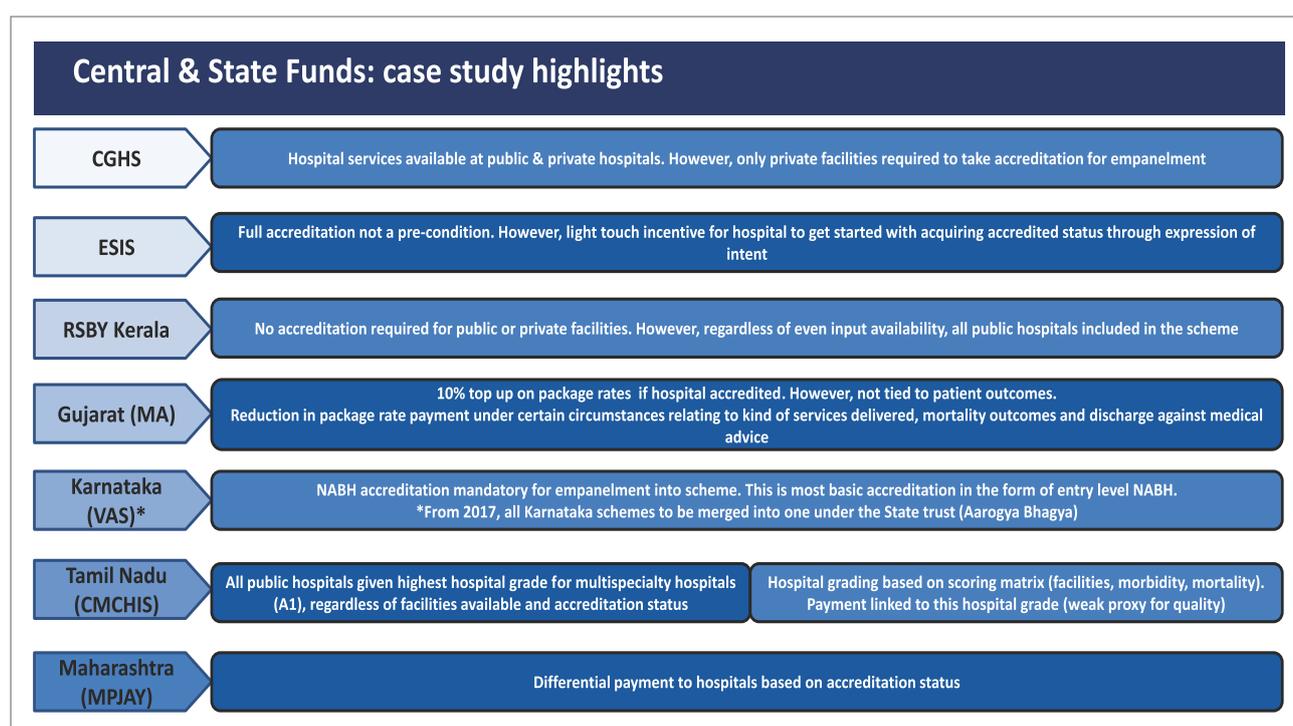
There is no “one right answer”, but several common learnings / trends emerge from both developed and developing countries			
	Main issues for India	International learning / emerging trends	Country examples
1 <b>BENEFITS PACKAGE:</b> what to buy, in which form, what's excluded?	<ul style="list-style-type: none"> <li>▪ Mostly implicit and inpatient focused</li> <li>▪ When explicit, significant variability among Schemes and would require costing and HTA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Discussed under Risk Pooling workstream</li> </ul>	
2 <b>CONTRACTING:</b> from whom, at what price and how much to buy?	<ul style="list-style-type: none"> <li>▪ (Mostly) not contracting and lack of autonomy in Public providers</li> <li>▪ Limited contracting of Private Sector</li> <li>▪ No quality/outcome reporting or KPIs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Extensive contracting of Private Sector, also in PC, can help <b>capacity development and consolidation</b> / autonomization</li> <li>▪ <b>TPAs</b> can help system set-up and implementation, but require proper regulation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Indonesia</li> <li>▪ Abu Dhabi</li> </ul>
3 <b>PROVIDER PAYMENT:</b> at what price and how to pay?	<ul style="list-style-type: none"> <li>▪ Pooled funds are utilized 60-70% line-item, based on historical allocation, and lacking incentives for volume and quality</li> <li>▪ Package payments would require costing and HTA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Several counties have performed effective improvements in financing of <b>primary care</b>, with capitation (or blended capitation) being the most widely used payment mechanism</li> <li>▪ <b>DRG</b> is the most commonly used payment mechanism for inpatient care, which has demonstrated impact in containing the cost of care and fostering appropriateness of care</li> </ul>	<ul style="list-style-type: none"> <li>▪ Argentina, Italy</li> <li>▪ Thailand, Hungary, Germany</li> </ul>
4 <b>ACCOUNTABILITY:</b> of providers and system for performance	<ul style="list-style-type: none"> <li>▪ Diversity of regulatory / financial oversight</li> <li>▪ Basic accountability measures mostly for fraud prevention, but no structured output/outcome reporting</li> <li>▪ No sharing of data among Payors</li> <li>▪ “Money follow the poor”?</li> </ul>	<ul style="list-style-type: none"> <li>▪ Independent <b>regulators</b> are important to foster proper system governance in multi-payor systems</li> <li>▪ <b>Transparency</b> of outcome fosters quality and reduces costs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Holland, Germany</li> <li>▪ Germany, UK</li> </ul>

### Setting a path towards achieving strategic purchasing

The evidence presented so far strongly suggests that India and its health sector lags significantly behind the

rest of the world in how it purchases care services to achieve efficiency and equity. It ranks with slower, less developed countries like its neighbour Pakistan, and the countries of Sub-Saharan Africa. It is surprising that India is so far behind given the expertise and capacity in India. The country also has robust economic growth and development and green shoots are visible in states like Karnataka and Meghalaya. The other states are Maharashtra, Andhra Pradesh, Tamil Nadu, Gujarat, and Kerala (Figure 3.23).

**Figure 3.23: Situation in India - Contracting & Payment**



### Some recommendations for achieving common health system objectives include:

- Access to services for good health outcomes (quality)
- Financial protection
- Responsiveness (patient satisfaction)
- Efficiency/value for money (sustainability and country competitiveness);
- Equity

Successful reforms will achieve measurable impact on all these dimensions.

### In order to make the desired progress, it is essential to:

- Move to demand-side financing (money follows the patient)
- Modernization of the National Health Mission, by creating a purchaser-provider split, making a provision for contracts with both public and private providers.
- The recent announcement of the PM-JAY scheme and NHA brings this concept closer to fruition as well as the wider stated strategy of Ayushman Bharat. The discussion below builds on Ayushman Bharat and PM-JAY, providing insights into how they can evolve to be strategic purchasers of health services:
- Use of incentives for driving provider's transformation
- Foster continuity of care (from the start or over time)
- Step-by-step implementation (5-10 years)

## Strategic Purchasing

- Standardized rules of the game at the state and central levels
- Flexibility to states for customizing the solution and determining the pace of transition
- Central coordination and stewardship to steer the reform and promote sharing of best practices
- Ensuring accountability by conducting regular audits and encouraging transparency to minimize corrupt behaviours

Evidence-based decision making. Data analysis is key to the reform process.

While it is possible to offer suggestions for strategic purchasing in the health sector, the onus ultimately rests on India's leaders with regards to:

- The types of activities that are centrally-led vs. state-led
- Specific roles of public vs. private sector
- Specific output-based payment mechanisms adopted
- Should there be one or multiple purchasers?
- Should there be one or multiple regulators?

Global evidence is not always completely clear in these areas. Economic theory alone tells us nothing about whether the private sector is more efficient or a better performer as compared to the public sector. Likewise, countries with a single payer (United Kingdom, Sweden, Estonia, Italy, Canada) nevertheless devolve purchasing in some ways either geographically or through providers. Similarly, multiple purchasers exist in high performing countries such as Thailand, Japan, Germany, Netherlands, and Switzerland.

The discussion, then, recognizes that India is a federal nation, dividing responsibilities across levels of

**Table 3.13: Recommendations and options / scenarios for intervention**

Proposals for reforming Strategic Purchasing for Healthcare in India: a broad agenda for a reform journey that will likely last 10-15 years	
1 <b>BENEFITS PACKAGE:</b> what to buy, in which form, what's excluded?	<ul style="list-style-type: none"> <li>▪ Continue the set-up of a (quasi-)independent HTA commission</li> <li>▪ Continue development and foster utilization of costing template / process</li> <li>▪ Define a standard minimum benefit package for all (inclusive of primary care and drugs)</li> <li>▪ Strengthen regulation and foster standardization / comparability of (supplemental) insurance products</li> </ul>
2 <b>CONTRACTING:</b> from whom, at what price and how much to buy?	<ul style="list-style-type: none"> <li>▪ Standardize (e-)claims forms, including data dictionary</li> <li>▪ Introduce minimum set of KPIs to be monitored for every provider</li> <li>▪ Foster competition of both public and private providers on access conditions, performance (quality/outcome) and cost</li> </ul>
3 <b>PROVIDER PAYMENT:</b> at what price and how to pay?	<ul style="list-style-type: none"> <li>▪ Move to output-based financing (over 5 year), progressively introducing blended payments for all levels of care:               <ul style="list-style-type: none"> <li>— Blended capitation / fee for service in Primary Care</li> <li>— Fee Schedule (with cap) in Outpatient Care</li> <li>— Case Mix Adjusted payment (e.g. DRGs) with volume cap for Inpatient Care</li> </ul> </li> </ul>
4 <b>ACCOUNTABILITY:</b> of providers and system for performance	<ul style="list-style-type: none"> <li>▪ Well performing accreditation standards and process (e.g. tiered accreditation)</li> <li>▪ Set-up a (quasi-)independent Governance Institution across all payors and providers – at National level with State branches</li> <li>▪ Establish capacity for quality review (appropriateness, outcome) at purchaser level</li> <li>▪ Foster (private-sector led?) initiative on transparency on providers and customer outreach</li> <li>▪ Introduce incentives and monitoring to provision of care to the poor</li> </ul>

government with healthcare being the primary responsibility of the state government. At a glance, we see strategic purchasing moving to the dimensions outlined in Table 3.13. These provide a blueprint for basic reforms under each lever of strategic purchasing. Realistically these reforms may take a decade, perhaps even longer to be implemented. Such a complicated reporting system requires an efficient platform that conforms to global ICT standards. A digital platform needs to be created that enables reports on every encounter, information on costing, and governance through basic claims forms. The discussion can further, however, be broken down by time frame.

### **Moving forward: urgent and important (years 0-2)**

The Indian health sector is dominated by the private sector in terms of purchasing and provision. It is crucial to distinguish between what is important and needs to be carried out urgently at the central and state government levels. It becomes relatively easier to devise long-term plans if these distinctions are recognised.

### **Central level: urgent**

The government needs to define and develop a regulatory, quasi-independent institution for strategic purchasing. It should cover payers and providers at the central and state-levels. The initial step has been taken with the formation of the National Health Authority (NHA), to be followed with a State Health Authority (SHA) in every state.

### **At the central level, NHA ideally will:**

- Set national quality guidelines including empanelment
- Set financial audit standards, fraud guidelines, provider contract templates
- Define and update essential benefits package (NICE-like structure for guiding and updating the benefits package at the central and state levels)
- Set national rates based on standardized costing; set pre-conditions of funding to states
- Allocate funds, incentivize state contribution/develop cost-sharing arrangement with states
- Encourage experimentation (e.g. ESIS Integrated Care Models)
- Evaluate new policies and pilots, and disseminate best practices

### **The state-level SHA ideally will:**

- Do the actual purchasing, claims processing, quality measurement, actuarial modelling, contracting and monitoring insurers
- Top up the national benefits package (optional for states), or offer benefits through voluntary contributory schemes as is done in Karnataka
- Adjust defined tariffs or payment rates based on local input costs
- Oversee empanelment of local providers
- Enable quality improvement of services provided by local providers
- Oversee capital investments within national guidelines
- Ensure consumer satisfaction and timely dispute resolution
- Identify and bring in an enrolled population

### **The new central level organization should provide platforms for:**

- Automatically enrolling beneficiaries (SECC, Aadhaar based, other)
- Supporting states to establish strong SHAs; pro-actively build knowledge exchange and capacity

## Strategic Purchasing

- Develop managerial, information, and technical tools for states, e.g. contract and costing manuals and templates
- Facilitate mobility and synergy across states
- Establish an innovation fund to encourage experimentation of models of care (e.g. integrated care)
- Set national data standards; facilitate data exchanges; and incentivize use of Electronic Health Records (EHRs)
- Protect data confidentiality

**Figure 3.24: SHA/ NHA - Opportunities**



These new bodies would be autonomous to the extent that they can set their own HR rules and allow flexibility in staffing (hiring and firing) and payment outside of civil service rules. They should be allowed to recruit talent from the open market for all positions, especially the CEO.

### These new bodies would need to develop deep expertise in:

- Actuarial science
- Claims processing and management
- Data analytics
- Finance and general management
- IT and bioinformatics
- Pricing
- Benefits package design/biostatistics
- Monitoring and evaluation
- Enrolment and consumer outreach
- Policy and regulation
- Provider quality assessment

These bodies could outsource some functions to Third Party Administrators (TPAs) in early years as they build internal capabilities. TPAs could be phased out over the next 3-4 years.

**These new bodies could be set up as a Trust, Society, Authority etc. The bodies should have an Oversight Board with representatives from:**

- Ministry of Health and Family Welfare
- Ministry of Finance
- Domain experts
- Providers; and other
- Key stakeholders

The board should oversee a public financial audit annually and undertake periodic reporting of system performance at the national and state-levels.

Figures 3.25 and 3.26 summarize good practice models from India and the world. Of course, earlier in the chapter, were highlighted the good practice models of Karnataka and Meghalaya., While one relies on a public sector trust model, the other contracts with an external insurance organization. Tracking this diversity in terms of performance will be useful for other states in the country.

**Figure 3.25: SHA/NHA - Staffing**

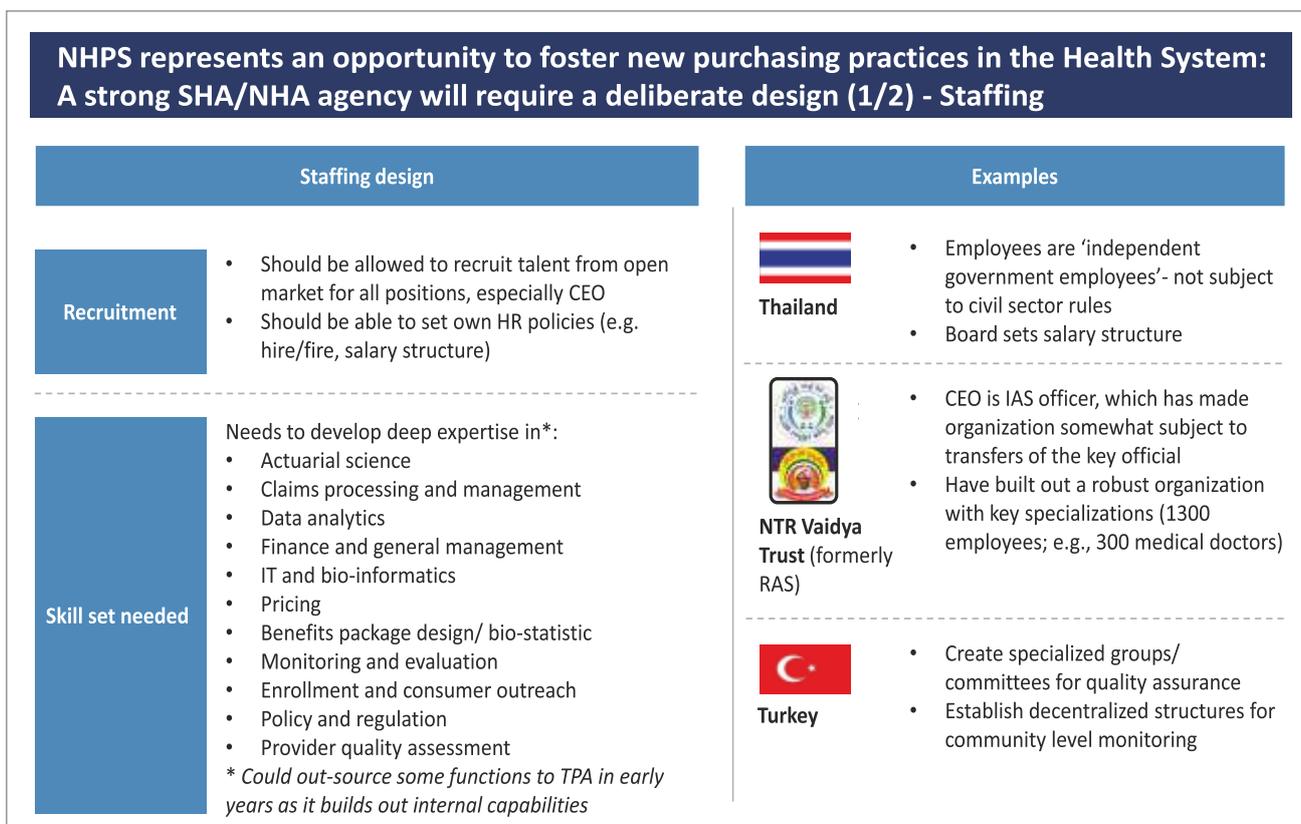


Figure 3.26 SHA/NHA - Governance



**Other urgent actions include foundational activities in the areas of costing and information development, including:**

- Continuing the development and fostering the utilization of costing templates. Costing is not new in India, some states, e.g. Karnataka (SAST) have extensive experience in this regard, and some of the best costing experts globally are from India. A standardized costing template is needed for setting fair prices from the perspective of purchasers and providers;
- Standardizing (e-) claims forms, including data dictionary. This means that every encounter, both inpatient and outpatient, public and private, should report basic demographic, clinical and cost information. The data dictionary leads to development of the standard claims form which, in turn, builds powerful data systems for policy levers by purchasers.

Finally, initiate improvement of strategic purchasing practices at ESIS. The ESIS as a national programme can be a model for strategic purchasing, and itself can improve quality and efficiency of the ESIS system. It can improve purchasing capability through areas like consolidation of line-items, contracts with providers, and internal payment mechanisms.

**Central level: not urgent but important**

The new bodies, once established can address a number of important issues including:

- Define a standard minimum benefits package for all (inclusive of primary care and drugs)
- Continue the setting up of a quasi-independent HTA commission, which will allow an ongoing update of the benefits package
- Oversee the accumulation of e-claims and data on costing and utilization
- Use the data to develop a database for setting pricing of services across purchasers and
- Expand the accreditation organization (QCI – Quality Council of India). It could partner with the national agency to establish well performing accreditation standards and processes. This could be a

tiered accreditation process as in Thailand where there are three levels of accreditation linked to the levels of reimbursement for providers. The accreditation body should be quasi-independent to fairly review performance across public and private sectors. This already occurs in OECD countries and multiple middle-income countries (MICs) such as Thailand.

### **State-level: urgent**

We recognise that there is considerable variability across states in India. This section divides state initiatives into low capacity and high capacity states. Low capacity states suggest historically limited administrative/reform capacity, limited supply of quality care, and relatively low levels of human resources for health (HRH). Such characteristics are typically associated with states like Bihar, Jharkhand, Odisha, and Uttar Pradesh. “High capacity” states would imply historically high administrative and reform capacity as well as a medium to high supply of quality care and HRH. These characteristics are indicative of states like Tamil Nadu, Karnataka, Kerala, and Meghalaya. It is important to state, however, that states in the first category have demonstrated significant improvements over time. Moreover, states can always move into different categories based on performance as reflected in the philosophy of the NITI State Health Index.

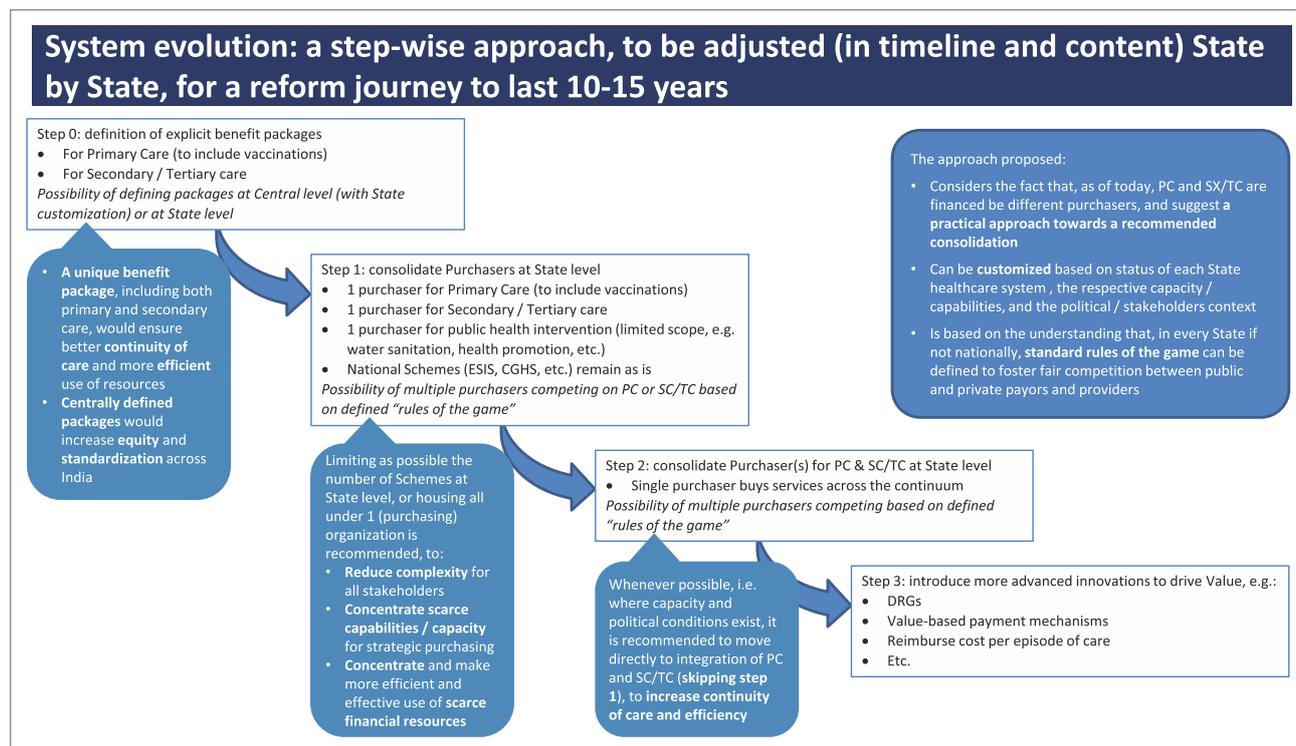
Figure 3.27 provides an overview of where states may move over time, each at their own pace. This overall vision is outlined below. First and foremost, funds are pooled, and line-items drop out over time. It calls for pooling of public funds to create a single purchaser for public health interventions, primary care, and secondary care. Purchasers for primary care could be separate from purchasers of secondary care, though combining these would better assure pooling and coordination of care. Private payers could join this pool as well.

### **Regardless of whether private payers join, states would develop the rules of the game by:**

- Creating and implementing IT standards
- Standardizing the minimum benefits package across payers
- Creating minimum contract standards across public and private providers
- Developing all payer rate setting systems across services
- Developing and tracking standard accountability measures, including accreditation standards for all

CGHS and ESIS would remain national insurance models, but may be asked to fold in standards for an individual state. These changes would not take place in a short span of time, however, some states could be expected to move quickly within a 5-year period, with others taking perhaps 10-15 years to complete the transition fully.

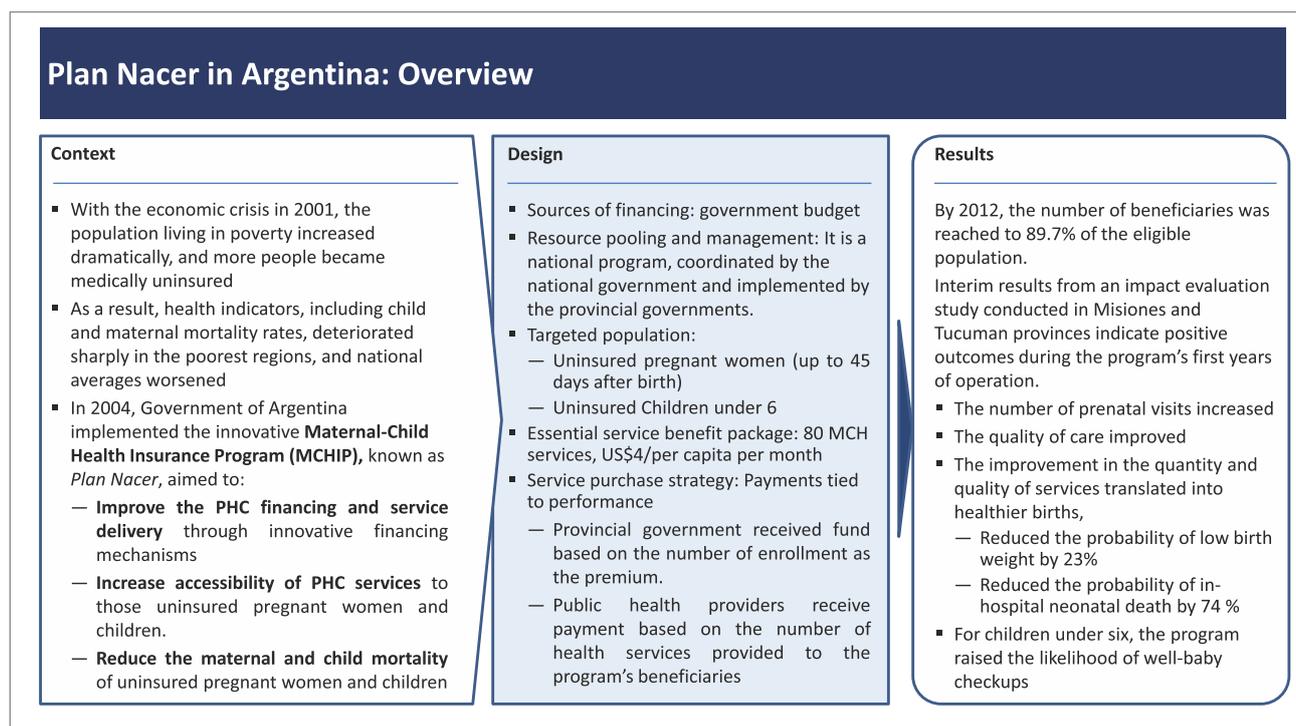
Figure 3.27: Options / scenarios for transition



Relatively lower capacity states could begin the reform process by:

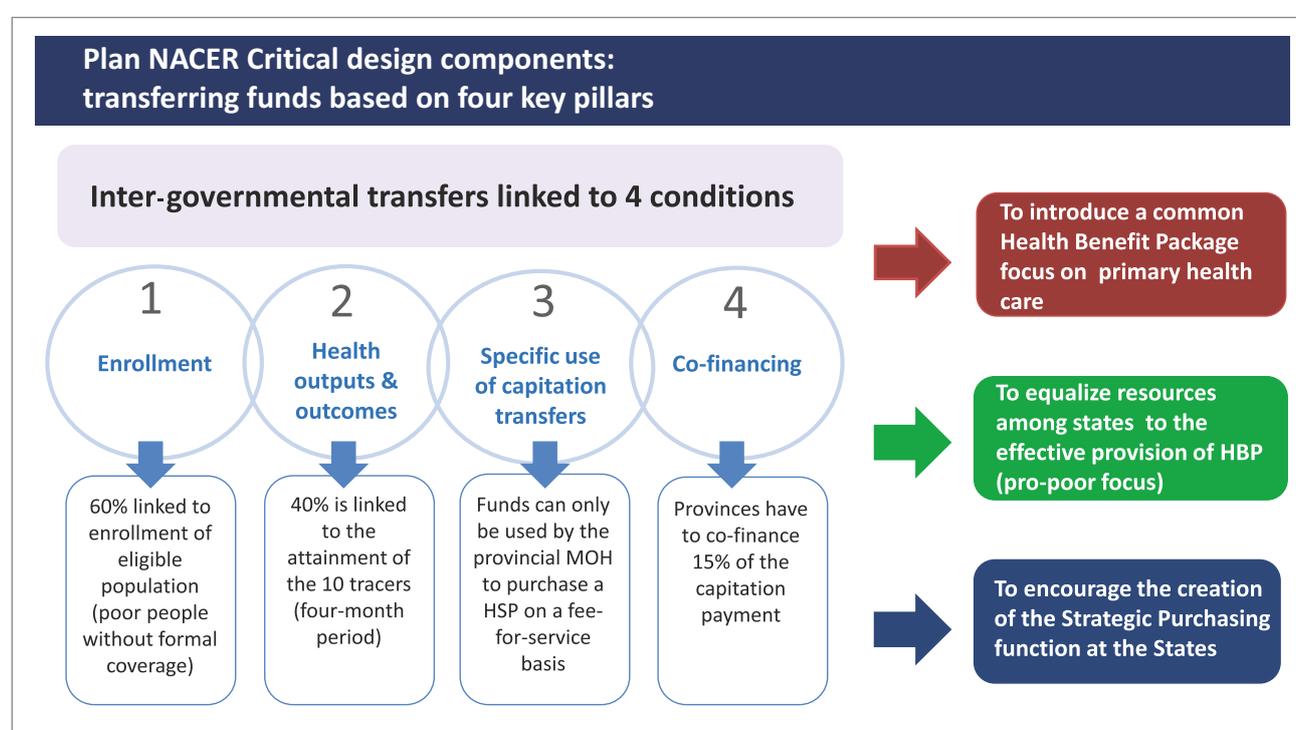
- Consolidating state-level public purchasers to concentrate capacity and funding into two purchasing pools of funds: one purchaser for primary care and one for secondary and tertiary care.

Figure 3.28: Learnings from international case studies - 3) Provider Payment (Primary Care)



- Secondly, purchasers could begin to phase out line-items over 10 years. For instance, Argentina's Plan Nacer that started with one per cent of funding began to phase out line-items at the rate of ten per cent per year. (Figure 3.28 and 3.29). Another option could be to consolidate the items into groups as was done in Kazakhstan. They
  - Reduced the lines to four-capital, salaries, utilities, miscellaneous
  - Gave every facility a bank account
  - Requested an annual business plan to monitor performance
  - The 1000+ lines could be reduced and consolidated to 4 to create more flexible funding.
 Plan Nacer has shown impressive results as highlighted in Figures 3.29 and 3.30
  - Finally, states should foster contracting of both public and private providers on conditions of access, cost, performance quality and outcome.

**Figure 3.29: Learnings from international case studies - 3) Provider Payment (Primary Care)**



To accelerate the path of transformation and access the necessary capabilities, states should consider outsourcing to the private sector such as TPAs or insurance organizations.

Figure 30 provides the example of Abu Dhabi where the MoH created a purchaser through a TPA organization that had instituted ICT standards. The TPA organization contracted with the private and public sectors as well as developed new payment schemes and accountability measures. MOH redefined itself to provide emphasis on public health and quality and medical education, as well as stewardship. The MOH exited provision, just as almost all non-African countries have done in the past two decades.

Ironically, the reforms in Abu Dhabi utilized many Indian experts in areas of costing, coding, and ICT reforms.

Figure 3.30: Learnings from international case studies - 2) Contracting

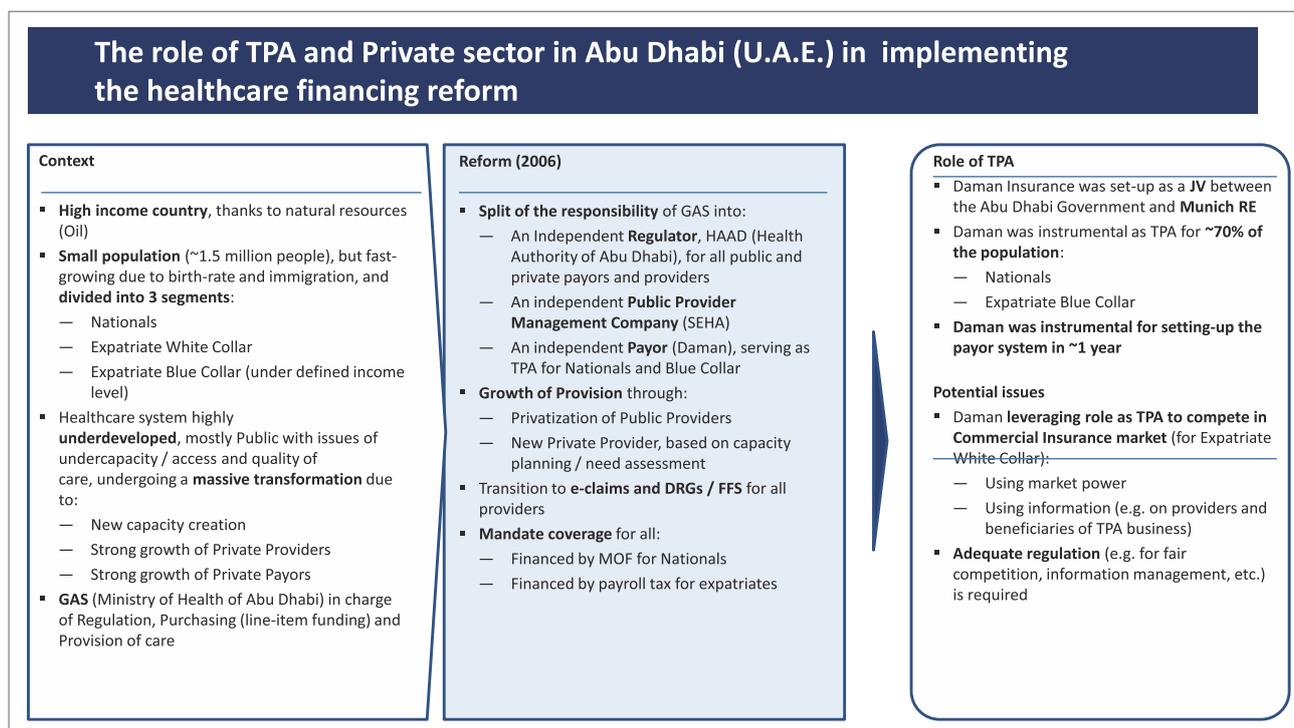
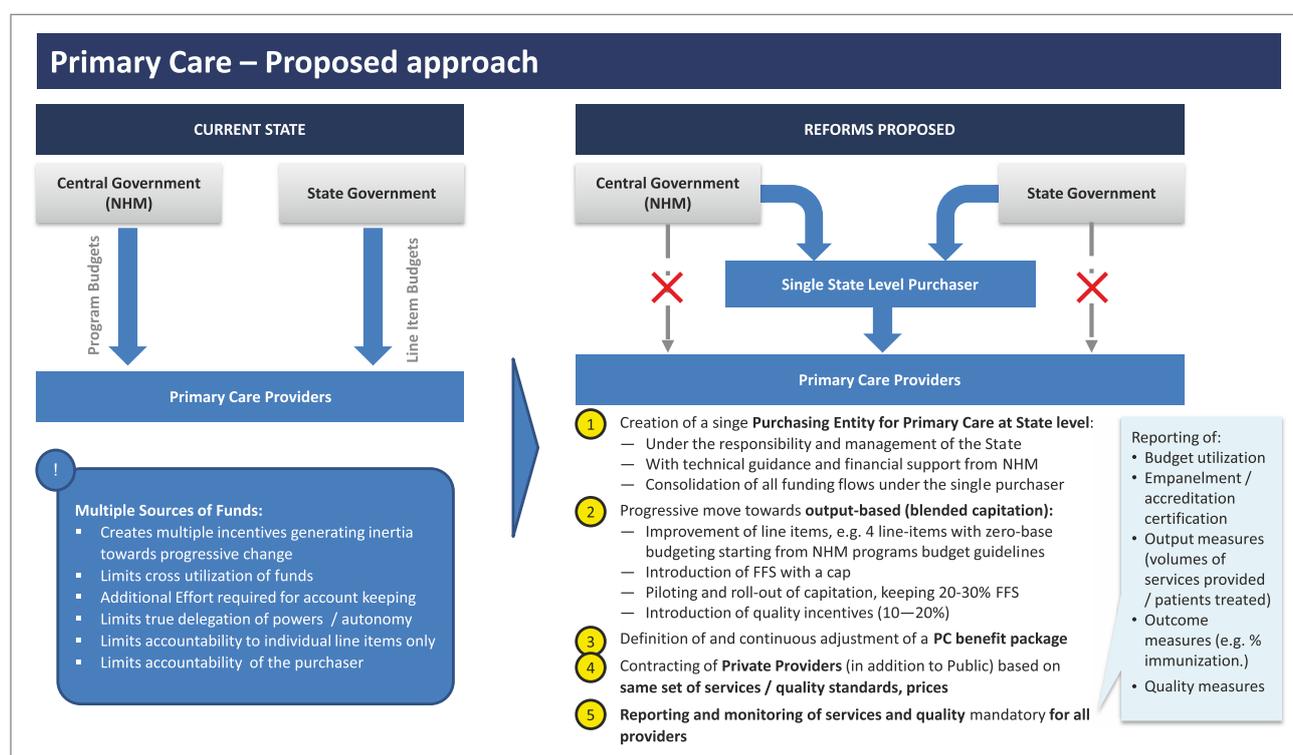


Figure 3.31: Options / scenarios for transition

**State-level important but not urgent:**

- Lower capacity states can learn from high capacity states to engage in areas such as:
- Defining and customizing the Primary Care benefits package, including an outpatient drug package. Also defining the secondary and tertiary care benefits packages (including specialized outpatient care)
- Introducing the minimum set of KPIs to be monitored for every provider
- Using data to analyse and report of out-of-sector information on performance in public forums such as the internet and newspapers
- Initiate costing of services using templates. This could begin with an initial training of trainers through national workshops across India
- Pilot new payment models including pay-for-performance as a potential starting point. Output-based financing could address areas of service in inpatient, outpatient or primary care. It is expected that states would learn from each other, but the flexibility would be valued in models and phase-in timelines depending on political and data challenges, and the capacity for implementation.

**High capacity states could move towards:**

- Consolidating multiple purchasers for all levels of care, including primary, inpatient, and outpatient. This could begin with consolidating organizations in the public sphere and for other state and private insurers with umbrella organizations as has been done in Karnataka and Meghalaya. Umbrella organizations would – over time – standardize information systems, packages and payment rules, and (only lastly) pool funds. Ultimately, pooling of funds would take fifteen years based on the experience of countries like Turkey, Thailand, Eastern European, and South Korea
- Developing contracts with every minimally performing (accredited) public or private sector provider offering services to the state's single (or umbrella-based organization) purchaser. This

## Strategic Purchasing

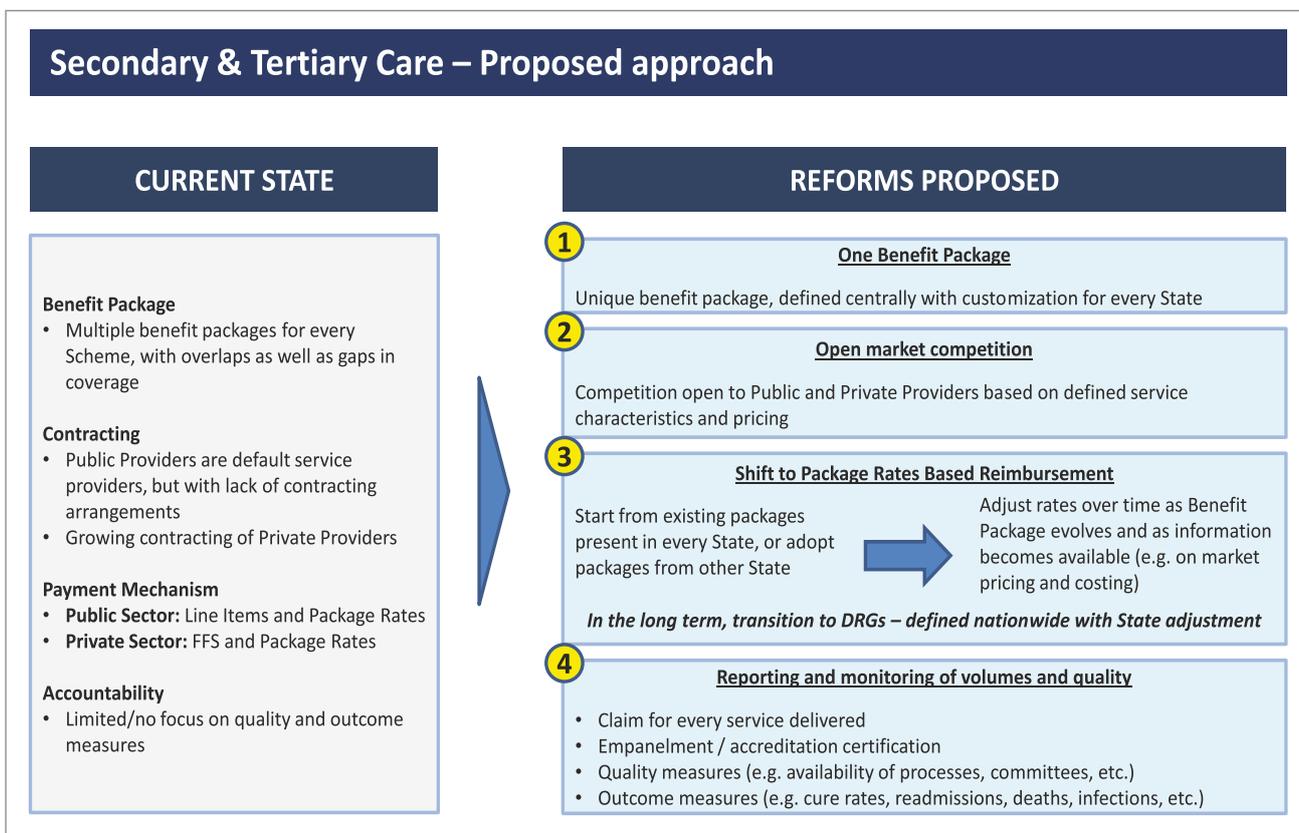
would include agreements for quality incentives, data standards, mandatory costing templates and annual reporting, periodic re-accreditation, and so on.

- Undertaking full implementation of output-based financing across all levels of care. Again, there would be flexibility with respect to the models just as in Canada and China, but output-based models would dominate the payment of all services.

Figure 3.32 below sets out a path for reforming secondary and tertiary services: moving from line-items to output-based financing. It implies a purchaser-provider split, though states could develop a state nodal agency, trust, or outsource to a TPA, either initially or permanently. Insurance or assurance could be chosen. The collapse of line-items could follow a percentage every year (e.g. 10 per cent) or could collapse into a smaller number such as 4 lines as found in Central Asia’s experience from over twenty years ago. Likewise, pricing could be done in several ways using costing, negotiations, or some combination thereof.

Finally, the discussion heretofore has implied that there could be two separate purchasers for the public system (and integrated with the private sector over time). Initially, but over time, the separate purchasers shall be merged into a single purchaser to better coordinate care across levels of services.

**Figure 3.32: Options / scenarios for transition**



### Role of the private sector

A key objective of strategic purchasing reforms will be to better coordinate and harness the public and private delivery sectors, on the part of purchasers. Therefore, this final section on action steps looks at ways to purposely involve the private sector in the linkage between purchaser and provider.

### **Urgent A number of actions and policies should be taken immediately to:**

- Convene a dialogue with the private sector for standardizing claims/coding standards, uniform costing templates and costing reporting as well as payment mechanisms
- The dialogue might also be utilized to develop an explicit phase-in plan for standards, and behavioural compliance. E-health systems, for example, will require time for retrofitting.
- Foster standardization and comparability of (supplemental) insurance products. The principle here is fostering a market of competition based on access and quality of service. Purchasing requires standardization of behaviours and reporting with both purchasers and providers.
- Initiate quality reporting (for payers and providers) with a minimum list of indicators. High-income OECD countries start with fewer indicators but ones which directly address efficiency, quality, fraud, and citizen responsiveness. The impact is on the public purse as well as on the minds of voters.
- Support capability building for purchasers and providers e.g. setting up training centres. For example, new ‘at risk’ arrangements will demand more actuaries modelling public spending, and new and powerful IT-base data systems will create demands for coding experts and data analysts. These are new jobs, good jobs for India.

### **Important but not urgent Several steps would be needed such as:**

- Continuing a dialogue on reform and the private sector’s involvement. The private sector under strategic purchasing will evolve and the fragmented landscape of small providers will move towards greater consolidation. Dialogue must continue under this evolutionary phase.
  - Introducing new payment mechanisms for all levels of care. The private sector will more quickly and easily adjust to new incentives with their superior financial management systems and superior ability to react and restructure inputs according to the new market signals of purchasers.
  - Providing capability to public payers, e.g. through outsourcing of skills such as claims processing, actuarial modelling, quality improvement, and pro-active selective contracting
  - Providing (administrative/managerial) capability to providers, e.g. through new intermediaries or new/existing management organizations. This includes outsourcing of administrative/managerial functions by smaller providers, and/or creation of umbrella organizations as has been done in some OECD countries as well as lower-income countries in sub-Saharan Africa such as Kenya and Ghana. India does not lack technical capacity, however, policy frameworks are needed to incentivize these reforms.
  - Pursue Public-Private-Partnerships (PPPs) in purchasing and provision such as the PHC PPPs in Rajasthan. At the same time, PPPs should be built on evidence. PPPs also require rigorous evaluation of results and determining the implications for new policies.
- “No regret” steps forward.** The aforementioned sections lay out a path forward for policy reforms. They are directive, somewhat prescriptive, and follow a vision for the country based on the diagnosis of the current system, best practices from states in India as well as lessons from global experiences. At the same time, there are “no regret moves” that the leadership in India can take regardless of the policy path. This also coincides with the set of “enablers” needed to underpin strategic purchasing. These include:
- Development of infrastructure and tools on both the demand and supply-side, that is, for purchasers, providers and patients
  - Development of human capital including actuaries, coding experts, costing experts, financial

planners and financial managers. As noted, ironically, half of the world’s costing experts are Indian. Capacity exists in the diaspora and now needs to be nested at home. These skill sets will help improve performance and create a culture of accountability.

- Programme incentives to implement baby steps with respect to reforms like money following the patient, reporting information, using data for quality and performance, encouraging automation with basic steps such as bank accounts, five-page business plans, limited decision rights on capital expenditures and staffing, end-of-year performance reviews. Essentially establishing a culture of accountability in the health sector.
- Basics in IT such as standards, minimum data sets, standard costing systems and coding practices, unique identifiers for patients and providers, and so on. Australia is a good practice model for India. Standard minimum claims forms can be found online for the Australian system.

Figure 3.33 summarizes this discussion of addressing the “enablers” and taking the next steps of “no regret” moves...in other words, regardless of the reform path chosen, these are areas that will move the India health sector towards becoming a more modern and responsive sector. Figure 3.34 provides more detail on these human resource skill sets.

**Figure 3.33: Important to intervene now**

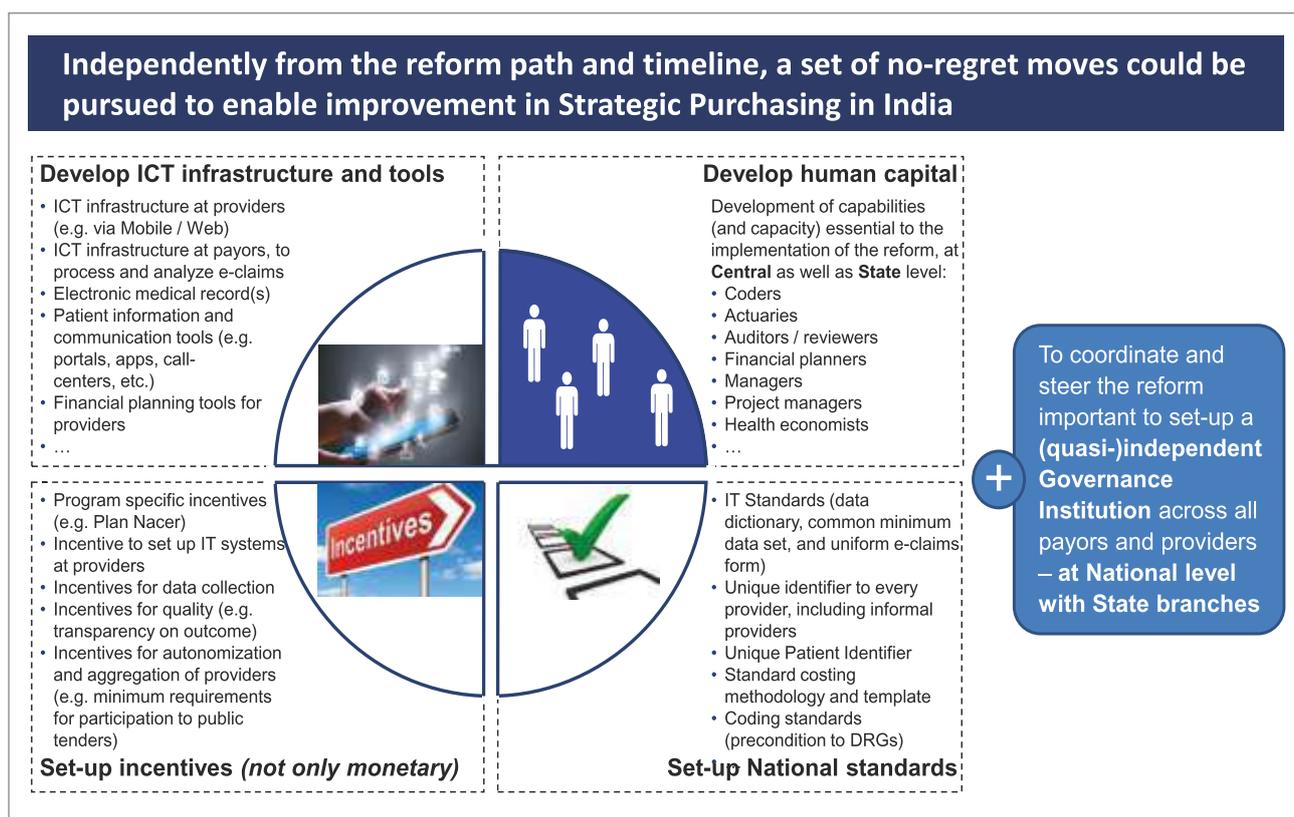
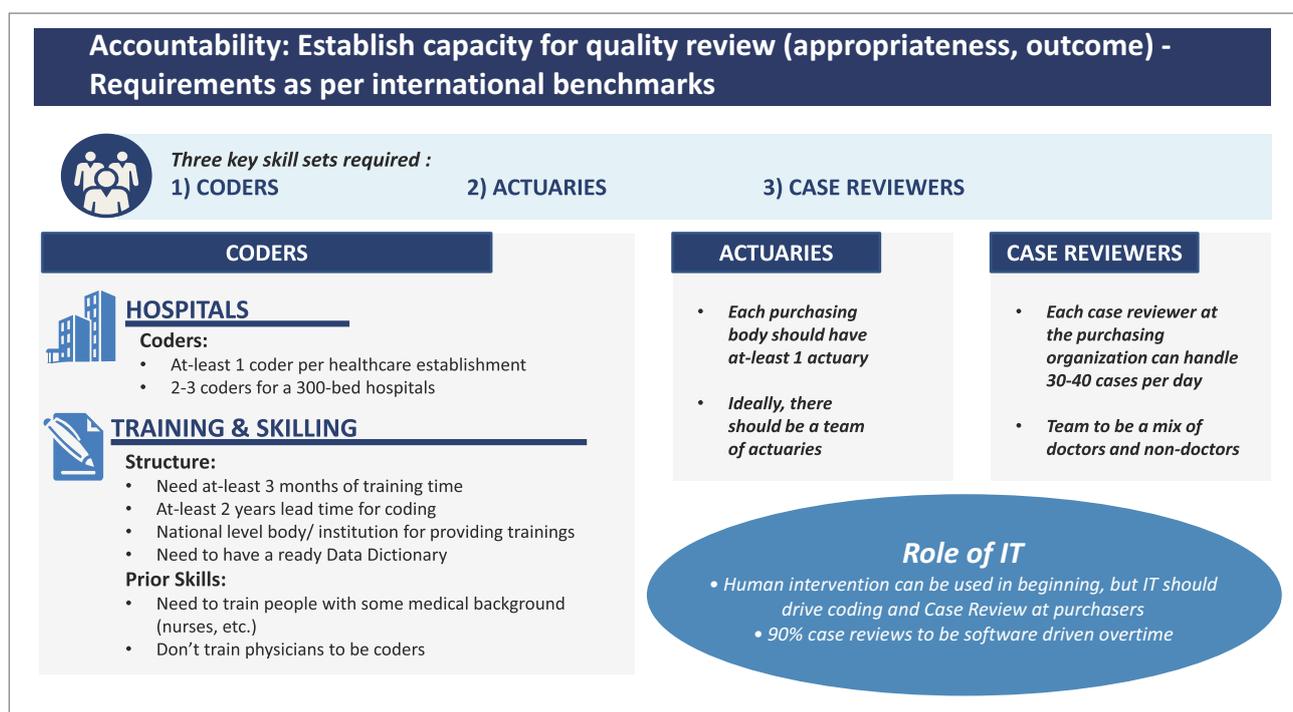


Figure 3.34: Recommendations and options / scenarios for intervention



### Medium term (years 2-5)

Continuing over years 2-5, we provide a number of next steps for reforming the sector, beyond what is immediately required. This would require deliberations to get underway in the short-term so as to evolve to a coherent strategy for strategic purchasing in India. Again, this path is divided into central and state-level actions. For the state-level, it is further sub-divided into relatively high and low capacity states.

#### Central level

- Define an (explicit) benefits package for primary care, as well as for secondary/tertiary care (including outpatient department and/or specialized services). This means there will be a unique or minimum basic package nationwide, a Universal Health Coverage (UHC) guarantee, with variation guidelines (“top ups”) for the states to apply depending on their interest and availability of fiscal space.
- Continue development and foster the implementation of a uniform costing template/process for both the public and private sectors. In Australia, there was a progressive staging of 3 types of increasingly sophisticated costing templates over time. As data and experience was collected, the template was refined. India can start simple. With experience, a high-level cadre of costing experts will emerge across India.
- Continue the set-up of a (quasi-)independent HTA commission. As noted, this is nascent within the MOHFW. Global experience demonstrates that HTA teams within Ministries of Health are less transparent, more politicized, and more corrupt (more willing to accept payment for non-objective assessments).
- Define national coding standards and minimum training for coders. Coders at first will undergo short-term training programmes. Over time, as in OECD countries, coders will enrol in mature college courses. Secondly, coders will need to pass an accreditation exam every few years to be

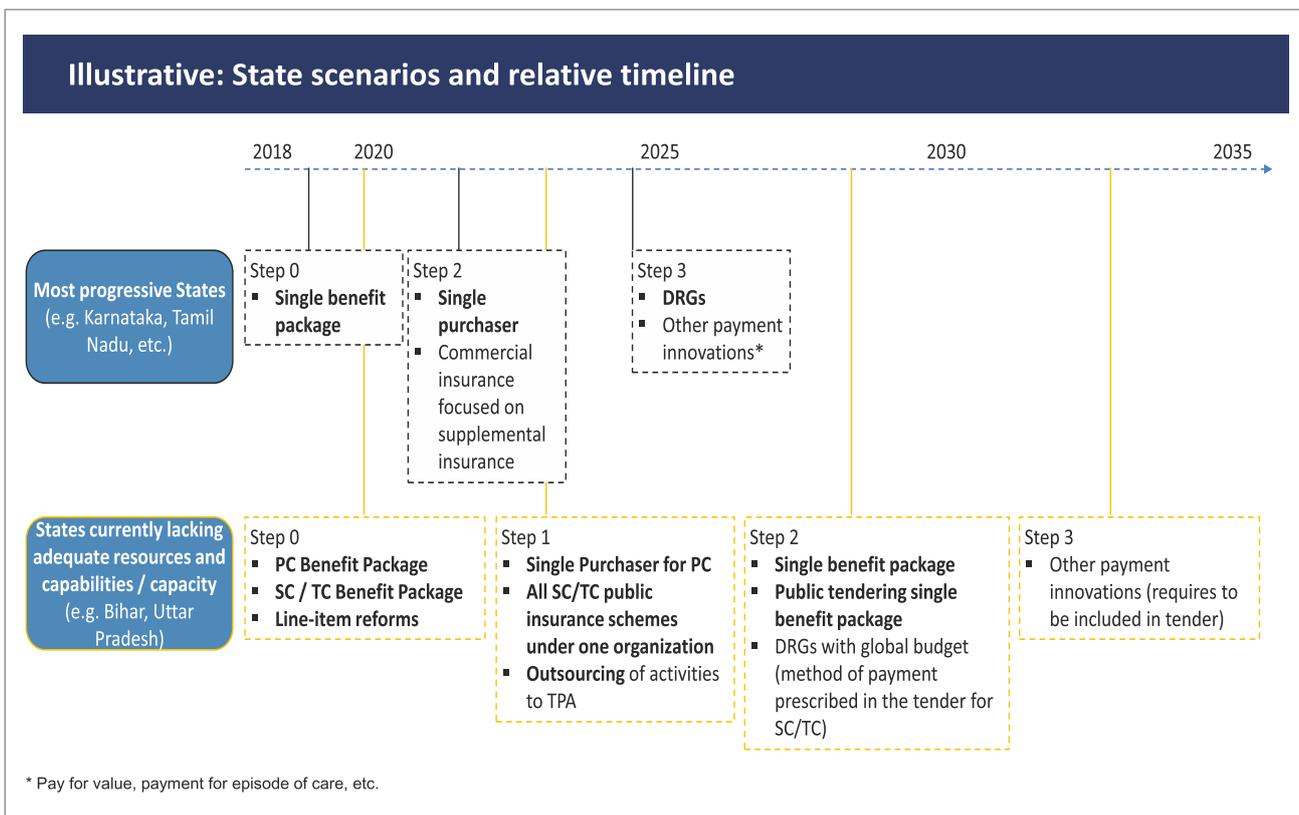
employed. It is also hoped that a voluntary association of accreditation for coders can develop and foster guidelines as well as oversee training standards.

- Well-performing provider accreditation standards and processes develop for all of India. In Thailand, there are three levels of accreditation which are then utilized for measuring performance and payments are adjusted upward as providers move up the three levels of accreditation approval.

### High capacity states

- Consolidate purchasers for all levels of care, namely primary, secondary and tertiary. This follows the previously mentioned steps in a phased manner, especially in the case of public sector purchasing of services.
- Develop contracts with every public or private provider offering services to the state purchaser (including quality incentives, data standards, costing templates, etc.). Global experience is that contracts are initially fairly simple, less than 10 pages, but over time move to more sophisticated templates. It is important to start in high capacity states and share the lessons with low capacity states. Over time, even sophisticated templates will need to be periodically streamlined.
- Move to output-based financing in primary care, outpatient specialists and inpatient care. This is to be gradually introduced in phases as shown in Figures 31 and Figure 35 with percentage changes year-over-year depending on the preparedness of providers and purchasers. Germany, a country of great capacity as well as great precision, chose to phase-in new output-based financing over a period of ten years. The figures here suggest a similar timeline, and flexibility across states.
- Introduce mandatory cost reporting – through the provider-purchaser contract, after year one. Low capacity states will need more time, but high capacity states can move quickly.

**Figure 3.35: Options / scenarios for transition**



### Low capacity state

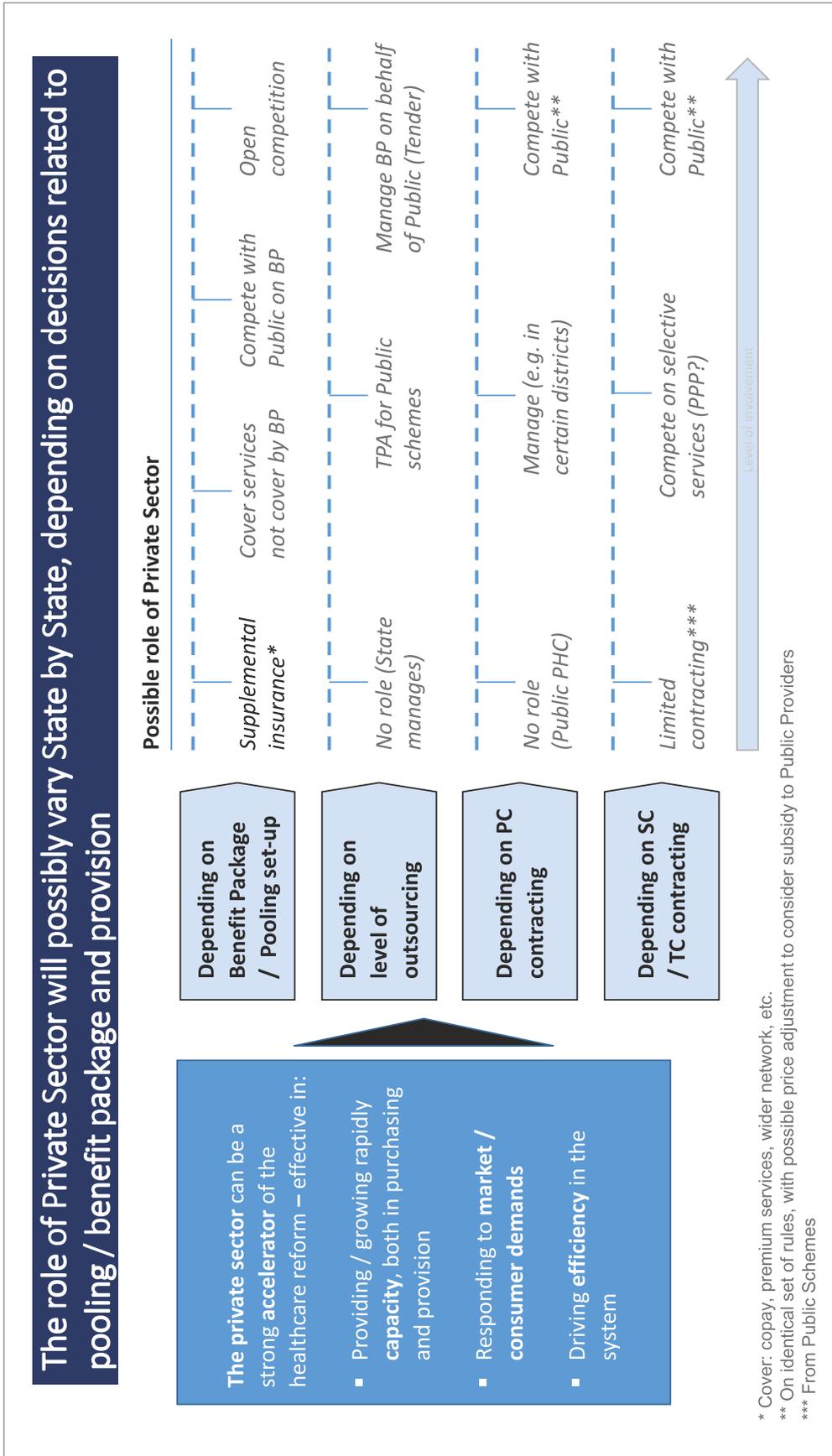
- Define (customize) the PHC benefits package, including an outpatient drugs package. A well working drugs package can improve financial protection and create a patient care system that helps protect against avoidable hospitalizations. The package, if done well, will also help consolidate and integrate the current fragmented landscape of private and public providers.
- Define the secondary/tertiary care benefits package (including specialized out patient care services)
- Introduce a minimum set of KPIs to be monitored for every provider
- Develop a platform for reporting of information in the public domain. The data cannot be perfect, but as the data is reported and analysed, providers will be more precise about what they report as they will be incentivized to perform and report with precision.
- Perform costing of services in all public and private facilities. Payments from public budgets can be made contingent on this. Importantly, a concurrent programme will be required for training the trainers for costing reporting and analysis;
- Pilot output-based financing in inpatient, outpatient and primary care services

### Private

- Continue dialogue on reform and private sector involvement
- Introduce contracting and new payment mechanisms from the state purchaser
- Provide capability to public payers, e.g. through outsourcing to TPAs and other contractual mechanisms
- Provide (administrative/managerial) capability to providers e.g. through new intermediaries or new/existing management organizations. This could be outsourcing of administrative/managerial functions by smaller providers, and/or creation of umbrella organizations. One solution for addressing the challenge of fragmentation in the private sector is the creation of private intermediaries to negotiate contracts, provide claims submission services, help with financial management, share best practices of quality and efficiency, and so on.
- Pursue PPPs in purchasing and provision; always evaluate results and use for scaling up or for new PPP models going forward

Figure 3.36 below sets out different scenarios for the private sector. States with varying levels of capacity and enthusiasm will determine the level of integration and the pace at which this will occur. Clearly, though, every state can do better in terms of managing and harnessing the vitality and innovation of the private sector.

Figure 3.36 : Options / scenarios for transition



### **Moving forward: the longer term (years 5-10)**

At this juncture, discussing longer-term improvements is notional. Still, articulating a vision of the potential path is useful. Some areas are technically straightforward, but require time to be implemented from a political perspective.

### **Central level**

Continuous update of benefits package based on disease burden and most recent utilization/capacity data. This would be done through integration with the ongoing technology assessment process, now outside of the MoHFW.

- Mandate accreditation for public and private providers contracting with the public sector. Again, the accreditation agency should be quasi-independent and outside the MoHFW so as to “level the playing field” across public and private providers. Non-performing public providers would be shut down.
- Set national prices for services based on average costs plus changes in inflation and technology; allow state-level adjustments based on variations in input prices. Good encounter data and costing data at a national level is stored and prices can be set on an equitable and efficient basis.
- Collect and disseminate cost and outcome information across states (for example, the Health Canada website provides details of costs and outcomes across provinces). India, with its advanced IT capacities should be able to create such sites.

Oversee a national programme on pilots, evaluations, and dissemination. This could be funded through the Innovation Fund discussed in the chapter on Provision. Most large, federal countries – the United States, Brazil, China, for example – rely on hundreds (yes, hundreds) of pilots and demonstrations at any one time. These demonstrations need review and “waivers” from existing rules as authorized by the centre. These should be evaluated and the results should be disseminated by the centre. The health sector is a dynamic sector, with the regular emergence of and need for drugs, devices, and procedures. This means that the organization and payment of services constantly evolves with time. Demonstrations and pilots avoid public sector freezing of outdated models such as the India 1947 model which stands out as an organizational dinosaur.

### **Low capacity states**

- Consolidate public purchasers for all levels of care – primary, secondary and tertiary care – into a single purchaser organization. This will improve overall coordination of care.
- Develop contracts with every eligible and accredited public or private provider that offers services to the state purchaser; this is for the public purchaser and does not preclude private and commercial purchaser contracts.
- Move to output-based financing in inpatient and outpatient as well as primary care through pilots; scale up as appropriate
- Foster competition among public and private providers on access conditions, performance quality outcomes and cost.
- Establish capacity for quality review at the purchaser level, using standard information on costs and clinical encounters, as discussed earlier in this paper

## High capacity states

- Introduce and scale up innovative payment mechanisms, such as DRGs for hospital care. DRGs are complicated and should be carefully phased-in. This process will accelerate with the genesis of good and reliable data systems on encounters.

## Private sector

- Foster initiatives related to the transparency of providers' quality and pricing as well as strengthen consumer outreach
- Fully compete (in states as well as nationwide) with contracts among public purchasers and providers based on a standard set of rules

## National level schemes and setting the rules across all payers

### National level schemes

The discussion thus far in this chapter has not focused on national schemes such as the small employee insurance scheme (ESIS), the civil servants' government health scheme (CGHS), and others. There are multiple options for these schemes to go forward. Table 3.14 provides some of these options. What is clear at this point is that none of these schemes have engaged in strategic purchasing in the fullest possible manner by not utilizing and synchronizing the four policy levers in an optimal way as described below. Through each of these schemes, initiatives such as the benefits package or contracting out have been implemented. More can be done. The chapter on pooling discusses the ESIS. This programme, with its excessive residual funds, can potentially expand benefits as well as improve efficiency through contracting and payment. It might improve access and quality through measures of accountability. Similarly, initiatives could be taken for CGHS and parallel systems such as the railroads healthcare system.

**Table 3.14: Options / scenarios transition**

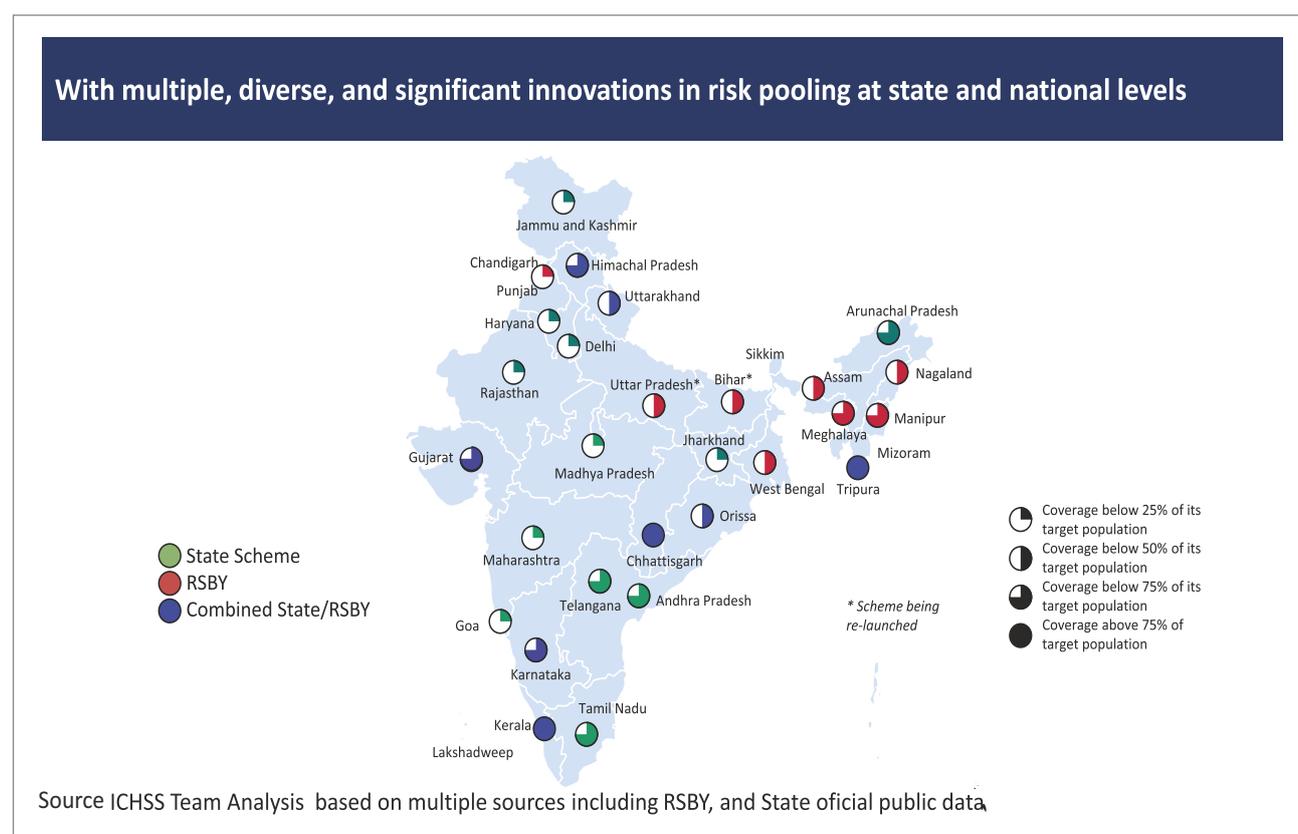
Options for Central Schemes: the Central Schemes could evolve in a number of ways, from focus on technical assistance to accountable care organizations	
<p><b>ESIS</b></p> <p><i>Depending on political interest and willingness to invest in building strategic purchasing capabilities vs. outsourcing:</i></p> <ul style="list-style-type: none"> <li>▪ Improve <b>Purchasing Capabilities</b>:                             <ul style="list-style-type: none"> <li>— Expand coverage to include primary / preventative care</li> <li>— Introduce competitive bidding and contracting among all providers (own, public, private)</li> <li>— Improve Package Rates and evolve to DRGs in the 5-10 years</li> <li>— Enforce accountability, through data monitoring and transparency of quality and costs</li> </ul> </li> <li>▪ In the long-term, transform in <b>Accountable Care Organization</b>, with budget (and overall revenue / funding allocation) based on risk-adjusted capitation - <b>starting with geographic based pilots</b></li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ Create <b>virtual pools</b> and <b>choice of pool</b> (as in Germany)</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ Progressively <b>fold</b> both financial resources and human capital <b>into State Scheme(s)</b></li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ <b>Tender-out</b> coverage of benefit package to <b>commercial insurance</b> players</li> </ul>	<p><b>NHM</b></p> <ul style="list-style-type: none"> <li>▪ Provide <b>technical assistance and guidance and contribute to funding</b> of State-level primary care Schemes:                             <ul style="list-style-type: none"> <li>— Develop assessment of State needs / priorities</li> <li>— Support development of programs / adjustment of benefit package and its deployment in the provider network</li> <li>— Provide technical assistance and capability building</li> <li>— Oversee fiscal transfer programs for Health</li> </ul> </li> <li>▪ In the long term, transform into <b>Governance Organization with oversight powers</b>, in charge of: monitoring and evaluation; piloting/evaluating new approaches; disseminating best practices</li> </ul> <p><i>Depending on status of development of the State healthcare system and its strategic purchasing capabilities:</i></p> <ul style="list-style-type: none"> <li>▪ <b>Keep as is</b>, potentially expanding the coverage (to other population segments and / or to other conditions such as OPD)</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ Link with other pooling arrangements and provide choice of purchasers (as in Germany)</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ Progressively <b>fold</b> both financial resources and human capital <b>into State Scheme(s)</b></li> </ul>
<p><b>CGHS</b></p> <p><i>Depending on political interest and on the future evolution of ESIS:</i></p> <ul style="list-style-type: none"> <li>▪ <b>Keep as is</b>, developing Strategic Purchasing capabilities</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ <b>Fold into ESIS (or vice versa)</b>, perhaps as separate scheme under ESIS</li> </ul>	<p><b>RSBY</b></p> <ul style="list-style-type: none"> <li>▪ <b>Keep as is</b>, developing Strategic Purchasing capabilities</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ <b>Fold into State Schemes or other National Scheme</b></li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ <b>Tender-out</b> management to <b>commercial insurance</b> players</li> </ul>
	<p><b>Others Central Schemes (e.g. Railways, etc.)</b></p> <ul style="list-style-type: none"> <li>▪ <b>Keep as is</b>, developing Strategic Purchasing capabilities</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ <b>Fold into State Schemes or other National Scheme</b></li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▪ <b>Tender-out</b> management to <b>commercial insurance</b> players</li> </ul>

The role of NHM could and should be rolled into the public purchaser reforms outlined earlier in this chapter. As for RSBY, it is now being rolled into the new PM-JAY programme. PM-JAY should learn lessons from RSBY (see, for example, LaForgia and Nagpal, 2012; Karan, Yip, Mahal, 2017), and move beyond the issues of “non-strategic” purchasing.

### Governance in a multi-pool and multi-purchasing environment

Both the Risk Pooling chapter and this chapter have described a fragmented and multi-pooled health sector across every state. Figure 3.37 provides some context on pooling reforms, even though India remains a fragmented system.

**Figure 3.37: Situation in India - Landscape of players and flow of funds**



Given the fragmentation, India will need a governance structure to coordinate among purchasers and better integrate a fragmented system. Figure 3.51 provides a glimpse of the steps needed.

**At the minimum, it will oversee the development of a set of rules for how the sector functions. The areas to be covered would be:**

- Minimum data sets and IT standards
- Payers’ financial regulation (e.g. IRDAI)
- Risk adjustment across payers/purchasers
- Price regulation
- Accreditation/Quality
- Providers financial planning and oversight
- Monitoring, evaluation, and dissemination of information on performance Ultimately, the sector while diverse and fragmented must be managed, much like the banking sector. Protecting

population health is just as critical, if not more. Management at a central level will encourage improved performance and can increase access, quality, and levels of financial protection across the sector.

As Figure 3.38 below suggests, this can be one or multiple organizations that feed into a central authority. Do other countries do this? Yes. Countries with multi-payer systems engage in these activities at the central level and develop different models for addressing these objectives.

The New NHA is well positioned to go beyond the implementation of PM-JAY and assume this leadership role. Currently, it will focus on the new PM-JAY scheme, however over time, it can move beyond these boundaries and provide organization and leadership for this currently fragmented sector.

**Figure 3.38: Enabling factors and no-regret moves**

Set-up a (quasi-)independent Governance Institution across all payors and providers – at National level with State branches

Possible role of the Institution

- **What** does it regulate / oversee? Possible functions include:
  - Advise the government on necessary healthcare policy / rules
  - Create and monitor healthcare markets
  - Set standards, e.g. coding standards or e-claims standards
  - Control cost (price regulation)
  - Publish information / studies
  - Register health insurers to facilitate supervision of the services
  - Register and accredit healthcare providers
  - Provider financial planning and oversight
- **What powers** does it have? Progressively:
  - Studying, advocacy and technical assistance
  - Setting standards / guidelines
  - Performance monitoring and evaluation
  - Mandating adjustments / corrective actions and intervening directly (e.g. commissioning) in case of perpetrating non-compliance
- **Central agency:**
  - Setting standards
  - Providing technical assistance and capacity building
  - Sharing best practices
- **State branch:**
  - Monitoring implementation
  - Intervening when necessary

!  
Options:  
**one vs. multiple Institutions**, e.g. for:
 

- Payors' financial regulation (e.g. IRDAI)
- Risk adjustment
- Price regulation
- Accreditation / Quality
- Providers financial planning and oversight

*Examples:  
Holland, Germany, UK, Switzerland*

Center vs. State role

Figures 3.39 and 3.40 provide information on Germany and Netherlands respectively. Other countries include Switzerland, Canada, and Japan. The United States under Obamacare has moved closer to this model. This set of rules is consistent with the recommendations in the chapter on risks pooling.

Figure 3.39: Learnings from international case studies - 4) Accountability (Regulator)

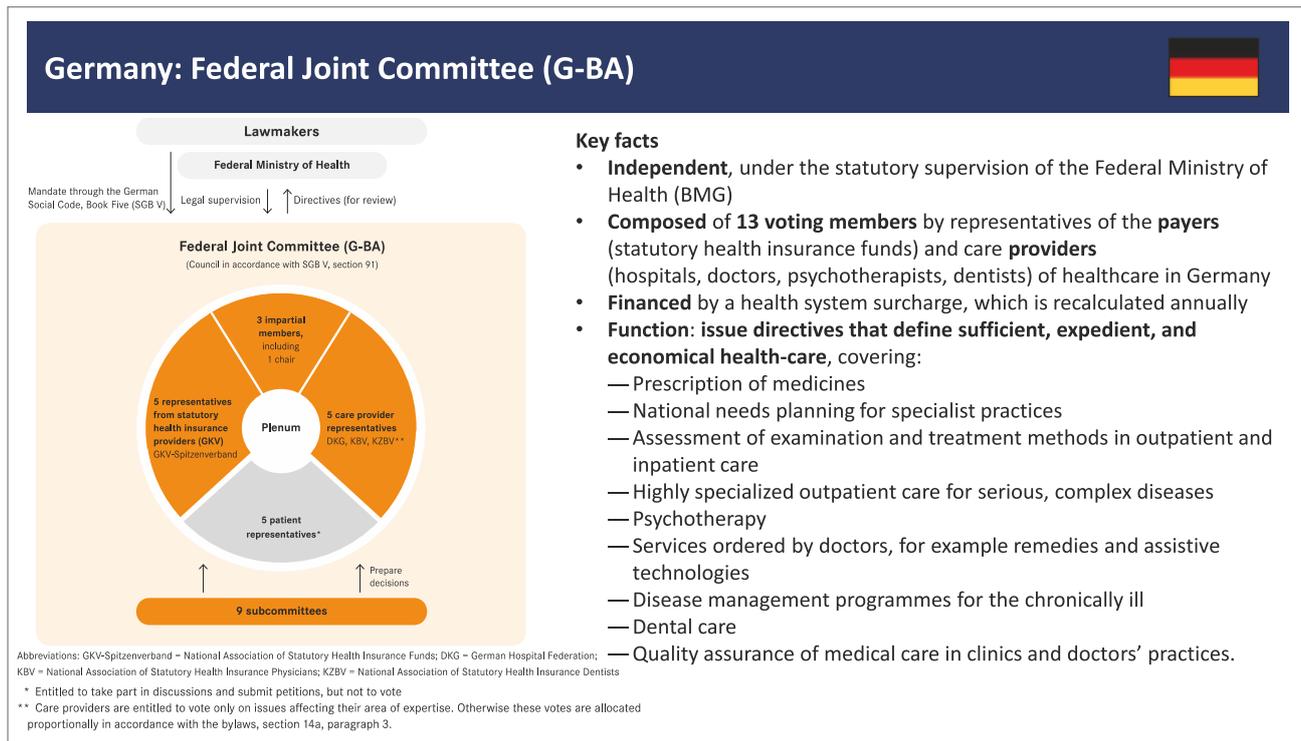
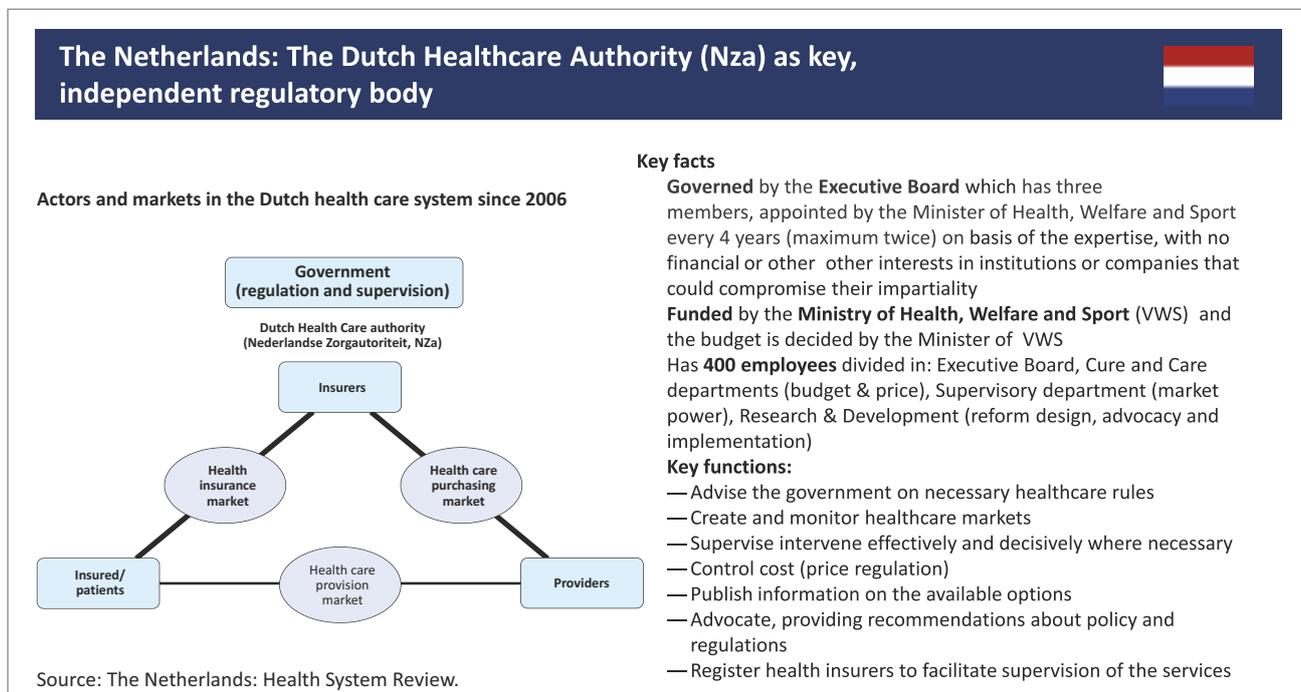


Figure 3.40: Learnings from international case studies - 4) Accountability (Regulator)



What model India adapts will need to be discussed and allowed to evolve over time. This governance arrangement is discussed as a long-term step (years 5-10). Nevertheless, some steps should be taken earlier. For example, a quasi-independent accreditation organization and a quasi-independent HTA process need not wait for this central structure to provide a governance framework for the entire sector.

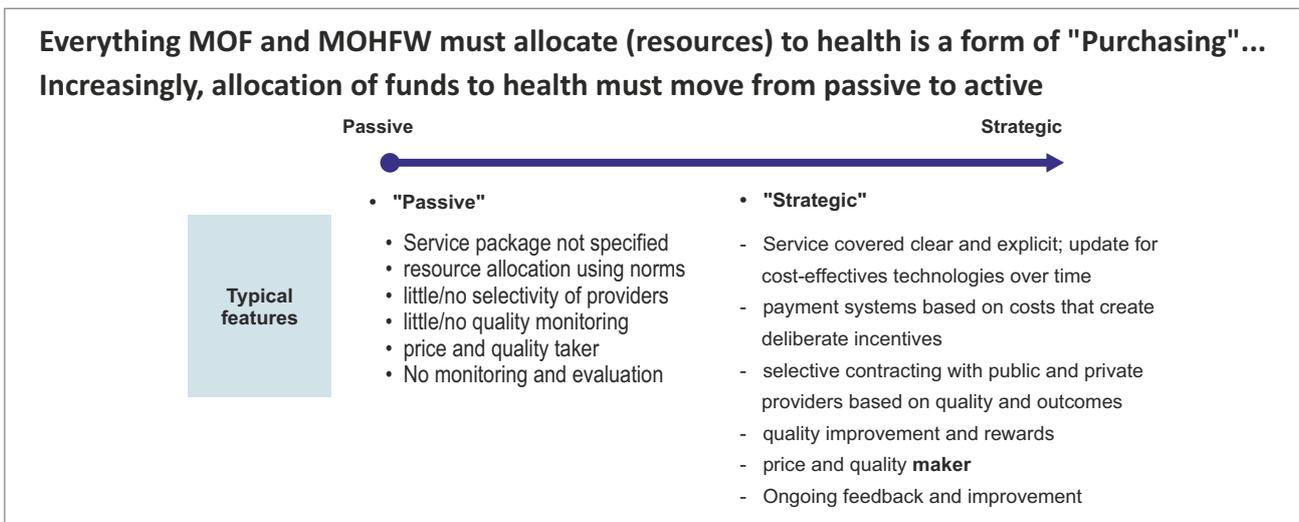
## Strategic Purchasing

### The overall vision going forward: final reflections, bringing stakeholders together

Strategic purchasing enables the Ministries of Health and Family Welfare and Finance to align on the health needs and mobilize funding. The MoHFW can demonstrate to the Ministry of Finance how money links to patients and health outputs (not just inputs). Since funding is not limited to buying inputs; it is more likely that the budget is spent, rather than being held up by management bottlenecks.

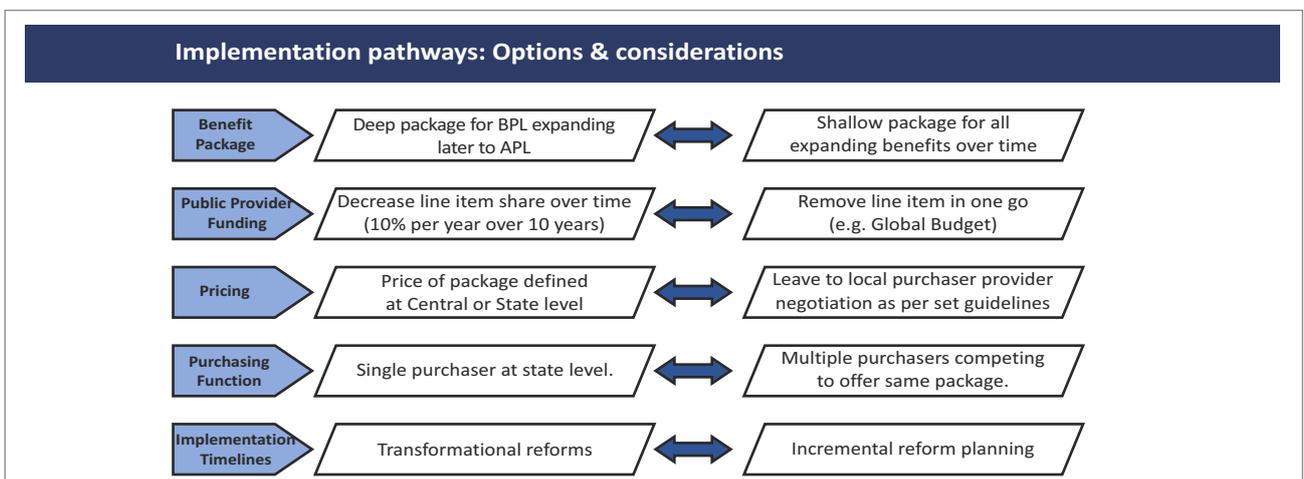
The graphic below (Figure 3.41) succinctly summarizes this paper and the envisioned move to strategic purchasing from the current situation in India.

**Figure 3.41: Allocation of funds to health**



Over time, with greater efficiency of expenditure, MOHFW can ask MOF for more funding. This dialogue can begin if MoH can demonstrate increased cost-effectiveness and impact of the funding spent. Further, a national and state-level health authority can develop rules across public and private purchasers for cross subsidization across purchasers, set uniform benefits packages, fix uniform prices, collect and monitor outcome data, launch new purchasing pilots, as well as share best practices across India. This will also enable fair competition among public and private purchasers and providers. States will continue to have the flexibility and choices, for example, as illustrated in Figure 3.42 below.

**Figure 3.42: Options/Illustrative Scenarios for Transition – States can choose Multiple Pathways**



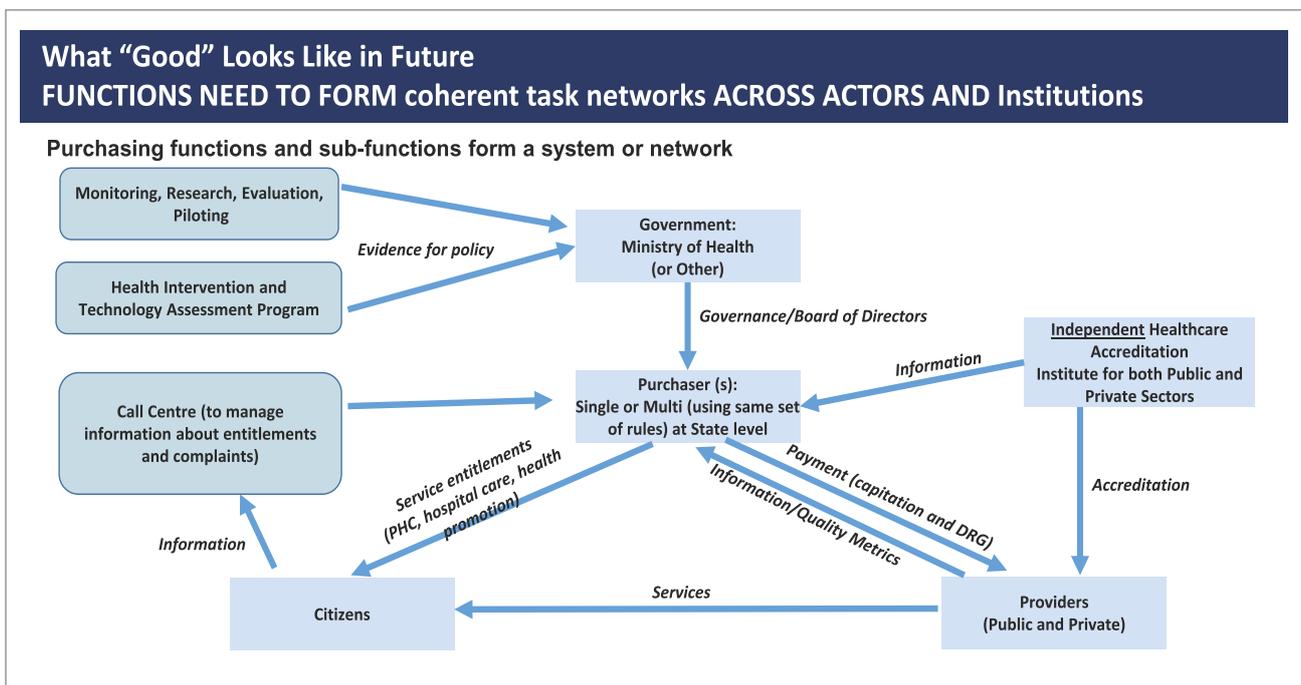
Nevertheless, the effective implementation of strategic purchasing requires a renewed environment where data collection and monitoring pertaining to quality and outcomes become paramount, at all levels. In such a scenario payers and providers are held accountable for their performance, and appropriate mechanisms are put in place for sharing best practices and intervening in case of inadequate performance.

**In short then, efficiency and effectiveness in the use of funds, through:**

- Active purchasing (demand-side financing)
- Regulation across public and private payers and providers (a common set of rules, as in Japan, Germany, Netherlands, Switzerland and other countries with multiple payers and a mixed provider system) and, Accountability (quality and outcome measurement and consequence management)

Figure 3.43 is from Thailand, and it shows a model of excellence. The figure depicts the relationship of the purchaser and provider with their payment models as well as information sharing for quality and performance. It further shows supply-side organizations such as an independent accreditation agency, an independent technology assessment process, updating the benefits package, consumer involvement through hotlines, and monitoring and evaluation for constantly improving the sector. These various components must work together. Strategic purchasing is a network of activities and institutions which work together.

**Figure 3.43: Learnings from international case studies - 4) Accountability (Regulator)**



**Who leads? Who wins? moving to stakeholder embrace**

The best technical plan for strategic purchasing must be accepted politically. A visionary and supportive Ministry of Health and Wellness leadership will be essential to the overall reform, as a radical change will be required to the current role and practices of the MoHFW - from separation between regulatory and provision functions, to demand-side financing and incentives for provisions, to new care models and integration of care between the primary, secondary and tertiary healthcare levels. The Ministry of Finance can and should be a champion of the reform, as it will increase value for money of the funding allocated to

## Strategic Purchasing

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healthcare. However, to gain MoF support, proper accountability indicators and measures need to be put in place to mitigate the risk of loss of fiscal control (emerging by definition of the package and shift to demand-side financing). Providers in the private sector, particularly those who are large and organized, will benefit as public purchasers begin to buy from both public and private players. Public sector providers will resist the move to payment based on performance and strategic purchasing in general. Patients and consumers will, in general, react favourably to a reform that will bring more responsiveness and productivity in the health sector. Through adequate communication, they can become real champions and the lever for wide political support for the health reform process.

### Annexure 1: Which payment system should be chosen?

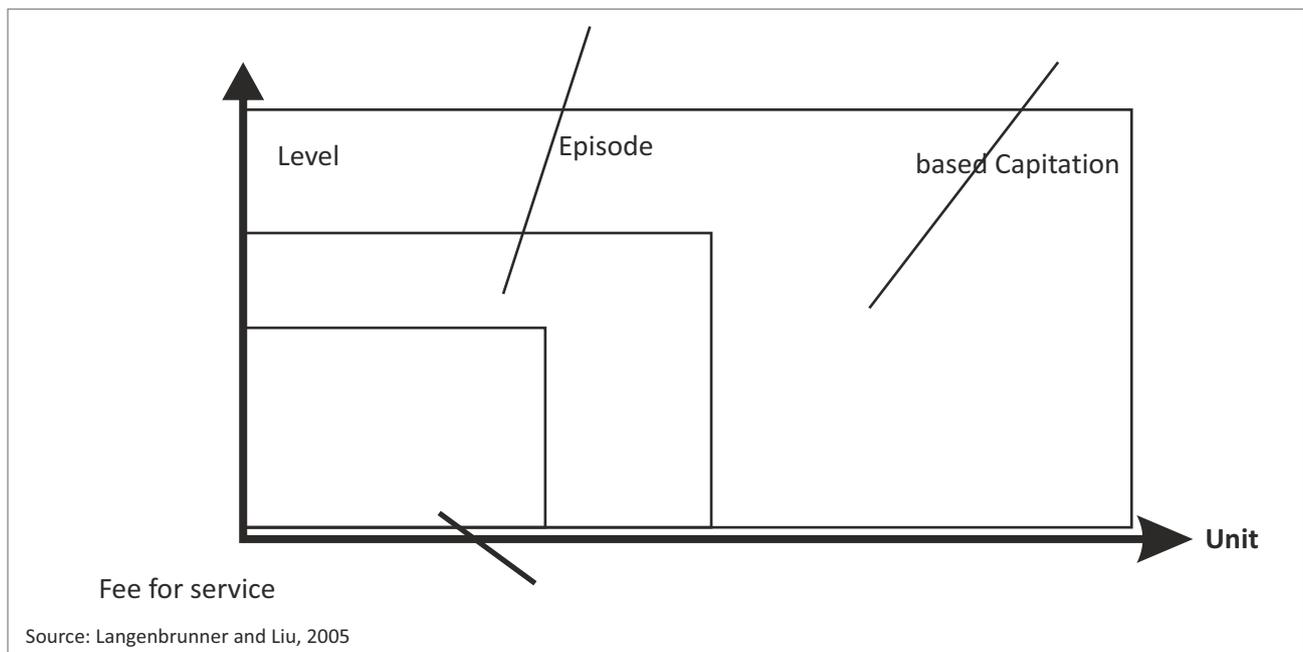
Payment systems should respond to an explicit hierarchy of policy priorities as well as practical considerations. Purchasers first have to decide on policy objectives-increased revenues, efficiency, cost-containment, access, quality, administrative simplicity, or some combination? The payment system chosen and the incentives used have to address one or more health sector policy objectives at that particular time. Incentives must be chosen in tandem with other factors such improved knowledge about clinical outcomes, cultural factors, and providers’ professional ethics.

On the practical side, due to asymmetry of information, payments are often linked to outputs, which are more easily observable and verified (by both parties), than the attainment of health outcomes or policy objectives, such as improved efficiency or equity. In addition, when purchasers begin to consider new incentives, decisions are typically based on factors such as:

- readily available information
- technical capacity
- time available to design, implement, then monitor payment systems

Purchasers have to grapple with the basic mechanics of developing a payment system for providers. Purchasers view the payment mechanism along two axes (Figure 3.1): the unit of payment and the level of payment. The unit of payment can be discrete, say a visit or a test, but even these units can be further subdivided. At the other extreme, the unit of payment can be much more aggregate — an episode of care or even some bundle of needed services for a defined period of time such as one year.

#### Dimensions of developing a payment system



#### The rate or level payment will be based on:

- Standard and perceived cost of the services

## Strategic Purchasing

- Number of providers
- Competition among providers
- Health product volume
- Availability of good information
- Ability of patients to co-pay

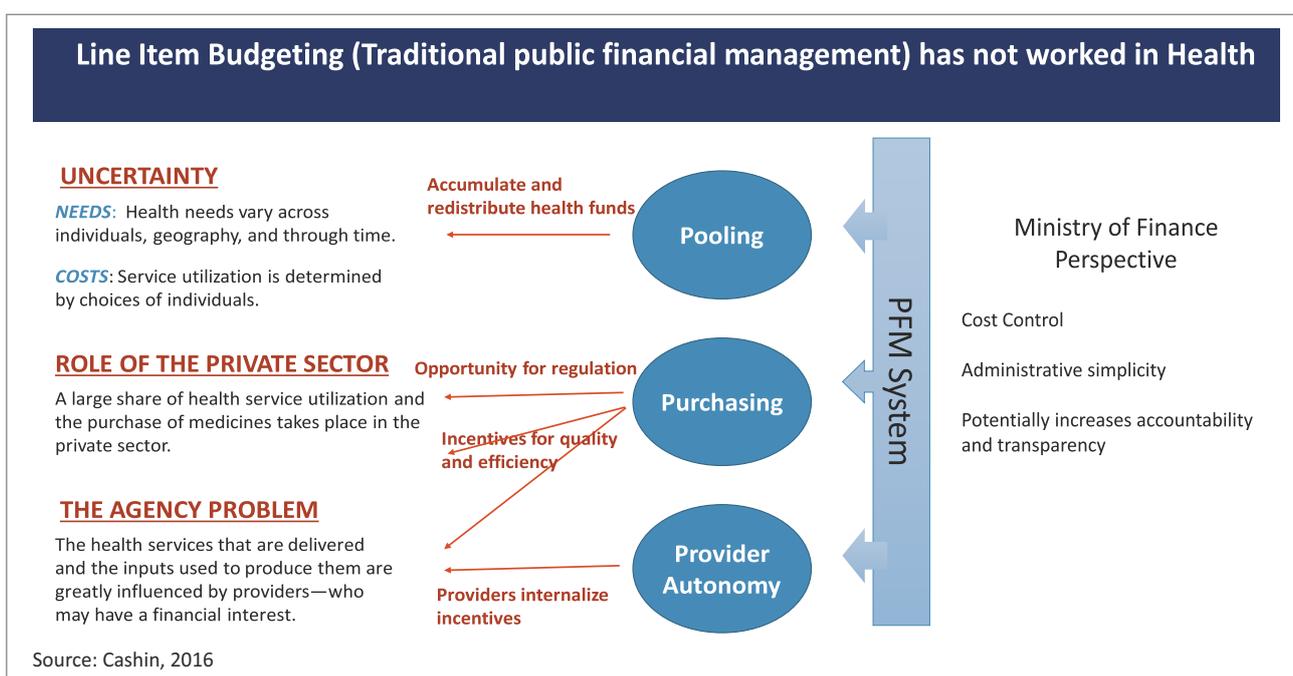
Often when purchasers have to develop a payment system, they have too little time and technical resources to design an optimal one. The purchaser's lack of technical capacity and sound baseline information on cost and volume of needed care may force them initially to merge these two dimensions, allocating resources on a historical basis, or on the basis of gross categories of inputs.

### Line-item budgets

This lack of information often results in them first using the line-item budgeting approach. The provider is paid an amount per given period (usually per year) for a defined responsibility of service provision. The total amount is broken down into, for instance, salaries, drugs, equipment, maintenance, and the like. Countries of the former Soviet Union created 24 line-items for health budgets. There are over an astounding 1000+ lines in management of the healthcare in India. Managers cannot switch funds across the line-items without prior approval by the funding agency such as the Ministry of Finance. Line-item budgets are typically provided by governments directly for publicly-run facilities, where there is no purchaser-provider split.

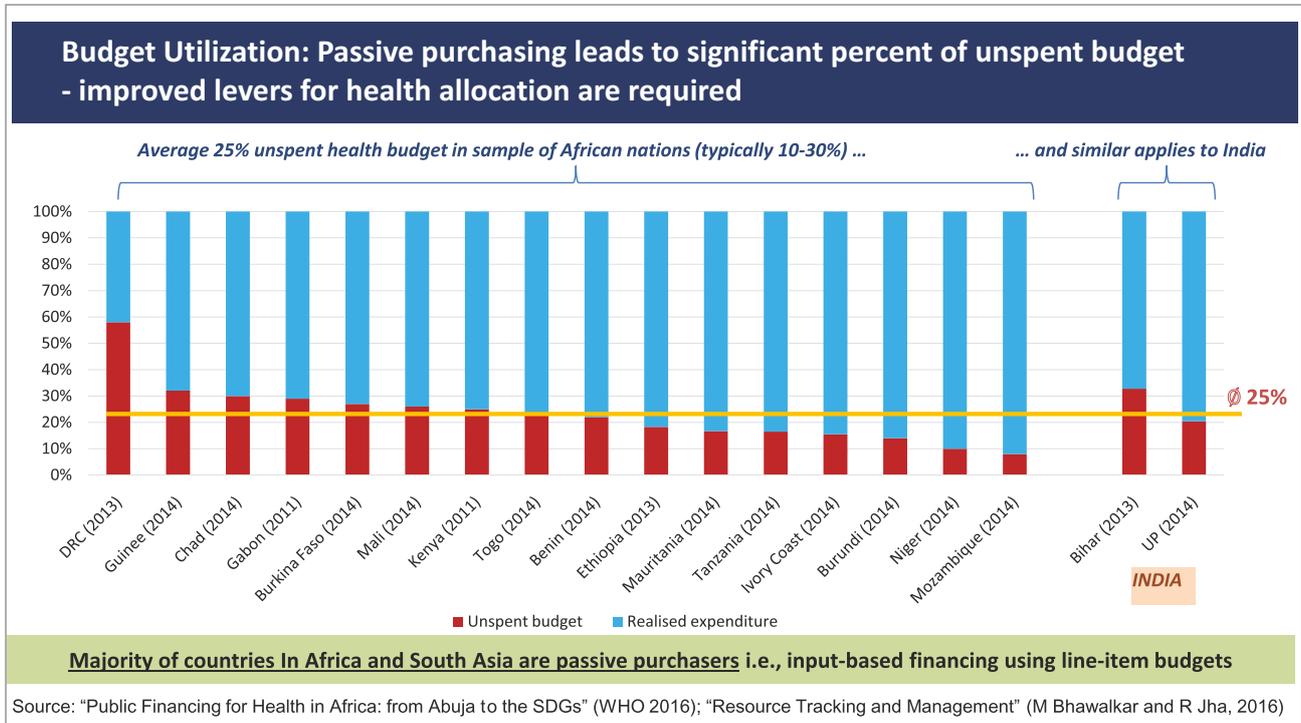
Line-item budgeting does offer strong administrative controls, often valued by government-run providers (Figure 3.2). At a theoretical level, technical and allocative efficiency of health interventions can be optimized by manipulating the government budget lines over time to increase the delivery of cost-effective health interventions and decrease the delivery of less cost-effective interventions. This assumes governments can track and understand the right combination to achieve these outputs.

### What is Strategic Purchasing - Policy levers: 3. Provider Payment



In reality, governments cannot for lack of good monitoring information as well as lack of predictability for need/demand. Budgets are instead based on historical trends that entrench inequity, rather than health objectives. Line-item allocations often are transferred with significant time delays which results in unspent funds.

**Important to intervene now**



Line-items inhibit responsiveness/flexibility, and ultimately innovation. That is why line-item budgeting is being abandoned across the world. Too frequently, line-item budgets have been based on poor or inappropriate information, and these have provided incentives for inefficient use of resources, with fast spend-outs by the end of the budget year. The line budget is rigid in its use of resources and while technology changes in a dynamic way in the health sector, line-item approaches discourages use of the best and least costly combination of inputs for providers to produce services (Ensor and Langenbrunner 2002).

**Salary**

Closely related to line-item budgeting, and often used in conjunction with it, is the use of salary as a payment method for doctors based on the time worked. A part-time or full-time salary can be paid depending on the pattern of employment. Salary payment to doctors is quite common. For example, all hospital-based doctors in China and the United Kingdom are salaried.

Salary facilitates planning and execution of public or insurance budgets, and is neutral with regard to economic incentives for either over or underproviding services (University of York, 1988). The salary system encourages doctors to conduct group consultations and referrals necessary for appropriate treatment, and costs less to administer than performance-based approaches. Payment by salary has benefits associated with the lowest use of tests and referrals, fewer procedures per patient, lower throughput of patients per doctor, longer consultations, and more preventive care.

At the same time, fixed salary may provide no incentive for doctors to work most productively, especially if salaries are low, as in many states in India, and low-income countries in Africa and Asia. Salaried physicians may require illegal payments from the patients and gain under-the-table money from kickbacks provided by pharmaceutical industries and high-tech equipment owners. Mothers-to-be in some states know the schedule of informal fees around birthing services, whether the provider is public or private. Salary payment provides no direct incentive for doctors to recommend the most cost-effective health interventions, decrease costs, and improve health outcomes.

### **Linking payments with activity, outputs, and performance**

India is moving away from line-item budgets. Initially, simple units of retrospective payment can be introduced (e.g. per service). This payment mechanism is typically referred to as Fee-For-Service (FFS) for outpatient care and per diem (per day) for inpatient care. Initially, some are relatively easy to introduce, and the change can encourage provider participation and improvements in productivity (as measured by volume) and performance. Several possible modalities are discussed below, starting with retrospective mechanisms and moving to more sophisticated prospective mechanisms.

Fee-for-Service (FFS). The FFS is a payment method whereby providers are reimbursed based on specific items provided (e.g. doctor consultations, specific x-ray tests, specific surgical operations). FFS also includes itemized charges for medical products and drugs, because material products are often furnished with medical labour services.

### **FFS payment can be further divided into three sub-groups:**

- Open-ended fees
- Negotiated fee schedule
- Regulated fee schedule (Ron, Abel-Smith, and Tamburi 1990)

The traditional type of FFS is an open-ended fee charged by the doctor according to the market. This was the most common type of payment in the medical market especially if medical care is less organized, regulated, and planned. Although the share of this type of FFS payment has been shrinking since the early 20th century, it is still popular in such countries as the United States, Canada, China, and South Korea. The experience in industrial countries, and increasingly in other parts of the world is that FFS correlates with a pronounced increase in volume and overall health expenditure (e.g. China Taiwan, Czech Republic). One short-term response to expenditure growth under fee-for-service has been to cap overall spending on the supply-side (e.g. Croatia, Quebec Province, Canada), and to encourage some patient cost sharing to minimize moral hazard (e.g. Philippines, parts of Canada).

The negotiated fee schedule came into existence with the establishment of health insurance schemes. To reduce the cost of services, purchasers (often social health insurance schemes or private health insurance companies) negotiate with providers or provider associations for a set of standard charges. This system exists in countries such as Germany, France, Belgium, and Korea, and (until 2014) Indonesia (Normand and Weber 1994; Langenbrunner and Somanathan, 2011). The United States and Canada are increasingly using the negotiated fee schedule for their social health insurance programmes and managed care organizations for both preventive and curative services in combination with capitation payment. Some governments regulate this schedule, as in Japan and China. Germany and Japan further negotiate total

volume, and not just price.

The FFS model does have advantages. First, it can be easily developed and implemented, with little capacity. A second important advantage is that FFS payment more accurately reflects the work actually done and the efforts expended (Ron, Abel-Smith, and Tamburi 1990). Thus, this method of payment encourages providers to work longer hours or provide more services. In general, this is thought to improve access to services and utilization in underserved areas (e.g. rural areas), for underserved populations (the poor), or for high-priority services such as immunization (United Kingdom, Denmark, Czech Republic, Haiti) (Eichler, et al. 2000).<sup>22</sup> Third, if costs are understood, scheduled fees can be set to encourage the provision of cost-effective services.

If prices and marginal costs do not correlate, either there is overuse (if the price is set too high) or underuse (if the price is set too low). Quality suffers in either case. The FFS payment also has high administrative costs for both providers and insurers (Normand and Weber, 1994), in part because every service and procedure has to be billed and then reimbursed. In general, FFS system promotes providers internal efficiency, but works against social efficiency in terms of the consumer's point of view.

A daily, or per-diem, payment is used for inpatient services, and the facility is reimbursed a fixed amount for each inpatient day regardless of the actual use of services, drugs, and medical products. In theory, it is applicable to all inpatient services including long-term care in nursing homes. This type of hospital payment is commonly used by non-governmental managed care organizations in the United States, was used in parts of Eastern Europe and Estonia on an interim basis.

#### How to calculate per-diem payments

{Payment Policy = Last Year's Total Budget for Hospitals/Last Year's Number of Days}

Source: Langenbrunner and Liu, 2005

This type of charge can be quickly and easily calculated by simply dividing one number by another (Figure 3.4 above). Per-diem payment provides incentives for the hospital to increase the total number of hospital days by increasing both the length of stay and the number of admissions, while reducing the intensity of care for each hospital day. Thus, the technical quality of care may suffer due to insufficient services and drugs, while the perceived quality such as physician interest in a patient may increase to encourage both admissions and revenues. In Brazil, per-diem payments were instituted between 1971 and 1981, a period that saw admissions triple (Rodrigues, 1989). Germany's use of per-diem resulted in longer hospital stays (13.1 days in 1987) than in other industrial countries (Schulenbury, 1992). As with FFS for physicians, this system may work better when coupled with a budget cap for hospital services (Estonia, parts of Russia). The quality and length of stay can be monitored by peer reviewers.

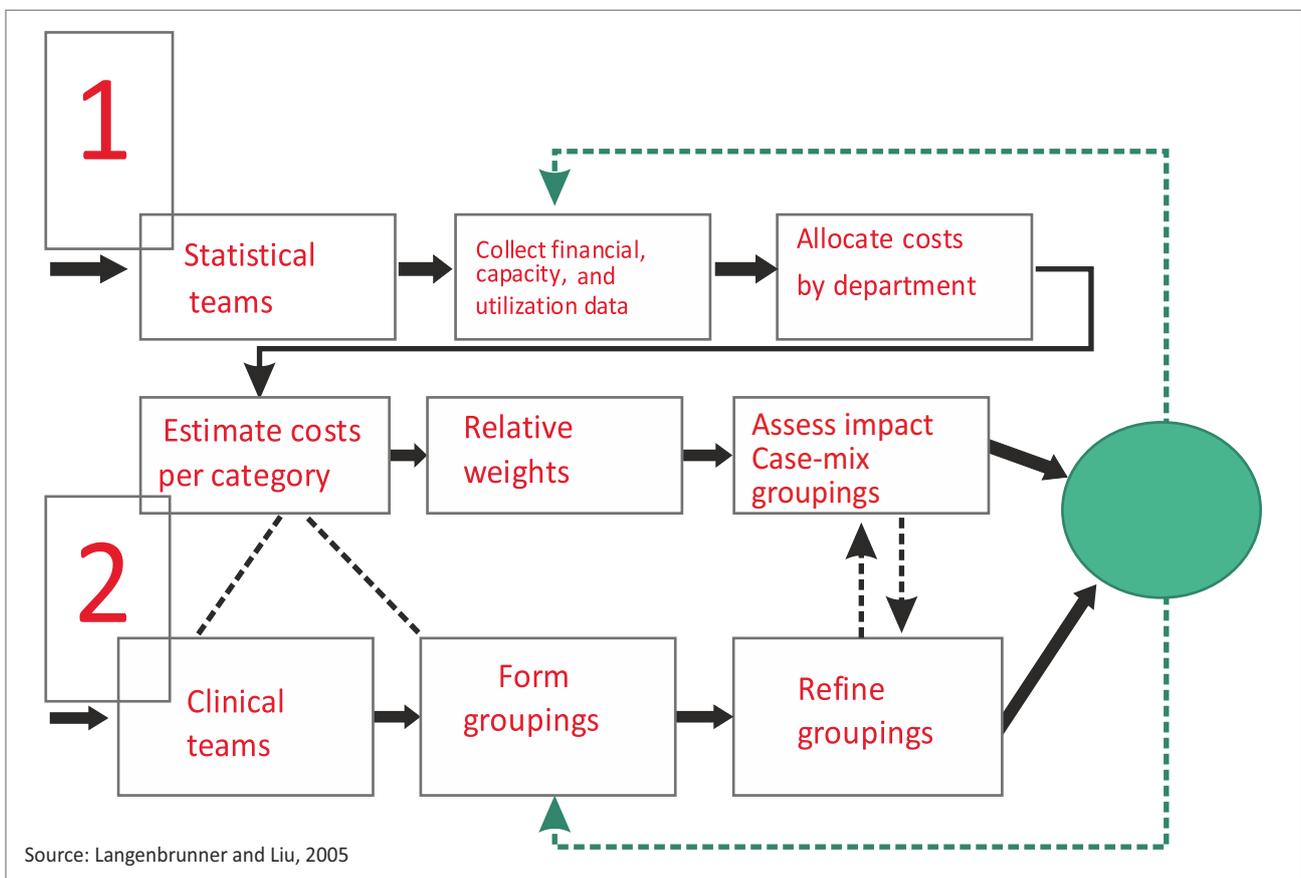
**Case Payment. Or Diagnosis Related Groups (DRGs)** With DRGs or case payments, purchasers pay an inclusive fixed amount per case, regardless of services or procedures provided. It is technically much more complicated to develop (Figure 5 below) and requires patient-level data for a sizable sample of cases.

<sup>22</sup>However, the literature does have some dissenting evidence — Palmer and Mills (2000) found that part-time FFS surgeons in rural South Africa expended minimal time on their public sector patients.

## Strategic Purchasing

The case-payment method can be used for outpatient care such as for day surgery in Lebanon and the payment per inclusive visit that is being tested in Taiwan, Korea, and China's social health insurance reform (Cotterill, Chakraborty, and Jerawan, 2002; Langenbrunner and Somanathan, 2011). It can also be used for inpatient care (e.g. the Diagnosis Related Grouping [DRG] in Portugal, Brazil, and the United States) including either physician services or hospital care, or both. Case payment can be a single flat rate per case, regardless of the diagnosis, and can be severity- or risk-adjusted. But more refined models exist. The most popular type of case payment is the DRG payment for hospital services based on diagnosis, procedures, and other factors such as age and gender, which has been implemented in the United States first, and has been adopted or tested in several countries and regions (e.g. Germany, Australia, Indonesia, Taiwan, and Hungary). Payment levels are based on some measure of costs.

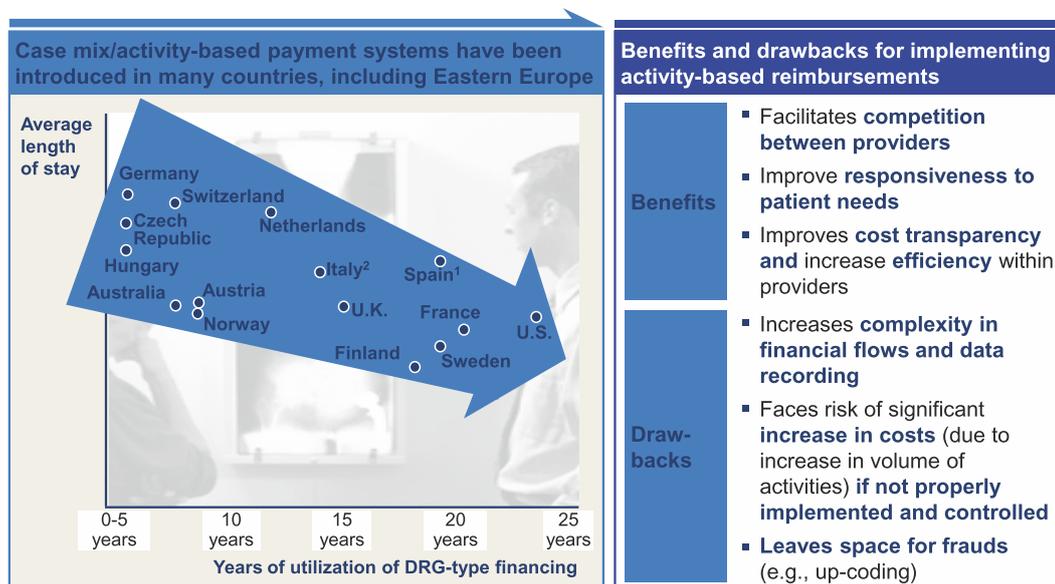
### Development process of case-mix adjusted per case payment



Case payments, if administered correctly, control costs and improve technical efficiency (Figure 3.6 below). Case payment is based on the principle that case cost in some category of risk or severity can be grouped or categorized, and prices assigned to each category. Diagnosis or the International Classification of Diseases (ICD) category is typically utilized as a proxy for risk or case severity. The number of case groups can be as simple as a single group (Kazakhstan in the 1990s), and as complex as 55,000 groups (parts of Russia in the 1990s). Brazil, the United States, Indonesia, and most other countries use between 100 and 900 groups (Jacobs, et al. 1992; Ron, Abel-Smith, and Tamburi, 1990; Langenbrunner and Somanathan, 2011).

## Learnings from international case studies - 3) Provider Payment (DRGs)

**Diagnosis-Related-Groups (DRGs) is the payment mechanism towards which most develop systems are converging, having also positive implications in terms of efficiency**

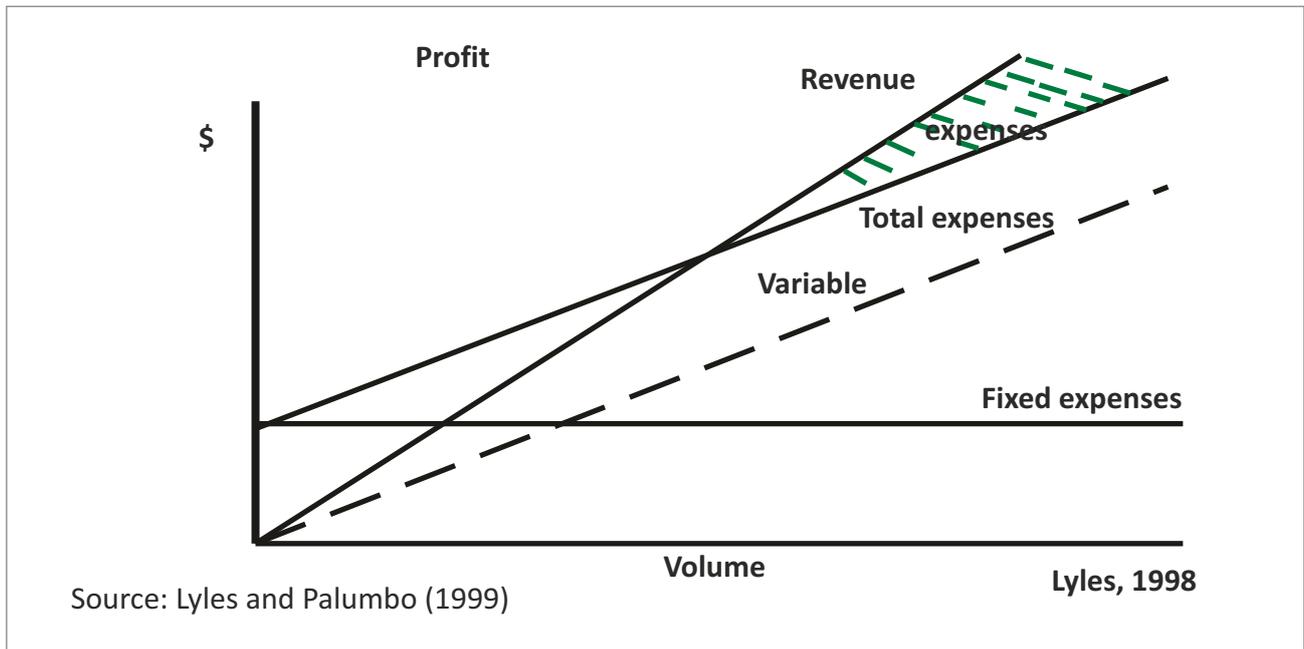


1 Length of stay in 1997    2 Length of stay in 1998  
Source: OECD report, 2002

India's RSBY and the recently launched PM-JAY scheme use a variant of case payments, or package payments, for inpatient episodes. The package payments can include inpatient and outpatient together to form an episode-based payment. The India model varies in that physicians agree on classifications based on some combination of diagnostic and procedure-based interventions. Resource weights are not typically based on costs-as with the countries named above - but based on some relative weighting system based on expert judgement. The payments themselves are not intended to cover all fixed and marginal costs, which again differs from most OECD countries which use case payments. A major advantage of the case payment system is that it removes the economic incentives (Figure 3.6) for the hospital to provide as many items of services (as with FFS) and the longest hospital stay possible (as with per diem). Average lengths of stay typically decrease (see, for example, Kahn, et al. 1990). The predicted disadvantages are various (Figure 3.6, above):

- Code creep, whereby providers are likely to code patients into a group with a high point (or index) to obtain a larger reimbursement (e.g. Croatia, United States, other)
- Cost shifting, whereby providers shift patterns of care and costs to non-DRG patients and settings, which leaves the total cost to the purchaser unchanged
- Incentives to increase unnecessary admissions and read missions (Figure 3.7 below). In Hungary, Russia, and many other countries, admissions increased significantly after a case-based system was introduced. In the United States, read missions are almost 20 per cent of all admissions.
- Incentives to either under provide services or discharge admissions prematurely, where costs are shifted to outpatient services, home service care, and nursing home care. This will decrease the quality of care due to the interruption of care (Normand and Weber 1994)

Development process of Case-mix adjusted per case payment



DRG was developed in the US but has been modified and used by many European countries and Australia as a way of financing public hospitals under a global budget (Wiley 1992). In some of the Nordic countries, DRGs are not used on a case by case basis to pay hospitals, but rather for measuring the case mix of inpatients and financing hospitals under some adjusted global cap. Similarly, in some Latin American countries (Mexico and Argentina), case-mix systems have been developed to track workloads and quality of care, as well as help governments and insurers set payment amounts for hospital care (personal communication, Griffin 2001).

**Global Budget**

Global budget is a one line–item budget for facilities, for some fixed period of time (typically a year) for a specified population or service use. Because it is one line, there is more discretion as compared to line-item budgeting. While the concept is simple, the types of global budget vary with budget flexibility, types and number of providers, number of payers, budget cap target, and budget basis (see below).

According to the degree of flexibility, global budget can be divided into two types-soft and hard. Under a soft global budget, the purchaser assumes cost overruns. A hard global budget transfers financial risk to the provider. Global budgets can be divided by hospital services, physician services, pharmaceuticals, and both services and drugs. According to the number of payers, global budgets can be classified by single or multiple purchasers.

**Global budgets vary in important ways depending upon the budget basis:**

- Inputs such as beds and staff (e.g. Canada in the 1990s);
- Historical spending and activities (e.g. Croatia);
- Volume of service provided and types of cases (e.g., France, United Kingdom, and Germany, China Taiwan)

The preferred approach is the final one, data availability and purchaser capacity permitting. In Australia and

many European countries, the integration or “blended payment model” of case-mix adjusted hospital financing with global hospital budget is the major form of hospital payment (Wolfe and Moran 1993; Frossard 1990; Hirdes, et al. 1996). According to this system, a hospital payment is based on the product of the number of admissions and case-mix index. Thus, higher the number admissions and the sicker the patient, the bigger is the hospital’s payment, but within the cap set for the distribution of budget among hospitals. The incentive provided by this system is similar to case payment, but because any spending is under a budget cap, this type of global budget is expected to be a powerful tool for controlling hospital costs and improving efficiency within the organization itself.

Where do we start? In India, such a model could be tested in some of the large district or teaching hospitals and help determine how such models can be operationalized at lower level facilities as well. Or, as in China, a number of representative districts could be chosen to test the model at various levels of facilities in the district. Individual facility global budgets can encourage complex or costly cases to be shifted to other facilities. Global budgets can, to counter this perverse response, be applied at a regional level. This allows greater flexibility across facilities, while at the same time, providers must work together to assure overall volume is contained. Regional global budgets are found in Thailand, (China) Taiwan, and Germany.

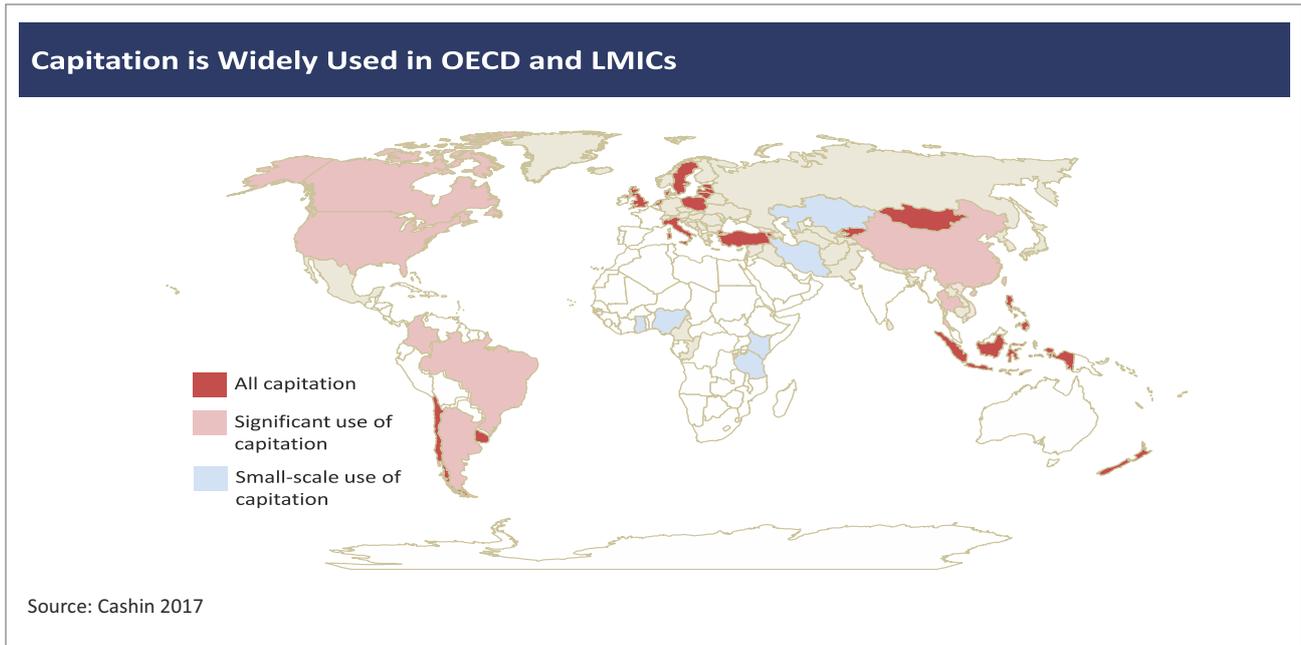
Box 1 shows how case-mix groupings can be used as the basis for developing and adjusting global budgets for hospitals.

<b>Box 1</b>	
<b>Steps for implementing a global budget for hospitals</b>	
1.	Develop a “base line”(one to three years) data base of patient utilization and costs.
2.	Analyse utilization patterns, including patient flows, across facilities and geographic areas
3.	Analyse expenditure patterns by: demographics (age/gender) and patient mix (e.g., by diagnostic categories).
4.	Adjust per-capita budgets for differences in costs across age/gender groups in a particular catchment area.
5.	Adjust budgets for differences in patterns of utilization.
6.	Subtract from this “base budget” target levels of inappropriate and unnecessary patterns of care and associated costs. For example, inappropriate admissions, preadmission duplication of testing, and, alternatives to hospital care, such as outpatient care or in day care centres for “social cases”.
7.	Develop a draft budget of appropriate and necessary care, based on expected volume and case mix.
8.	Develop sharing agreement for expected surpluses generated by new efficiencies, typically some portion to both the facility and the payer.
9.	Develop rules for unexpected risk related to levels of patient demand and expenditures.
10.	Complete negotiations and sign the contract.
<small>Source: Dredge, 2009</small>	

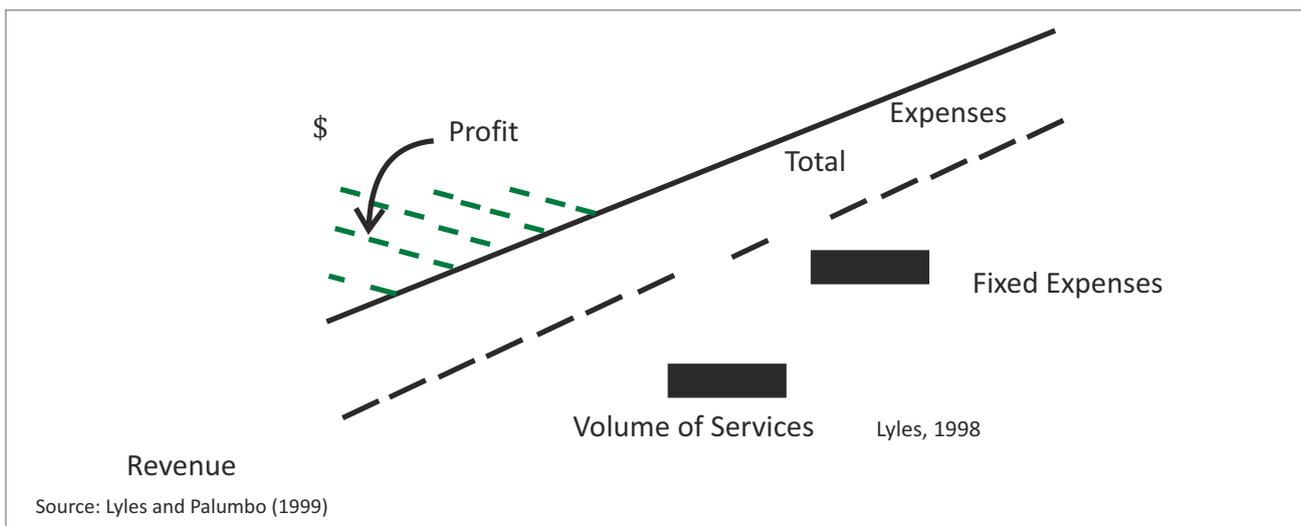
## Strategic Purchasing

Capitation, at its simplest, is one payment per person for some bundle of services delivered over a fixed period (typically a year). This type of payment transfers the economic risk from third-party payers to healthcare providers. The provider receiving a capitated fee can be an office-based doctor or a hospital (Barnum, Kutzin, and Saxenian 1995). Capitation payment has been implemented in the United Kingdom, Denmark, the Netherlands, and Italy and has been introduced in Costa Rica, Indonesia, Philippines, and Thailand (Mills, et al. 2000; Langenbrunner and Somanathan, 2011), as well as most of Eastern Europe and Latin America for primary care services (Dixon, Langenbrunner, and Masiolis 2002) (See Figure 3.8).

### Learnings from international case studies - 30 Provider Payment (Primary care)

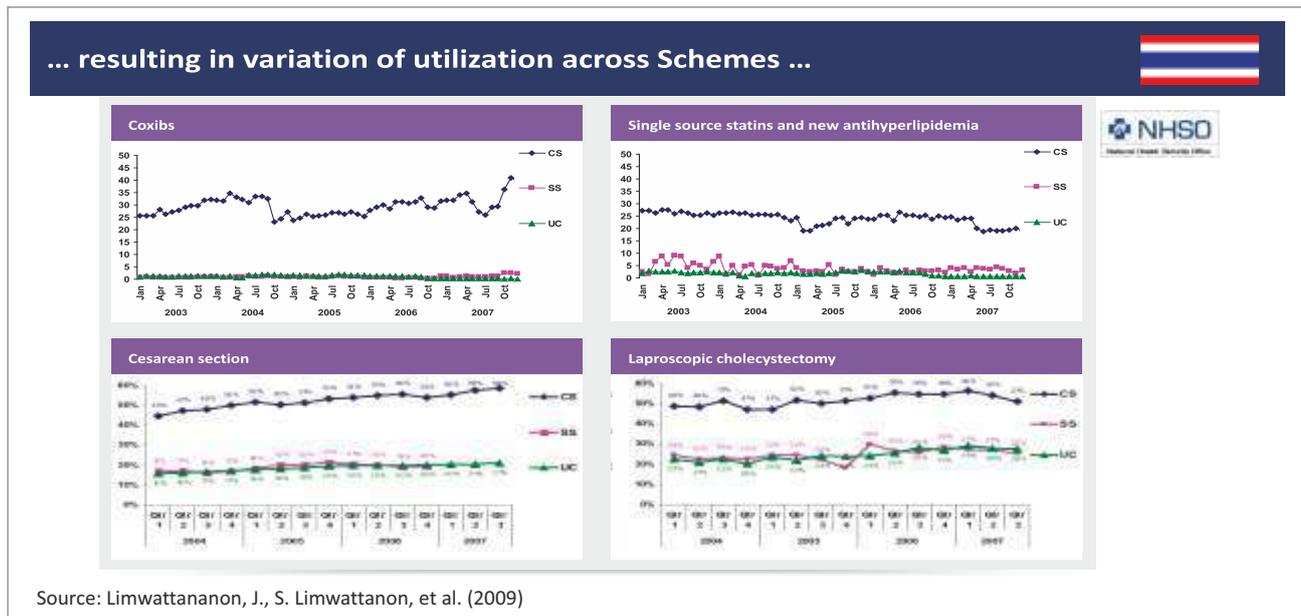


### The Economics of Capitation Payment



Capitation payment, however, may provide incentives for cutting down on necessary care as was the case with Thailand (Figure 3.10 below) which provides a comparison of utilization rates with 4 different interventions for FFS (higher line) and a per episode plus capitation model (lower lines) across 3 purchasers.

Learnings from international case studies - 3) Provider Payment (FFS vs. DRGs.)



On the other hand, there are perverse responses: providers may attempt to select the low-risk clients and cut quality of care to reduce provider costs and risk. Finally, if referrals are outside the capitation payment, a patient is more likely to be sent to a specialist or a hospital while the referral is not necessary. For example, capitation payments to family physicians in Hungary and Croatia covered only their services. Their referral rates were higher than those of salaried physicians (Barnum, Kutzin, and Saxenian 1995; Dixon, Langenbrunner, and Masiolis 2002).

Table 3.1 provides a snapshot of the global experience regarding responding to negative incentives under capitation. To address adverse risk selection, individual risk adjustment in Germany, the Netherlands, and Colombia are starting to use simple formulas to adjust the risk. As Barnum, Kutzin, and Saxenian (1995) state, however, simple formulas may work better when benefits packages are limited, more complex formulas may be needed for comprehensive packages. Methods of risk adjustment remain relatively crude;

**Global experience: managing challenges and negative impact of capitation**

	Clear Clinical/Referral Guidelines	Withhold Fund	Performance Monitoring System	Blended Models such as FFS and Pay-for-performance	Fund-Holding
Excess Referral	U.K.	U.S. Turkey Indonesia	Kazakhstan U.S. (utilization review)	Estonia	Estonia Russia UK <i>Cancelled in all 3, but UK now trying again</i>
Under-provision of Services	U.K.	Brazil Turkey	Kazakhstan U.S. (utilization review)	Estonia U.K. U.S. Netherlands Denmark New Zealand	

Source: Adapted from Cashin, 2013

Newhouse and others (1993) has shown that only 15 to 20 per cent of individual variance can be predicted even with hundreds of variables.

A variation of physician capitation is fundholding, which began in the United Kingdom, and parts of the former Soviet Union. General practitioners are responsible for delivering primary care and purchasing defined specialist and hospital care with set capitated payments. Another practice can be found in Thailand and China, where the social health insurance schemes pay contracted district-level hospitals capitation fees for delivering both primary and secondary services. Hospitals contract with primary care level centres either in the hospital or physically outside the hospital, typically on the basis of historic service utilization. These two types of general approaches remove the incentive for unnecessary referrals, though in Thailand, rural districts still confront the issue of patient-based self-referrals or bypassing to higher levels of care (Shaw and Hsiao, 2007).

Performance-related Pay (PRP) or sometimes called Pay-for-Performance (P4P) directly links payment to the performance and the contribution of healthcare providers. Ideally, the link is outcomes, because measurement is difficult, it is more often based on some ideal process of care delivery. PRP or P4P can be used to pay either individuals directly or groups of people (e.g. primary care facility). “Performance” is measured by how well a specified task is implemented against the set target (all immunizations provided to the child), or some established threshold (e.g. 90 per cent of children immunized) P4P has grown rapidly since the 1980s. P4P for nurses and physicians has been widely reported in North America and the United Kingdom (see, for example, Buchan 1993; Castledine 1993; Buchan and Thompson 1993; Bledsoe, Leisy, and Rodeghero 1995; Berwich 1996; Lewis 1990; Centre for Health Economics, 1992; Griffin 1993; Hern 1994; Macara 1995; Smith and Simpson 1994; Langenbrunner and Somanathan, 2011).

P4P has also been used in very poor developing countries, where complicated payment incentives and systems may be excessively cumbersome for the delivery of basic services. In Rwanda, P4P was used for maternal and child health services. In Haiti, the U.S. Agency for International Development introduced a performance-based bonus arrangement with nongovernmental organizations to deliver maternal and child health services (Eichler, Paul, and Pollock 2001). Results point toward increased immunization coverage.

Performance-based payments with non-governmental organizations have also been used to deliver community-based nutrition services in Senegal and Madagascar (Marek, et al. 1999). In both cases, the programmes focused on poor areas. Services delivered included growth monitoring, food supplementation, nutrition and education sessions, and referral of unvaccinated children and pregnant women to health services. Contracts specified minimum acceptable levels of service delivery. In areas covered by the projects, malnutrition fell steadily, and lower rates of malnutrition were found among children who had participated in the project as compared to children who had not.

Cambodia provides another example of P4P and contracting together. Three arrangements were evaluated (Bhushan, Keller, and Schwartz 2002):

- A contracting-out model in which contractors had full responsibility for delivering the specified services, directly employed their staff members, and had full management control
- A contracting-in model in which contractors provided only management support to civil servants,

most recurrent operating costs were met by the government through normal government channels, but a small supplement was paid over which the contractors had control

- A control group in which services were delivered through the Ministry of Health system

Results indicate larger improvements in the experimental districts as compared to the control district in immunization coverage, use of antenatal care, and other indicators. Furthermore, the poor appear to have benefited disproportionately—among the poorest half of the population, vitamin A supplementation increased faster and the treatment of illness increased several times faster among contracted districts compared to the control districts.

Healthcare purchaser and management parties have often been interested in introducing P4P schemes, but there are sceptics and mixed results from studies globally. Griffin (1993) notes that healthcare systems often lack the basic requirements to undertake P4P such as:

- Financial capacity to reward employees for better performance, especially across the entire workforce. New funding levels may be needed.
- Inability to measure and attribute performance to individuals. In healthcare, cooperation among medical personnel is needed to improve quality; but performance improvement is usually the outcome of joint efforts.
- Rewards large enough to be valued by medical personnel. Rewards must be enough to motivate; however, rewards too large will promote gaming and lack of transparency.

Payment is just one of the factors that motivates the medical profession. Participation, job enrichment, recognition, working environment, and autonomy in allocating resources can be equally important. Caution is needed in specifying criteria for P4P. Basing P4P on just a few indicators such as admissions and lengths of stay may compromise other objectives such as improved quality of care. As more objectives are addressed, indicators multiply, adding administrative complexity and discouraging transparency (Gauri, 2005). The most complex example of P4P might be found in the United Kingdom under the Quality and Outcomes Framework (QOF) programme that has over 180 indicators for primary care physicians.

To start a new programme, India might avoid such complexity and administrative burden. It might be adequate to have 6-10 indicators which are periodically updated or changed as policy priorities change.

For P4P programmes, a number of design issues are critical:

- Domain of care to be covered (e.g., access, quality, etc.);
- Level of payment bonus;
- How will bonus be allocated (e.g., for each service, upon reaching threshold, etc.);
- Who will receive bonus (individual or facility);
- Funds from existing budget or new funds?
- Monitoring and evaluation process.

The P4P programmes can and should be used as an integral part of the new incentive structures within the health sector.

Learnings from international case studies - 4) Accountability (Transparency)

**UK – Dr Foster: Clinical outcomes are tracked and published by Dr Foster**

### Dr Foster Quality Accounts summary

#### Patient safety measures

**What is the hospital's overall death rate?**

**HSMR all admission 99.83** ⓘ  
This compares the actual number of deaths in a trust against the expected number.

**What is the hospital's death rate for emergency admissions?**

**HSMR non-elective 100.43** ⓘ  
Looking at emergency admissions only, this compares the actual number of deaths against the expected number

**Overview**

- Dr Foster benchmarks public services and communicates this information to the public
- Since 2001 they publish consumer guides to health services
- Their methodology involves identifying top and bottom performers by looking at their score for a certain measure of care and seeing how different this is to other hospitals.

**Data granularity**

- SHA
- PCT
- Individual provider

**Example clinical outcome indicators**

- Mortality rates:
  - Overall
  - Stroke patients
  - Patients admitted with a broken hip
- Readmissions rates for
  - Urinary tract infection
  - Gallbladder removal
  - Hysterectomy

Source: Dr Foster Website

Learnings from international case studies - 4) Accountability (Transparency)

**UK: Actual results of effectiveness of public reporting have been shown**

**Improvement in composite process measures among hospitals engaged in public reporting**

**A Acute Myocardial Infarction**

Performance rate  
Percent

**B Heart failure**

Performance rate  
Percent

**C Pneumonia**

Performance rate  
Percent

**D Composite of 10 measures**

Performance rate  
Percent

Source: New England Journal of Medicine 356;5; 1 Feb 2007

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**NITI Aayog**

# CHAPTER 4

## Organization and Provision <sup>23 24 2 25 26 2</sup>

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**Health System for a New India: Building Blocks**  
*Potential Pathways to Reform*

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<sup>25</sup>PricewaterhouseCoopers India

<sup>26</sup>ACCESS Health International





### Introduction

India possesses a mixed healthcare delivery system that is highly heterogeneous. It is characterized by myriad organizational forms and individual and small group providers, as well as considerable variation across states and districts. The delivery system is also disorganized, disaggregated and fragmented, resulting in huge gaps in access, quality and affordability. Regulation, governance and management have traditionally been weak links in India's healthcare system, impeding efforts to address these gaps.

The healthcare system has become increasingly dynamic over the past several decades, largely in response to the liberalization of the health market, increased investment and accelerating technological innovation. But this dynamism has not benefitted all Indians. Parallel systems have emerged: old organizational forms and care practices that tend to provide low-quality care to low-income populations coexist alongside the new and innovative, which generally cater to the well-off and deliver better quality care. In short, contradictory forces are at play. The delivery system appears to be expanding in many directions at once, reflecting existing and emerging structures and practices, as well as competing ideologies.

India's healthcare system displays considerable dynamism, but system-wide change remains elusive. The technological, organizational and delivery innovations implemented in India's healthcare system during the last two decades are nothing short of remarkable, and in some cases, have become global benchmarks. However, despite these innovations, underlying delivery models, organizational forms, governance arrangements and financing mechanisms have not dramatically changed since Independence. Many people continue to face stubborn challenges related to accessing and paying for healthcare. Financed through traditional line-item budgets, government operates a centrally planned direct delivery system that serves a relatively small share of the population and, taken as a whole, struggles to fulfil its mandate to provide accessible, quality care.

The private sector is the foremost provider of healthcare. Notwithstanding the emergence of an organized and increasingly visible corporate subsector, private provision remains dominated by solo practitioners, small providers and stand-alone hospitals in which Fee-For-Service (FFS) is the main method of payment. While systematic information on provider performance is notoriously absent, available data, mainly from studies with small samples, suggests that both sectors face formidable quality and efficiency challenges. Few formal linkages exist between these sectors, contributing to macro inefficiencies in the use of limited resources. From the patient's perspective, seeking care often involves navigating multiple public and private providers, including traditional medicine and unqualified providers. Under this scenario, Indians must fend for themselves, facing the dual risks of poor outcomes and high out-of-pocket (OOP) spending.

Addressing these challenges requires a transformative approach to test and build upon promising initiatives for organizing and providing care with a focus on the needs of low-income populations. Importantly, India is too diverse for a single strategy or one-size-fits-all solutions. The best vision of transformative organizational and provision arrangements will vary and most likely depend on context, including leadership, institutional capacity, governance and starting conditions.

While transformative change at the national scale is daunting, fortunately, India is not starting from scratch.

## Organization and Provision

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Over the last several decades, the government and private sector have laid building blocks that can serve as the foundation for the recommended reforms. These include: (i) the expansion of non-contributory government-sponsored health insurance schemes, including the national (PM-JAY) scheme and numerous state schemes, covering inpatient care for over 500 million people through purchasing services from public and private hospitals; (ii) the National Health Mission (NHM) has invested heavily (about US\$20 billion) in the public delivery system since it launched in 2005 especially in rural areas, including the deployment of nearly 900,000 community health workers (ASHAs); (iii) the private sector is increasingly innovative and socially entrepreneurial-India has become a global leader in low-cost technologies and care models, and many state governments have broadly endorsed private sector collaborations through public-private partnerships (PPPs) to deliver care more effectively; (iv) government policies have contributed to the expansion of AYUSH providers, especially by integrating them into government-run allopathic care practices; and (v) the National Accreditation Board for Hospitals & Healthcare Providers (NABH), established in 2010, operates a three-stage accreditation programme for healthcare organizations.

Significantly, India is committed to achieving Universal Health Coverage (UHC). The recent National Health Policy (MoHFW, 2017a) specified a number of targets for 2025 spanning health status, population coverage and health system performance. Whether these laudable goals become reality will depend on the country's ability to improve access, quality and affordability of service provision for a large segment of its population. Many of the recommendations proposed in this chapter are aligned with the policies and actions highlighted in the National Health Policy.

Still, change will not be fast or come easily. It will reflect shifts in beliefs and ideas on what and how healthcare should be organized and provided as well as evidence of what works and doesn't work. Additionally, it will reflect new approaches to achieving transformative change in a federal system, based on adaptable bottom-up strategies rather than rigid top-down mandates. Progress in healthcare organization and provision is likely to come from scalable demonstration projects supported by the central government and carried out by individual states, diffused within and across states over time. New models are needed to organize and provide care in both the public and private sectors, and, more importantly, through building strong public-private linkages. Global experience demonstrates that long-term commitment, backed by sustained political commitment and leadership, flexibility and willingness to learn from mistakes, must prevail.

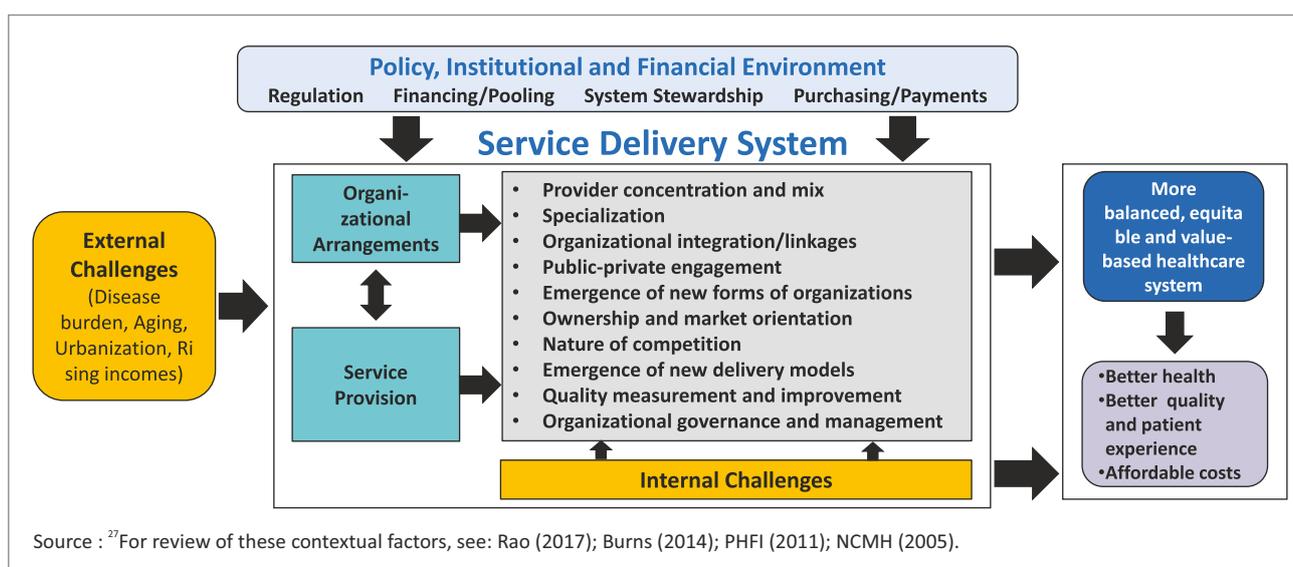
This chapter concentrates on the healthcare service delivery system, which we define as the set of organizations and actors who provide health services, such as hospitals, physicians, non-profit organizations, nurses and community health workers (Roberts et al., 2008). We focus on the provision of personal healthcare services and do not deal with manufacture, supply or distribution of pharmaceuticals, medical devices or consumables. Nor do we address human resources for health (HRH), except as it relates to public sector HRH governance practices. Finally, we do not address the wider societal context underlying the healthcare system.<sup>27</sup>

Drawing on previous work on healthcare systems (Scott et al., 2000; World Bank, 2010; Roberts et al., 2008; Shortell, 2004), Figure 4.1 displays the framework used to assess service delivery shortcomings and develop

recommendations for transformative change. It consists of three main components. The first is the policy, institutional and financial environment. Many of the elements related to health financing were discussed in previous chapters and will not be repeated here. The second is external challenges such as a changing disease burden and an ageing population. The third component, the main focus of this chapter, covers internal system challenges facing the service delivery system such as fragmentation, poor governance and care coordination, low quality and weak management.

As shown in Figure 4.1, we separate organizational arrangements from service provision. We view organizations as “collective actors possessing resources, rights, and distinctive capabilities and limitations” (Scott et al., 2000:2). Organizations are key players in the delivery of healthcare. These can be hospitals, group practices, non-profits, nursing homes, home care agencies, multi-hospital systems and dialysis centres, to name a few. Provision refers to the actual care delivered by providers such as physicians, nurses and health workers. As suggested above, in India, many providers are not part of a formal organization. As India develops, provider organizations will play a significant role in shaping the healthcare system.

**Figure 4.1: Analytic Framework**



The chapter is structured as follows. The first section aims to shed light on the challenges, developments and trends facing the organization and provision of healthcare in India, as well as their implications in terms of affordability, quality, efficiency and outcomes. The second section briefly outlines a vision for a reformed service delivery system. The final section consists of recommended changes that would transform the healthcare system into a more balanced and value-based care system providing affordable and high-quality care while improving health outcomes. It also outlines priority, short-term actions to get from here to there.

Finally, an important caveat is in order. The team faced considerable problems securing systematic and reliable data on the organization and provision of care in India. This was especially the case for the private sector as well as data on the efficiency and quality of care. In general, systematic data on utilization, supply and provider performance were absent, not validated or of poor quality. In a number of cases, we had to rely on microstudies and limited case study documentation. Data limitations are outlined in Annexure 2.

### Situational Analysis

This section provides an overview of the challenges, trends and developments in the organization and provision of healthcare in India. It is divided into two parts. The first briefly addresses external challenges confronting the healthcare delivery system, over which health system actors have little or no direct control. These will shape future demands on the delivery system. The second addresses challenges internal to the delivery system and has a much broader scope. It examines shortcomings in the organization and provision of healthcare in the public and private sectors, such as quality and efficiency, and limitations in the broader institutional environment. These challenges can be directly influenced by policy decisions, which can in turn indirectly influence some of the external challenges; they can therefore be the main focus of any transformative change efforts.

#### External (non-health system) challenges

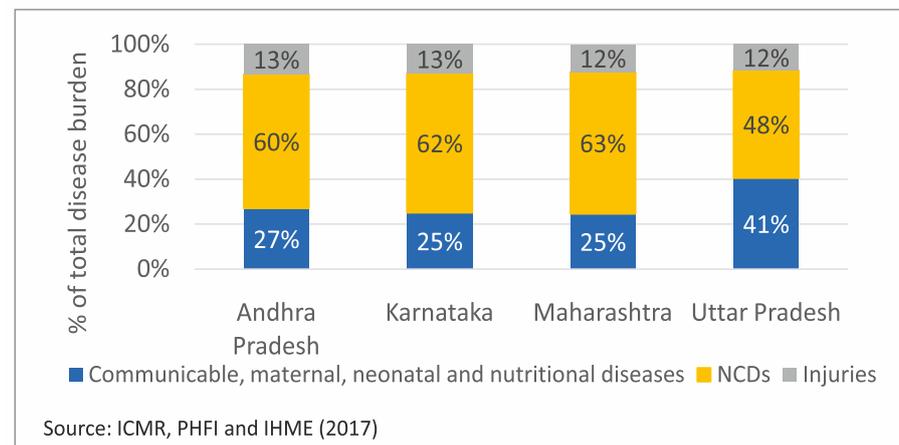
India is in the midst of socio-demographic and epidemiological shifts that have the potential to dramatically shape the country over the next several decades. Together, the double burden of disease, major improvements in life expectancy and the swelling of the urban middle class will significantly impact the healthcare needs and demands of the population.

#### Shifting burden of disease towards non-communicable diseases

After years of tackling infectious diseases, and Maternal, Newborn and Child Health (MNCH) conditions, the tide has turned and they are on the decline; but the burden of chronic Non-Communicable Diseases (NCDs) has simultaneously risen. Figure 4.2 illustrates the

burden of NCDs across select low-, medium- and high-performing states. In 2016, NCDs caused an estimated 61.8 per cent of deaths nationally, with 28.1 per cent attributable to cardiovascular diseases (CVD), 10.9 per cent to chronic respiratory diseases and 8.3 per cent to cancer. In contrast, communicable, maternal, neonatal and nutritional conditions combined resulted in 27.5 per cent of deaths (ICMR, PHFI and IHME, 2017).<sup>28</sup> This marks a dramatic shift from the past. In 1990, NCDs were not among the top five leading causes of Disability-Adjusted Life Years (DALYs)<sup>29</sup> in India; yet, by 2016, NCDs accounted for three of the top five leading causes (ICMR, PHFI and IHME, 2017). Significantly, this rising tide of NCDs has eclipsed the communicable and MNCH disease burdens in all states by varying degrees.

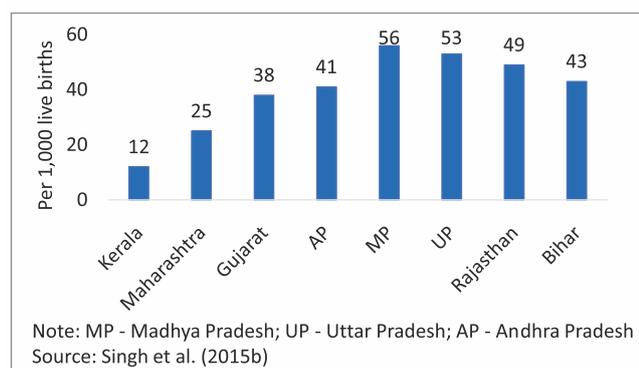
**Figure 4.2: Disease Burden Across States, 2016**



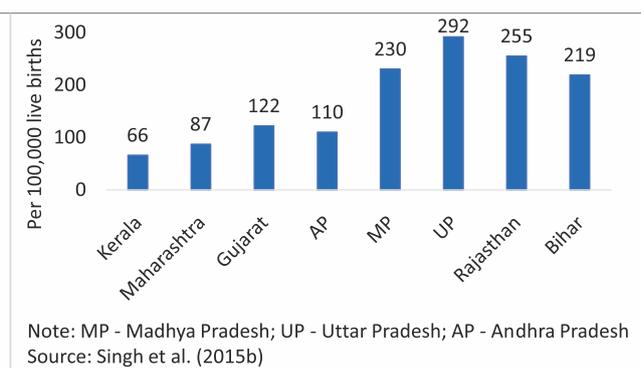
burden of NCDs across select low-, medium- and high-performing states. In 2016, NCDs caused an estimated 61.8 per cent of deaths nationally, with 28.1 per cent attributable to cardiovascular diseases (CVD), 10.9 per cent to chronic respiratory diseases and 8.3 per cent to cancer. In contrast, communicable, maternal, neonatal and nutritional conditions combined resulted in 27.5 per cent of deaths (ICMR, PHFI and IHME, 2017).<sup>28</sup> This marks a dramatic shift from the past. In 1990, NCDs were not among the top five leading causes of Disability-Adjusted Life Years (DALYs)<sup>29</sup> in India; yet, by 2016, NCDs accounted for three of the top five leading causes (ICMR, PHFI and IHME, 2017). Significantly, this rising tide of NCDs has eclipsed the communicable and MNCH disease burdens in all states by varying degrees.

**Unfinished infectious disease and maternal, newborn and child health agenda.** Despite the nationwide shift toward NCDs, in some states the rapid increase in prevalence of NCDs is coupled with an unfinished agenda in infectious diseases and MNCH conditions. For many states, especially those in the Empowered Action Group (EAG), curbing communicable diseases and maternal, infant and child mortality has proved challenging (Figures 4.3 and 4.4).

**Figure 4.3: Infant Mortality Rate, 2012**



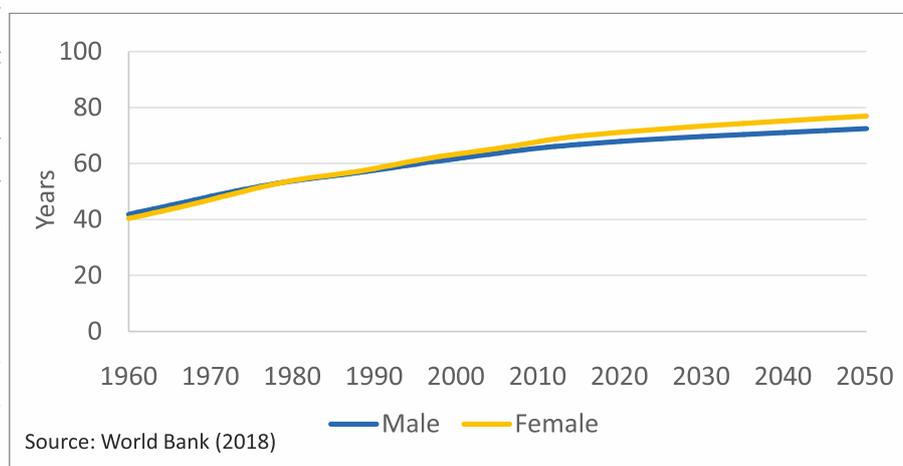
**Figure 4.4: Maternal Mortality Rate, 2012**



**Population ageing** As shown in Figure 4.5, Indians are increasingly living longer, with average life expectancy at birth projected to increase from 67.5 years in 2015 to 75.9 years by 2050. Declining fertility rates combined with advances in medicine, public health, sanitation, nutrition and economic growth, among other factors, have contributed to a rapid increase

**Figure 4.5: Projected Life Expectancy at Birth**

in the share of India’s elderly population. Today, 9 per cent of the population – over 116 million adults – are 60 years or older; by 2050, their population share will grow to 19 per cent. Further, the proportion of adults aged 80 and over is projected to triple to 3 per cent by 2050 (Institute for the Study of Labor, 2016).



**Urbanization** While official Indian statistics calculated the urban share of the population at roughly 31 percent in 2010, in reality an estimated 55.3 per cent of the population lived in areas with “urban-like features”. This reflects rapid migration to existing urban centres, as well as the swelling of towns into cities (Ellis and Roberts, 2016). This trend will continue, and by 2030, at least 590 million people are expected to live in urban areas (Sankhe et al., 2010). India’s urbanization is characterized by chaotic sprawl, which challenges the delivery of basic services including water, sanitation and healthcare. Over 17 per cent of the urban population lives in slums that often expose residents to overcrowding, unsafe infrastructure, unsanitary waste disposal and contaminated drinking water, among other dangers (Ellis and Roberts, 2016).

<sup>28</sup> The remaining 10.7 per cent of total deaths was due to injuries

<sup>29</sup> Per the WHO [https://www.who.int/healthinfo/global\\_burden\\_lost\\_year\\_of\\_healthy\\_ life...DALYs\\_for\\_a\\_disease\\_or\\_health\\_c\\_due\\_to\\_premature\\_mortality\\_in\\_the\\_population\\_and\\_the\\_Years\\_condition\\_or\\_its\\_consequences..](https://www.who.int/healthinfo/global_burden_lost_year_of_healthy_life...DALYs_for_a_disease_or_health_c_due_to_premature_mortality_in_the_population_and_the_Years_condition_or_its_consequences..)

### Rising incomes

India has experienced tremendous economic growth over the past several decades. As incomes rise, poverty is in decline, and it is estimated that by 2030, 91 million urban households will be in the middle class, up from 22 million in 2010 (Sankhe et al., 2010).

### Implications for service delivery

Taken together, these external challenges – the onslaught of NCDs, an unfinished agenda in infectious and MNCH conditions, population ageing, urbanization and rising incomes – will place considerable pressure on India's healthcare delivery system. Major implications are as follows:

- The rise of NCDs will necessitate new delivery models and organizational arrangements that foster better prevention, detection, cross-provider care coordination and long-term disease management. They will require a more comprehensive primary care model that is organized around the broad needs of individuals and communities, rather than vertically-managed disease programmes. At the same time, the delivery system will need to prioritize coordination of services across the spectrum of care.
- Reducing infectious disease rates and improving MNCH requires a broad, multisector approach. Public goods, like clean water, improved sanitation, vector control, and disease surveillance, are necessary pillars for population health and directly impact infectious disease rates and maternal and child survival (Mills and Cumming, 2016; Lancet Global Health, 2015). Access to nutritious food and female literacy are additional basic yet critical foundations for better outcomes. However, improvements in the organization and provision of care will also be needed. For example, establishing standard processes for cross-provider, coordinated management of high-risk pregnancies (e.g. early detection of high-risk mothers at the community and primary care levels, ensuring access to hospital-based emergency obstetric care) is imperative for reducing maternal mortality (Singh and John, 2017).
- Population ageing is significant as the elderly have unique healthcare needs. They are more likely to have at least one NCD, and many suffer from multiple chronic conditions (WHO, 2004). They also are more susceptible to adverse events such as hospital-acquired infections, falls and delirium (Doering, 2008; Phelan, 2013); therefore, geriatric-focused primary care and home care will need to identify problems before they escalate, thereby reducing unnecessary, potentially dangerous, hospitalizations (National Academy of Medicine, 2016; WHO, 2004). Effective palliative care will also be necessary for the most elderly (National Academy of Medicine, 2016).
- A multi-pronged strategy is needed to respond to the needs of the rapidly urbanizing population. A renewed focus on public goods is critical to prevent the incidence and spread of infectious diseases. Simultaneously, lifestyle changes associated with city living such as unhealthy diets and physical inactivity are risk factors for NCDs Like type II Diabetes and CVD, and needs to be addressed through new prevention and health promotion strategies (Allender et al., 2010; Urbanization and Health, 2010).
- Global experience has shown that income is an important non-demographic driver of healthcare spending, including spending on costly high-technology medical equipment (Coady and Kashiwase, 2012; European Commission, 2012; China Joint Study Partnership, 2016). Furthermore, rising incomes are known to spur health insurance coverage, meaning that as more Indians enter the urban middle class, health insurance coverage will rise. International evidence

shows that insurance coverage is associated with greater utilization of healthcare services (Bernal et al., 2017; Hatch et al., 2016; Jeon and Kwon, 2013; Kondo and Shigeoka, 2013). We can therefore expect that as incomes rise in India, healthcare utilization and spending will also increase.

In sum, containing costs while delivering broad population health management and coordinated, often lifetime care for patients will be imperative for financial sustainability and improved health outcomes. India can achieve these goals through a system that fosters provider collaboration, continuity of care, high-quality services and respect for patients. The reality of India's delivery system is some distance from this ideal, however, as discussed in the next section.

### **Internal (healthcare delivery system) challenges**

India's healthcare delivery system comprises a complex mix of public and private providers ranging from solo practitioners working out of their homes to world class, super-specialty hospitals. Governance rests primarily with the states, though the central Ministry of Health and Family Welfare (MoHFW) plays a role through numerous national programmes. As a result, there is considerable heterogeneity across states healthcare systems in terms of their organizational arrangements, public-private makeup, appetite for experimentation and change, and, ultimately, their health outcomes. Still, certain challenges appear common. These include: an episodic, acute care model; vertical and horizontal fragmentation; governance shortcomings; a neglect of quality; and weak provider regulation. We take up each of these challenges below. Taken together, they suggest that the system is inadequately prepared to address the external challenges highlighted in the previous section.

### **Episodic, acute care model**

Healthcare delivery in India in both the public and private sectors is largely reactive and focused on acute, episodic treatment (IBM Global Business Services, 2016; Rahman, 2014; Bajpai, 2014). For most Indians, interactions with the healthcare system are patient-initiated: individuals will go to a clinic, hospital or pharmacy when they are feeling unwell; once they have been treated, their symptoms have abated or they opt out of treatment, patients likely will not interact with the healthcare system again until their next illness episode or injury (Yellapa et al., 2017).

Preventive and primary care, which are crucial to identifying health problems, especially NCDs, before they escalate as well as to managing individual's health and healthcare over time, are essentially absent in this care model. Government-run screening camps provide mass screening for common conditions, but they have historically been sporadic, without systematically linking patients to follow-up care and implemented independently of ongoing programmes (Elias et al., 2018). Primary care in the public sector has also been insufficient, suffering from a narrow focus on MNCH and communicable diseases. In 2010, a National Programme for Prevention and Control of Cancer, Diabetes, CVD and Stroke (NPCDCS) was launched, but the limited scope of this programme in practice is symptomatic of the public system's reactive approach (Medhi, 2016; Elias et al., 2018). In the private sector, most providers have few incentives to provide preventive or proactive primary care, given lack of patient demand for these services and the dominance of FFS payment. As a result, many patients suffer from undiagnosed and unmanaged conditions. For example, of the estimated 38 million urban diabetics across India in 2011, only about 21 million had been diagnosed and only 9 million were on treatment (Singh et al., 2015b). Rates of cancer screening are also low, and over three-quarters of cancer patients seek care when already in an advanced

stage of the disease, reducing the probability of treatment success (Mohan et al., 2011). In short, primary care facilities in both sectors essentially act as ambulatory clinics, providing curative and select preventive services like immunizations, without a corresponding focus on long-term patient or population health management (Rahman et al., 2014). The existing care model channels provider efforts toward curing urgent, individual episodes of illness, rather than preventing such episodes in the first place. Recently the government announced a new national model for primary care to be implemented through Health and Wellness Centres, intended to provide comprehensive primary healthcare services (preventive, promotive, rehabilitative and curative) for an expanded range of conditions including NCDs. This involves major infrastructure upgrades, in addition to fundamentally new ways of delivering care, which will take time and careful effort to implement effectively.

### Vertical fragmentation

Across India, primary, secondary and tertiary care level providers generally operate in isolation. Communication among providers at different levels regarding a specific patient, let alone collaboration to provide clinically coordinated treatment, is limited. This significantly impacts care quality and cost, and places the onus of navigating the provider market on the patient. Figure 4.6 illustrates the vertical fragmentation that patients must navigate to receive care.

In the public sector, the 1946 report of the Bhore Committee on healthcare laid out a vision for a three-tiered government-run health system in India. The Committee envisioned a system in which secondary and tertiary hospital professionals provide support, including training and guidance, to lower-level healthcare providers in order to improve standards of care (Bajpai, 2014). Yet, while India has since implemented a multi-tiered government-run system, each level tends to operate separately and few functional linkages exist across programmes and facilities (Rao, 2017; Bali and Ramesh, 2015). Management of government facilities at different levels is divided across different administrative bodies: blocks/municipalities run community health centres (CHCs), primary health centres (PHCs), sub-centres and outreach workers (e.g. ASHAs); districts are responsible for district and sub-district hospitals; and states oversee medical colleges and tertiary hospitals. Except during outbreaks or epidemics, care coordination is limited. Each administrative layer appears managed in parallel, contributing to siloed care organization and provision (Bajpai, 2014).<sup>30</sup>

The private sector is similarly vertically fragmented. It is dominated by small, independent players (Kumar, 2015) that generally do not have formal relationships with other providers or facilities.<sup>31</sup> A clinician may suggest to a patient to visit a higher-level provider, and may even provide a written referral slip, but this is generally the extent of support given to patients as they move across system levels (Yellapa et al., 2017). Some corporate providers have experimented with vertical integrating hospitals and ambulatory clinics, but little is known about these efforts and the vast majority of private providers continue to operate as individual agents.

In most states, the public sector referral and counter-referral system, which should act as a minimum level of coordination between providers, is inadequate (Bajpai, 2014; Blanchet and Makinen, 2016). Meanwhile, the private sector has no standard referral norms (Bhat, 1999). Where they exist, referral relationships are

<sup>30</sup>See subsections “Horizontal Fragmentation” and “Governance Shortcomings” for further discussion of administrative fragmentation.

<sup>31</sup>See subsection “Understanding Fragmentation in the Private Sector” for more information on the private market.

generally informal and based on personal relationships between providers, and sometimes involve informal payments. A 2006 study in Lucknow illustrates just how infrequently referrals are utilized. Analysing the pathways of patients who attended the outpatient departments of public hospitals, (Nath et al., 2008) found that only about ten per cent of patients arrived with a referral.

However, simply increasing referrals will not be enough to strengthen vertical integration. Across India, even when a patient receives a referral, the relevant

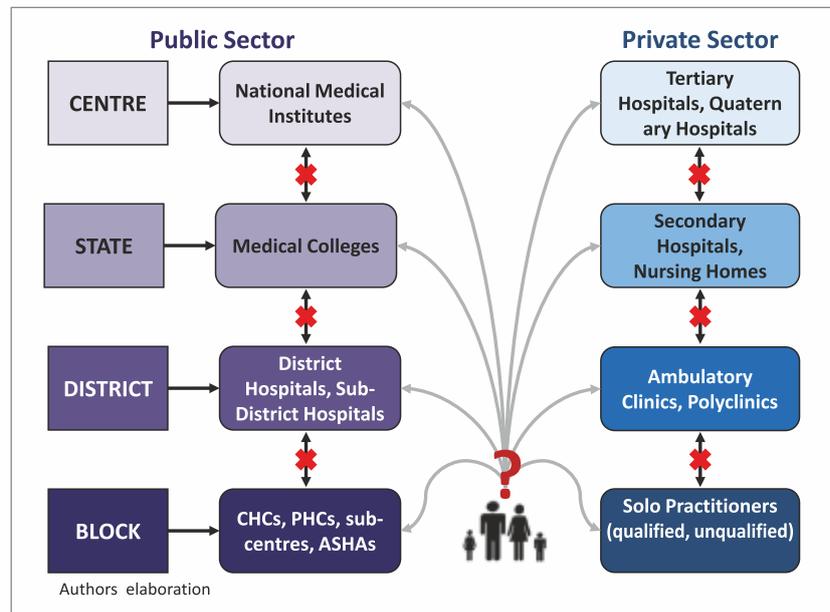
providers usually do not communicate directly, and the patient rarely receives a detailed counter-referral for follow-up care (Yellapa et al., 2017). Instead, throughout the treatment process, the onus of organizing and continually initiating care across providers falls on the patient, who is also responsible for transporting his or her own reports and diagnostic results. As a result, patients often receive at best duplicate and at worst contradictory advice and treatments from multiple providers at different levels of the system. In this way, vertical fragmentation contributes to the episodic, acute care model described above, leading to poor care coordination and continuity for patients.

### Horizontal fragmentation

Horizontal fragmentation in India's delivery system takes two forms. The first involves the dominance of siloed vertical disease programmes in the public sector. The second entails the lack of systematic collaboration between the public and private sectors. Each one is discussed separately.

*Public sector siloes.* Healthcare provision in the public sector is based primarily on numerous national vertical programmes. National programmes for communicable diseases and NCDs, such as the Universal Immunization Programme, the Revised National TB Control Programme and the NPCDCS, are target-oriented and organizationally separate (Rao, 2017; NCMH, 2005; Shukla, 2007; Kumar et al., 2011). This has created fragmentation at the point of service delivery, especially at the primary care level. In theory, health workers at low-level public facilities like sub-centres and PHCs should provide a relatively comprehensive package of preventive and primary care services, but in reality, front-line staff report being unequipped both in terms of knowledge and supplies (e.g. equipment, drugs) to provide more than a narrow range of MNCH, reproductive health and basic communicable disease services (Gautham et al., 2014; Nahar et al., 2017; Elias et al., 2018). Partly due to these resource and capacity gaps in the broader government-run health system, many vertical programmes employ their own health professionals (often on a contractual basis), who are usually co-located in general government health facilities but might only

Figure 4.6: Vertical Fragmentation within the Delivery System



## Organization and Provision

provide services related to their specific vertical programme (Rao et al., 2014).

Fragmentation in service delivery is mirrored, and in part driven, by administrative fragmentation.<sup>32</sup> Each vertical programme receives a dedicated budget, which is used in part to hire programme-specific front-line, technical and supervisory staff. At the district-level, programme-specific officers, such as the District TB Officer, report to the District's Chief Medical Officer but remain responsible for the planning and monitoring of their respective disease programmes within their district. Further, vertical programmes operate programme-specific information systems (Rao et al., 2014). This leads to an overload of data that are collected and transmitted through independent channels, with minimal analysis and feedback. For example, ANMs at sub-centres maintain 35 different registers and reports (Belay et al., 2009). While India's vertical approach has led to effective disease control in many cases, it is perhaps not best suited for supporting comprehensive primary care.

*Public-private divide.* India's historically mixed delivery system has become increasingly private over the last several decades, and the private sector currently provides nearly 80 per cent and 60 per cent of ambulatory and inpatient care, respectively (MoHFW, 2014). Recognizing this reality, central and state governments have periodically acknowledged and leveraged the private sector for service provision (i.e. 1983 National Health Policy). However, collaboration on service delivery between the two sectors to date has largely been limited to transactional interactions, such as PPPs, which occur in an improvised manner in the absence of a comprehensive national framework (see Box 4.1). Nevertheless, collaboration has increased in recent years with the purchasing of private hospital services through central and state public health insurance schemes, which can serve as building blocks for deeper engagement.

Despite some initial efforts, the government needs to create a robust institutional framework and implementation strategy for public-private engagement. The two sectors do not collaborate at the highest levels on issues of health policy and planning, let alone at the front lines of service provision, where coordination between public and private providers is essentially non-existent and the relationship is largely competitive. This has created inefficiencies such as duplicated efforts and infrastructure.<sup>33</sup> There is lack of routine dialogue between the two sectors to clarify roles and objectives, and define a common vision. Without this, the two sectors will continue to exist in parallel. Several factors are to blame for India's weak public-private engagement ecosystem, which are summarized in Table 4.1 and discussed below.

**Table 4.1: Reasons for Weak Public Private Engagements**

Public Sector Perceptions of Private Sector	Private Sector Perceptions of Public Sector	Reasons for Weak Partnerships
<ul style="list-style-type: none"> <li>Private sector focus is profit</li> <li>Poor standards of care maintained by private sector</li> <li>Inclination towards serving the rich</li> </ul>	<ul style="list-style-type: none"> <li>Public sector unsympathetic, non-responsive and unrealistic</li> <li>Poor financial security</li> <li>Lack of standard mechanisms for identifying intended beneficiaries</li> <li>Restrictive regulations and hierarchical structures</li> </ul>	<ul style="list-style-type: none"> <li>Limited information on private sector</li> <li>Limited cooperation</li> <li>Mismatched expectations and outcomes</li> <li>Constant power struggle</li> <li>Perceived division between preventive and curative care</li> <li>Limited regulatory frameworks</li> </ul>

Source: Adapted from De Costa et al. (2008b)

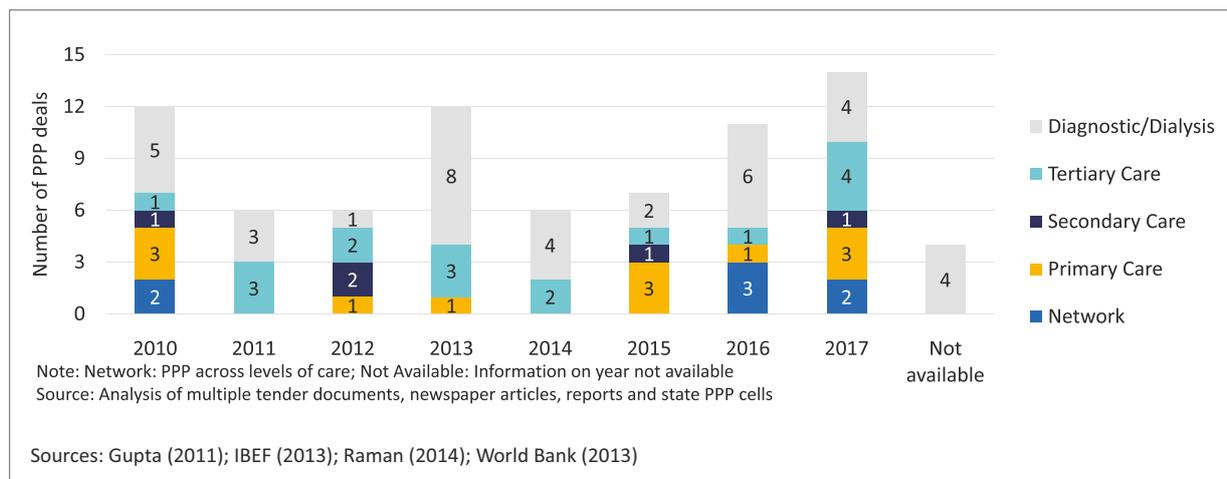
<sup>32</sup>See subsection "Governance Shortcomings" for further discussion of administrative fragmentation.

<sup>33</sup>See subsection "Implications of Internal Challenges on System Performance" for a discussion of these inefficiencies.

**Box 4.1: Public-Private Partnership in India’s Health Sector**

In 2005, PPPs were recognized as a potential solution to poor healthcare delivery and NHM promoted PPPs as a way to improve managerial efficiency and support achievement of public health objectives. No standard PPP definition is applicable across India, and so partnerships are often defined by their engagement strategy, which can include contract management, co-location, contracting out of clinical services/franchising and contracting out of non-clinical services. These models vary in many ways, among them: (i) the contractual arrangement, for example, whether the public sector “hires” a private partner to provide services in public facilities, subsidizes or purchases services from a private partner, or

**Figure: Number of Service Delivery PPP deals by level of care (2010 onward)**



transfers a facility to a private partner to manage and deliver services; (ii) the scope of services provided by the private partner, for example, all services within a facility or just a subset of services; and (iii) the type of services provided, for example clinical (e.g. immunizations, diagnostics, etc.) and/or non-clinical (e.g. waste management, laundry, food, etc.). Adoption of healthcare PPPs has been nominal, accounting for only 1.1 per cent of all PPPs in India. Of these, infrastructure PPPs have been the most common. Service delivery PPPs tend to be awarded for diagnostic and dialysis services (see Figure). The relative popularity of these is partially due to their narrow focus on a subset of services, which lowers their risk: they are easier to design, tender, manage and monitor. Further, these PPPs have often been more successful in delivering intended outcomes, spurring states to try to replicate successes.

However, not all service delivery PPPs have been successful. PPPs are often long-term in nature, and are thus affected by dynamic political, social, economic and technological environments. They are also highly complex, requiring significant trust, political will and skill in contracting to balance risk and reward for both partners. Many PPPs have had limited success due to lack of a clear regulatory framework and trust between parties. Further, while PPPs are often employed to fill gaps in access, quality and efficiency that the public sector cannot address through its own structures, contracts often lack details. For example, performance indicators, accountability frameworks and standard operating protocols are usually missing. There are many roadblocks in the PPP agenda more broadly, including: (i) lack of an overall policy and regulating agency for monitoring PPPs, leading to variations in quality and service delivery across projects; (ii) underdeveloped government capacity to design, contract and manage PPPs; (iii) delays in government payments, causing service disruptions and erosion of trust; (iv) lack of an evidence-based pricing mechanism for services; and (v) absence of standard mechanisms for beneficiary identification. Many private players avoid participating in PPPs altogether due to these challenges, limiting the number and quality of bidders. Until an enabling environment for public-private engagement is created, PPP projects will continue to face challenges.

## Organization and Provision

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First, the private sector lacks a unified centre of gravity. As discussed in the next subsection, the private sector is vast, varied and fragmented. Government knows little about the size, structure, distribution, capabilities and costs of private facilities. No organizations exist that can speak on behalf of the entire private sector. The lack of a truly representative body (or bodies) means there is no clear counterpart for government to engage regarding health policy or strategy. As a result, most engagement to date has only involved the large, highly-visible private hospitals and corporate chains that comprise just a sliver of the market.

Second, there is considerable trust deficit between the two sectors. Public sector actors tend to view the private sector as profit-focused, self-interested and unconcerned with public objectives. Private players generally perceive the public sector as unsupportive, restrictive and corrupt. This mutual lack of confidence and perceived mismatch of principles has generated considerable distrust between the sectors, dampening enthusiasm for engagement. Lack of constructive dialogue between the two sectors has limited opportunities for trust building and creation of a common vision.

Third, there is disagreement over the roles of the two sectors. The common perception is that prevention and primary care are within the purview of the public sector, while private providers are curative and hospital-focused in nature. This often limits the evolution of engagements. Similarly, the erroneous view that the public sector serves the poor while the private sector only caters to the rich also leads to misunderstandings. There has been a constant struggle regarding what the two sectors expect from one another.

Fourth, there are limited financial incentives for the private sector to engage. Appropriate incentives and reimbursements are viewed as a must by the private sector to deliver care. This can clash with the public sector, which is expected to be motivated by “a national sentiment to contribute” and is largely averse to fees. Hence, the private sector often views the public sector as unsympathetic toward private sector realities and as having unrealistic expectations.

Finally, absence of technical expertise, weak administrative capacity, high rotation of government officials, and limited evaluations and evidence on the performance of previous and existing partnerships, such as PPPs, plague change efforts.

### Understanding fragmentation in the private sector

Private healthcare providers have practiced in India since before Independence but constituted a small share of the provider market: only 8 per cent in 1947 (De Costa and Diwan, 2007). Starting in the early 1980s, however, growth in private health enterprises started to pick up. The introduction of pro-market liberalization policies throughout the 1990s and 2000s, combined with under performance of public sector health services and weak regulatory mechanisms,<sup>34</sup> has spurred exponential private sector growth (Kumar, 2015; Raman, 2014). Today, the private sector fills many of the gaps in public sector provision (De Costa and Diwan, 2007; IFC, 2010).

Finding accurate data on the number of private healthcare providers in India is challenging due to limited

<sup>34</sup>See subsection “Weak Facility Regulation” for a discussion of the regulatory environment and subsection “Implications of Internal Challenges on System Performance” for a discussion of public sector under performance.

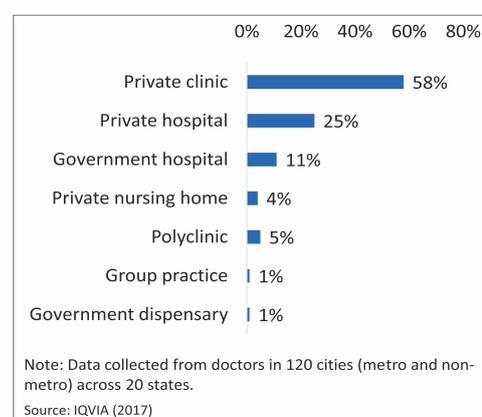
provider registration (Wennerholm et al., 2013). Most private providers operate in the informal sector, which is not easily captured. Additionally, the market is split between allopathic providers and practitioners of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH); the vast majority of the over 770,000 AYUSH practitioners registered in India in 2017 worked in the private sector (CBHI, 2018). To this array, we add unqualified, informal providers, who represent over half of all providers, deliver a major share of ambulatory care and are generally the first stop for care for many, especially rural, Indians (Rao et al., 2016; Gautham et al., 2014; Das et al., 2016; Banerjee et al., 2004). While informal working relationships, such as referral networks, exist between many unqualified and qualified providers in practice, the medical establishment has fiercely resisted formally recognizing this vast, heavily-utilized group (George and Iyer, 2013; Das et al., 2016; Nahar et al., 2017).

Nevertheless, industry analysts have managed to provide reasonable estimates of private supply. In 2010-11, there were an estimated 1.04 million private health enterprises across India, including roughly 80,000 private hospitals and 575,000 private medical clinics (Kumar, 2015). By comparison, there were fewer than 200,000 government-run healthcare facilities across all provider levels in 2016.<sup>35</sup> The private sector also employs the majority (at least 80 per cent) of doctors (Figure 4.7) (Planning Commission, 2012; IQVIA, 2017).

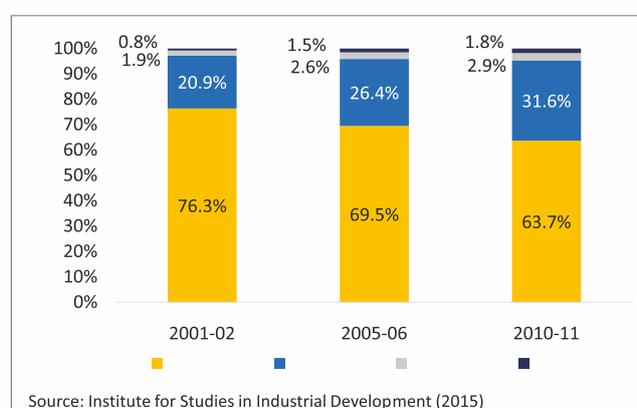
Large corporate chains and standalone hospitals dominate the top-end of the private market. Generally, these companies provide highly specialized services employing state-of-the-art technologies in tertiary and quaternary facilities located in major urban centres. Corporate chains have started to expand beyond major cities to establish large (100+ bed) hospitals in Tier II and III cities, indicating a desire to broaden their target demographic. This expansion has been encouraged by government, including through favourable tax policies (IBEF, 2017).

Corporate players often capture media and political attention, and dwarf other private providers in terms of their influence in national dialogue. Yet, while they may be examples of excellence in India's healthcare delivery landscape, they represent just a fraction of the private delivery market. They tend to cater to a wealthier, urban clientele, and more recently, medical tourists (Burns et al., 2014). Figure 4.8 shows that across the entire private delivery market, only 1.8 per cent of private health enterprises had 10 or more employees in 2010-11. While this is a slight

**Figure 4.7: Distribution of Doctors by Place of Work, 2013-14**



**Figure 4.8: Distribution of Private Health Enterprises by Number of Workers**



<sup>35</sup>Per the National Rural Health Statistics and National Health Profile 2016, India had 155,708 sub-centres, 25,387 PHCs, 5,521 CHCs, 1,065 sub-district hospitals, 773 district hospitals and 189 government medical colleges in 2016.

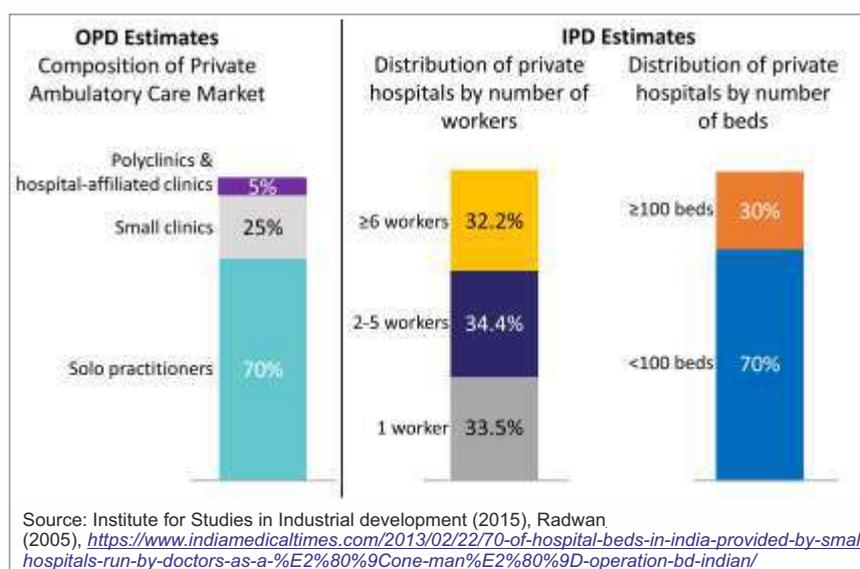
<sup>36</sup>Anecdotal evidence suggests that other workers may be present but not reported as formal employees for tax (evasion) purposes.

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increase from the previous decade, it suggests that corporate chains are the exception, not the rule (Institute for Studies in Industrial Development, 2015).

Rather, the bulk of the private healthcare services are delivered by solo practitioners and small, independent facilities. Almost 64 per cent of the estimated 1.04 million private health enterprises operating in 2010-11 were run by a single worker (Kumar, 2015).<sup>36</sup> Figure 4.9 separates outpatient and inpatient facilities, and the

**Figure 4.9: Nature of the Private Outpatient (OPD) and Inpatient (IPD) Healthcare Markets**

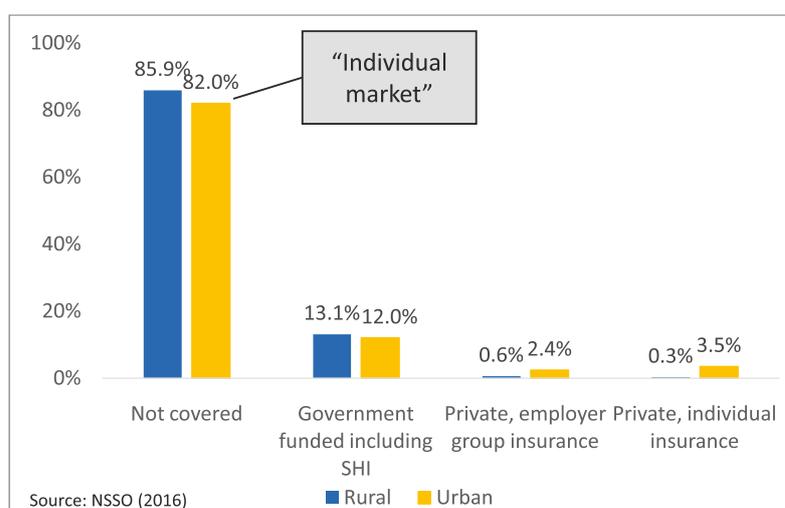


estimates are even more revealing. An estimated 95 per cent of the private ambulatory care market is comprised of solo practitioners and small independent medical clinics, often run by a husband and wife pair. On the inpatient side, the typical private hospital has just 20 to 30 beds (World Bank, 2005; IFC, 2010), though an undetermined number are much smaller. These hospitals, frequently referred to as “nursing homes”, also operate with few staff: one-third of private hospitals reported to

have only one worker in 2010-11, while just over two-thirds reported five or fewer workers (Kumar, 2015). Little is known about the services offered by small private hospitals; one study suggests most provide services limited to basic specialities and diagnostics (IFC, 2010).

Finally, India has a small but vibrant non-profit sector, though information on this sector is patchy at best. There is a long history of organized non-profit providers in India (Gadre, 2015; Mossialos et al., 2017), but most private providers are for-profit. For example, a 2004 analysis of private healthcare providers across Madhya Pradesh found that only 5.5 per cent of inpatient facilities and 15.6 per cent of ambulatory clinics operated as non-profits (De Costa and Diwan,

**Figure 4.10: Percent of Population with and without Health Insurance, by Insurance Type, 2014**



<sup>37</sup>An undetermined number of small NGOs work at the community level; a subset has entered into contractual relations with government to provide essential services (Nair, 2008).

2007).<sup>37</sup> Still, anecdotal evidence suggests that non-profit entities are important players in some Southern states, though they have less of a presence in the North. The Catholic Health Association of India (CHAI) is the largest non-governmental healthcare network, with over 2,300 health centres, 623 hospitals, five medical colleges and 34 nursing schools serving over 21 million individuals across India.<sup>38</sup>

In sum, the private market is in the early stages of organizational development. The vast majority of the market comprises small for-profit facilities that are administratively and clinically independent, generating revenue by charging individual patients on an FFS basis. Few providers are clustered under a common organizational platform (e.g. physician group, hospital, association, hospital system or non-governmental organization (NGO)). This lack of organizational consolidation has hindered the development of a market in which small providers can compete for contracts with institutional purchasers such as government and private health insurers to provide services to “covered” populations. Small providers lack the managerial and technical ability to negotiate and manage contracts and administer claims data. Likewise, institutional purchasers have no way to contract with thousands of unique providers. As a result, institutional purchasers have avoided empanelling providers from the vast private ambulatory care and small hospital markets, working instead with larger secondary and tertiary providers. Meanwhile, as illustrated in Figure 4.10, small providers continue to compete for the “individual market” amongst themselves on an FFS basis, subject to fluctuations in patient volume.

### Governance shortcomings

A major reason why India’s healthcare delivery system is facing significant challenges is weak governance. Here we define governance as “ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, the provision of appropriate regulations and incentives, attention to system design and accountability” (WHO, 2007). We borrow from different frameworks to look at the following elements of governance: strategic vision, administrative fragmentation, competence, transparency and accountability (Siddiqi et al., 2009; Mikkelsen-Lopez et al., 2011). We discuss regulation, which is related to governance, in a later subsection. Good governance is critical for a well-performing service delivery system as it establishes rules as well as the roles and responsibilities of different players in the system. This function has not materialized in India in part because state and central governments have not employed a whole-systems approach. Generally, there is disproportionate focus on the government-run delivery system, with the vast private sector relegated to a supporting role, as discussed previously. Although, attempts are being made to rectify this through schemes like PM-JAY. There is also a disconnect between stated aspirations for achieving Universal Health Coverage (UHC), and the reality of continued focus on vertical programmes and MNCH in practice (MoHFW, 2017a). In a well-governed system, deliberate, coordinated policy choices and actions can help to systematically direct the development of the health sector toward a unified vision that achieves public objectives. In contrast, in India, there is significant confusion over the roles of, and relationships between, the different players in the system. Most players appear to be acting without reference to any broader health sector strategy. Lack of a comprehensive vision has generated a disorganized healthcare delivery landscape that fails to achieve public goals.

The lack of strategic vision derives in part from fragmentation within the public administrative apparatus. Roles and responsibilities for financing, provision and regulation are split across central, state and local

<sup>38</sup><https://chai-india.org/>

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governments, complicating governance of the system. As discussed previously, administrative fragmentation due to the dominance of vertical programmes as well as parallel management of facilities at different levels in the government-run delivery system means that most health officers narrowly focus on specific conditions or facilities, and few are responsible for big-picture, cross-cutting issues.

Another major barrier to good health system performance is the lack of managerial and technical competence of health system managers at the state and district levels. Managerial qualifications or experience are not a pre-requisite to obtaining key managerial posts, such as District Medical Officer (Bajpai, 2014; Lisam, 2011). Yet neither is knowledge of population health or health systems; many managers are clinicians by training and do not necessarily have the technical skills to oversee and make system-level decisions. Upper level managers tend to be generalist, public administrative officers. Some states have tried to improve qualifications by developing a public health cadre, though they have met resistance as this requires changing existing civil service rules (DoHFW Government of Odisha, 2017).

India's civil service and human resources for health (HRH) management practices contribute to the problem. The HRH management system lacks standardization and rules enforcement, and is largely limited to administrative functions (e.g. recruitment, postings, transfers), with minimal focus on performance or talent management (Chaudhuri et al., 2013). Specific issues include absence of defined career pathways, inadequate training and continuing education, limited transparency in HRH decision-making and frequent transfers (Almeida et al., 2017). For example, most HRH decisions are not based on merit. Rather, other factors – like seniority, political and community connections, and willingness to pay bribes – often determine when and to where a worker will be posted, transferred or promoted (World Bank, 2014). Lack of regular processes for career advancement, combined with absence of performance-based management, harms motivation and limits competence.

Additionally, IAS officers are frequently rotated across sectors, and the most senior officers are usually close to retirement, leading to short tenures. An analysis of IAS officers' records revealed that 68 per cent stay in their post for 1.5 years or less on average.<sup>39</sup> Even after a rule was introduced in 2014 to ensure a fixed two-year tenure for IAS officers, it was found that senior bureaucrats in Kerala had an average tenure of just 11 months, while for junior officials it was even shorter.<sup>40</sup> Such frequent turnover further undermines individual competence, policy continuity and institutional knowledge building.

Another challenge involves constraints to facility management, which contributes to underperformance in the public sector. Nearly all public hospitals are directly operated by government departments and can best be described as government administrative units. Hospital managers are administrative appointees; managerial formation and experience are not required, and appointees are usually chosen based on seniority. As such, while management capacity may be lacking, the system ties the hands of managers granting them little decision-making authority over inputs and day-to-day operations (Bali and Ramesh, 2015). Line-item budgeting offers little flexibility in allocating spending within the hospital (WHO, 2017). Public hospital managers also lack decision-making authority over hospital staffing, which is centralized (Almeida et al., 2017; Organisation for Economic Co-operation and Development, 2015; Nandan and Agarwal, 2012).

<sup>39</sup><https://timesofindia.indiatimes.com/india/68-of-IAS-officers-have-average-tenures-of-18-months-or-less/articleshow/28203370.cms>

<sup>40</sup><https://timesofindia.indiatimes.com/city/thiruvananthapuram/top-ias-officials-have-average-tenure-of-only-11-months/articleshow/65277744.cms>

Lack of accountability underlies all governance issues and can be seen in two ways. First, individuals are not held to account for their actions. There is no incentive for them to perform, given the input orientation amplified by pervasive line-item budgeting<sup>41</sup> and seniority-driven career paths, as noted above. Second, there is little monitoring of the outputs and outcomes of health facilities, either public or private. Data that are collected are often of poor quality, and it is not apparent that they are leveraged to initiate facility improvements or to inform health sector policies (Bali and Ramesh, 2015). This points to an important finding, backed by international experience: simply pumping more resources into a poorly governed (and managed) system will not produce better health outcomes (Bali and Ramesh, 2015).

### **Quality – the missing component**

Quality of care gets frequent mentions in stakeholder rhetoric but it remains a highly neglected component in policy and practice. Few strategies and actions have materialized to systematically address even known quality gaps. While there is no universally agreed definition of quality, The Institute of Medicine defined quality as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (IOM 2001:232). In this subsection, we focus on the broad quality challenges facing India. We examine issues related to information, facility empanelment, leadership and accreditation. In a later subsection, we outline the quality gaps resulting from these challenges. We take up facility regulation in the next subsection.

### **Insufficiency of information**

The actual quality of care delivered in both sectors is largely unknown as little data on quality is systematically collected and validated by government (Morton et al., 2016; Das et al., 2012). There is no expectation or mandate that private hospitals report quality indicators. Data on public sector quality collected through the Health Management Information System (HMIS) are similarly narrow, and data are often missing, incomplete or inconsistent with facility records. For example, our review of quality indicators published on the websites of a sample of public medical colleges and corporate hospitals indicates that death rate was the only category consistently captured. Collection of other indicators, such as rates of infections, readmissions, patients falls and patient abandonment, varied significantly, and it was not clear how they were calculated. Further, a survey of 312 public and private hospitals in four states and seven Union Territories (UTs) revealed that over a quarter did not register births and deaths (IMA, 2013). Efforts are being made to improve this situation under the PM-JAY scheme as well as by improving the periodicity of the National Family Health Surveys, among others. Steps are also being taken to address the issue of health records of patients lying buried in manual systems or disparate IT systems with little standardization. Clearly, this needs to be a key focus area for reform.

### **Inadequate facility empanelment**

Facility empanelment can be a tool to continuously enforce a rigorous set of criteria that form the basis for continuous quality improvement of provider services. Unfortunately, in most cases in India, the current approach to empanelment is neither continuous nor rigorous. Most schemes gather a limited amount of structural data during the empanelment stage, focusing on infrastructure and staff resources, and fail to analyze or re-evaluate that information over time. There is also limited focus on quality or patient safety data, as well as process and outcome measures. While there are a few schemes that do monitor quality

<sup>41</sup>While healthcare financing and payment systems are not the topic of this chapter, these can be key levers to incentivizing efficiency and quality improvements in the public health system.

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information, such as Rajiv Aarogyasri (Andhra Pradesh), many schemes fail to use available information as a tool to proactively monitor and improve quality of care. (La Forgia and Nagpal, 2012).

### Leadership

One reason for the neglect of issues related to quality is an absence of quality leadership system-wide. While initiatives have been launched in recent years to place quality on the healthcare agenda in a more meaningful way, they have yet to take hold across most of the country. For example, a recent national audit of NRHM found that in most states, State Quality Assurance Units (SQAUs) are non-existent or poorly functioning (MoHFW, 2017b).<sup>42</sup>

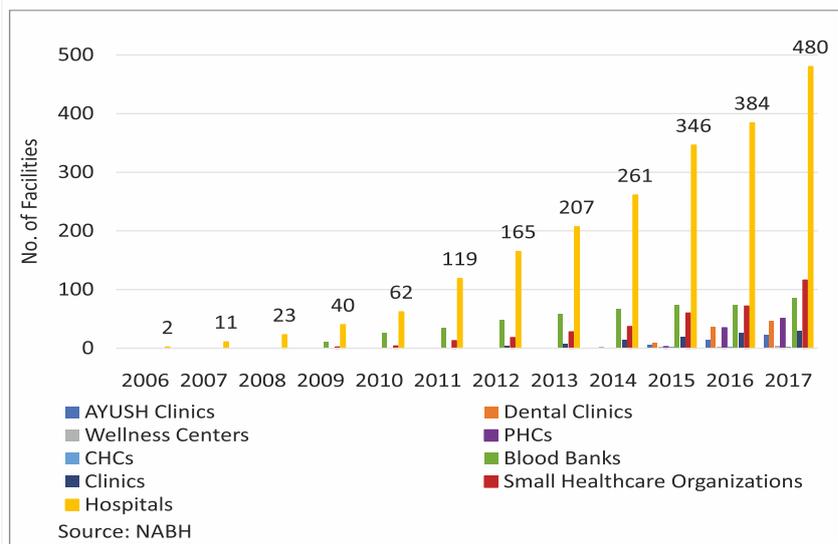
### Promising but Fledgling Facility Accreditation

The National Accreditation Board for Hospitals & Healthcare Providers (NABH) represents a positive first step toward raising quality of care. The accreditation process boasts stringent standards, including metrics related to health outcomes. However, as shown in Figure 4.11, its reach is currently limited to less than 1 percent of all facilities. Moreover, global experience demonstrates that even accredited facilities suffer quality lapses resulting in preventable mortality and disability, suggesting that quality improvement requires strategies and interventions to measure and improve quality on a continuous basis (IOM, 2000).

Several state-supported health insurance schemes have made entry-level NABH accreditation a requirement for facility empanelment, which is also under consideration by others, including PM-JAY. This policy would provide a huge incentive for the expansion of accreditation, supporting discrete improvements in individual facilities, and potentially greater dialogue on issues of quality more broadly.

Weak Facility Regulation. Across the health system, providers operate in an environment devoid of effective regulation. In this subsection, we focus on facility regulation.<sup>43</sup> Recent efforts to strengthen the regulatory environment, such as the passage of Clinical Establishments Act (CEA), are laudable, but implementation is uneven across states and tends to focus on one-time registration of facilities. Enforcement is lax in part due to insufficient capacity at the state level.

**Figure 4.11: Number of NABH Accredited Facilities, 2016-17**



<sup>42</sup>SQAUs were outlined in the MoHFW's Operational Guidelines on Quality Assurance (2013). States are required to meet the minimum standards defined in these guidelines. The SQAU is to be constituted as the working arm under the State Quality Assurance Committee, responsible for a wide range of activities including developing a Quality Assurance plan for public facilities at each level, disseminating quality assurance guidelines, tools and methodologies, conducting field visits and drafting recommendations, and collecting and reviewing monthly performance indicators related to health outcomes from public facilities, among others.

<sup>43</sup>The Medical Council of India (MCI) is the regulator of medical education and physician conduct, responsible for recognizing medical qualifications, managing a physician registry, maintaining medical education standards and defining a professional code of conduct. In practice, it is a weak enforcer. The inability of the MCI to discipline physicians relates to regulatory capture by the same: medical professionals constitute the vast majority of MCI members (Malhotra and Roy, 2018).

Facility regulation in India tends to centre, albeit incompletely, on market entry of providers through registration and licensing, with a narrow focus of licensing standards on infrastructure, equipment and staffing levels. India has been unable to adequately develop and implement regulatory measures to control behaviours of private and public facilities to ensure competency, quality, accountability or affordability. More specifically, it faces numerous challenges related to facility regulation, including: (i) huge variation in standards across states; (ii) weak capacity to register facilities, and assess and enforce their compliance with licensing standards; (iii) lack of independent regulatory bodies; (iv) absence of information on facility performance; and (v) ineffective procedures to register and process patient complaints (Bhat, 1996; Peters and Muraleedharan, 2008; Sheikh et al., 2013).

Some states have also documented challenges related to implementing existing laws, such as: (i) lack of specificity in regulatory laws, allowing for wide interpretation; (ii) improper framing of rules; (iii) high turnover of state officials responsible for implementation, hindering institutional capacity and knowledge building; and (iv) political interference and regulatory capture by medical associations. As a result of enforcement and monitoring challenges, some states also have observed high levels of non-compliance with facility regulation (Putturaj, 2018; Nandraj, 2015; Bhate-Deosthali et al., 2011; Sharma et al., 2016). Further, systems for patient grievance redressal for medical misconduct remain far from ideal. There is no legally-backed mandate that public or private facilities implement procedures to address patient complaints at the facility level, and patients have few options for external mediation. While the Consumer Protection Act (CPA) has been applied to medical services since 1995 (Bhat, 1996), directing disputes to consumer forums (rather than the courts), implementation has been constrained by poor capacity, high costs for complainants, delays in processing medical grievances and lack of clarity on whether the CPA covers all public providers (Peters and Muraleedharan, 2008).

Recognizing the deficiencies of past state-level regulatory attempts, and the variations in standards across states, the national CEA was passed in 2010. It provides for registration and regulation of all clinical establishments, notably covering public and private sectors, with a view to prescribing the minimum standards of facilities and services provided by them.<sup>44</sup> Each state is expected to either adopt the CEA, or create or update its own legislation to align with it. As of December 2018, 10 states and the UTs have passed legislation adopting the CEA, and establishments are actively being registered in seven states and five UTs.<sup>45</sup> Whether the CEA will be more effective in practice than its predecessors remains to be seen.

### **Implications of internal challenges on system performance**

The challenges internal to India's healthcare delivery system are sizeable, and run the gamut from an ill-suited care model to numerous forms of fragmentation to weaknesses in governance and regulation to an apparent under appreciation for the centrality of quality to the system's shortcomings. The implications of these challenges are equally expansive. Below, we chart the more prominent and interconnected consequences, including underperformance of the public delivery system, gaps in quality, widespread inefficiencies, low value and increasing citizen dissatisfaction.

#### **Underperforming public sector**

The aforementioned challenges facing the public delivery system have contributed to serious lapses in the functionality of public health services, including unpredictable resource flows, unavailability of staff,

<sup>44</sup><http://clinicalestablishments.gov.in/cms/Home.aspx>

<sup>45</sup>[http://clinicalestablishments.gov.in/AuthenticatedPages/cms/Views/national\\_register\\_of\\_clinical\\_establishments.aspx](http://clinicalestablishments.gov.in/AuthenticatedPages/cms/Views/national_register_of_clinical_establishments.aspx)

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services and supplies, and high rates of provider absenteeism.

Table 4.2 shows the results of a recent national performance audit, which found that hundreds of public facilities that had been upgraded through NRHM were not functioning for want of staff, equipment and basic utilities. The audit also found that many functional facilities lacked Indian Public Health Standard (IPHS)-required reproductive and child health equipment (MoHFW, 2017b).

**Table 4.2: Status of NRHM Upgraded facilities**

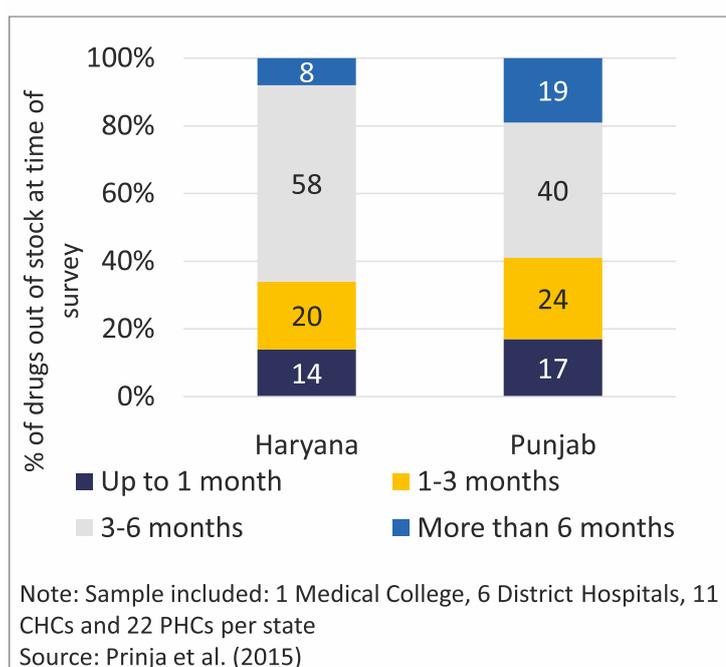
State	No. of health facilities and type of upgradation	No. of upgraded facilities not functional	Reason for non-functionality
Assam	40 PHCs upgraded to 24x7 facility	12	Lack of manpower, equipment
Himachal Pradesh	6 CHCs declared FRU	3	Lack of infrastructure, shortage of manpower
Jammu & Kashmir	46 SCs upgraded as New Type Primary Health Centres	46	Lack of HR and infrastructure
Maharashtra	55 PHCs upgraded to 24x7 facility	55	Lack of manpower, equipment
Manipur	15 PHCs upgraded to 24x7 facility	2	Shortage of manpower, lack of emergency services, facility only open 5 hours daily
Odisha	183 PHCs upgraded to 24x7 facility	183	Shortage of manpower, equipment
<b>Total</b>	<b>345</b>	<b>301 (87%)</b>	

Source: MoHFW Report No. 25 of 2017, Performance Audit

Several studies have shown that stock-outs of essential medicines are also common (Selvaraj and Hasan, 2011; Iqbal et al., 2015; DoHFW Government of Odisha, 2014; Elias et al, 2018). One 2013 study found total availability of a basket of essential medicines across sampled public facilities in Haryana and Punjab to be just 51.1 percent and 45.2 percent, respectively. Over half of unavailable drugs had been out of stock for over three months (Figure 4.12) (Prinja et al., 2015). There is also evidence of expired and substandard medicines in public facilities due to poor quality control and distribution challenges (NHSRC, 2016; MoHFW, 2017b).

Additionally, there is evidence that provider absenteeism is rampant in public facilities at all levels. One study conducted in 2002-03 across a sample of PHCs in 19 states calculated absentee rates of 43.1 per cent, 40.0 per cent and 30.2 per

**Figure 4.12: Duration of Stock Out for Medicines Not Available at Time of Survey**



cent for doctors, nurses, and laboratory technicians and pharmacists, respectively. Absenteeism among doctors ranged from 29.6 per cent in Madhya Pradesh all the way to 66.5 per cent in Bihar, indicating that while the practice is more prevalent in some states, it is nationally pervasive (Harvard University, 2011). A study in Rajasthan also found high absenteeism across provider types (Table 4.3) (Consumer Unity & Trust Society, 2010).

Given these shortcomings, patients across India overwhelmingly utilize the private sector for healthcare (Figure 4.13), citing access and perceived quality of care among the reasons for preferring private providers (IMS Institute for Healthcare Informatics, 2013; Brookings Institution India Center, 2016).

### Quality gaps

In the absence of systematic evidence, microstudies and reports paint a partial picture of quality gaps, revealing deficits in structure and processes, and negative health outcomes. As highlighted above, structural challenges in the public sector include limited resources, stock-outs, poor infrastructure and lack of available qualified staff (IMA, 2013; Bhate-Deosthali et al., 2011).

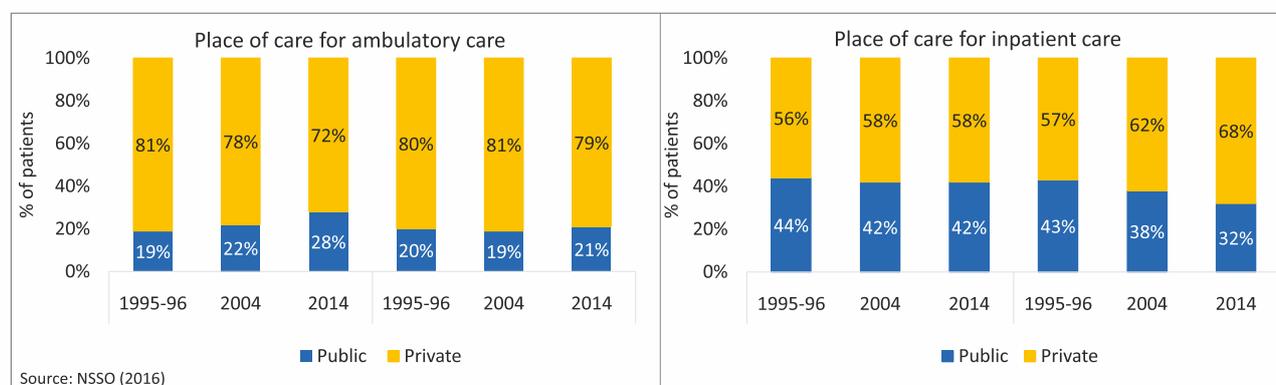
In the private sector, there is evidence of similar structural gaps. The aforementioned survey of 312 public and private hospitals and nursing homes found significant shortcomings related to trained staff and available equipment (Figure 4.14), suggesting potential patient safety lapses (IMA, 2013). A survey of small nursing homes in Maharashtra echoed these findings. Out of 261 facilities, 24 operated without nurses and

**Table 4.3: Absenteeism in 30 PHCs of Tonk District, Rajasthan, 2009**

Provider Type	Absence Rate
Medical Officers (Doctors)	36%
Lab Technicians	34%
Lady Health Visitors	33%
Auxiliary Nurse Midwives	22%
Male Nurses	12%
Average rate of absenteeism (all providers)	27%

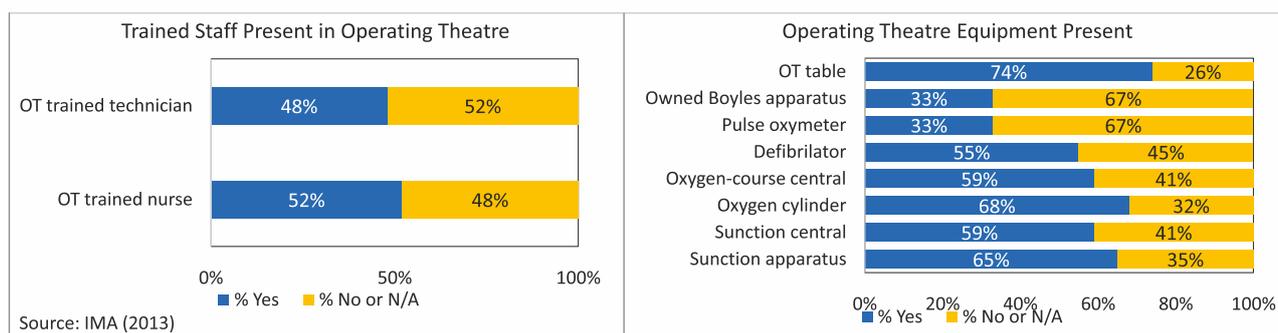
Source: Arya et al. (2010)

**Figure 4.13: Trend in Utilization of Public and Private Healthcare Facilities**



139 had only unqualified nurses, while only 77 had an ultrasound machine and 106 had an X-ray machine (Bhate-Deosthali et al., 2011).

**Figure 4.14: Presence of Staff and Equipment in Hospitals and Nursing Home (N=312)**



Analysing process challenges,<sup>46</sup> over-prescription of drugs, especially antibiotics, and overtreatment (e.g. unnecessary injections) is rampant in the public and private sectors, and appears worse in rural settings and among private providers (Moorthi et al., 2011; Kumar et al., 2008; De Costa et al., 2008a; Das and Hammer 2007). Issues including supplier-induced demand for drugs and care and lack of standard treatment practices create an environment in which over-prescription and unnecessary treatment flourish (MoHFW, 2017c).

Across both sectors, clinical protocols or guidelines are generally absent or unavailable, and even when they are available, noncompliance with diagnostic and therapeutic requirements is high (Parulekar et al., 2009). Studies in different settings assessing treatment practices for common conditions have provided evidence that wrong (or missing) diagnoses, clinically incorrect treatments and prescription of harmful and/or unnecessary medications are frequent (Das et al., 2012; Mohanan et al., 2015). A nationwide survey found that only 69 per cent of women received three antenatal check-ups (UNICEF, 2009), while another review found that standard protocols often were not followed during labour and postpartum (MoHFW, 2017b).

Available evidence reveals that poor health outcomes resulting from quality lapses are not uncommon. In a study tracking treatment outcome for 586 critically ill surgical patients in a tertiary care teaching hospital in Delhi, adverse events occurred in almost one-third of patients, 72 per cent of which were directly due to medical errors. This implies that the majority of these negative outcomes, which included 62 deaths and five cases of permanent disability, could have been avoided with better care (Kumar and Chaudhary, 2009). Another study found that surgical site infection (SSI) rates in 10 urban Indian hospitals were significantly higher for 73 per cent of the analysed types of surgical procedures than in US hospitals (Singh et al., 2015a). A major cause of SSIs is failure to adhere to basic patient safety and hygiene practices, such as not keeping surgical wounds clean, or exposing patients to unsanitary water, equipment or conditions. Finally, visible safety and quality lapses leading to complications, even death, have historically been reported in the media.<sup>47</sup>

### Efficiency gaps

Inefficiency leads to waste and loss of opportunities to improve outcomes. In the previous subsections, we touched on some inefficiencies related to doing the wrong things (e.g. focus on curative care at the expense of preventive and primary care) and doing things badly (e.g. harmful and unnecessary use of medicines, non-functional and poorly resourced facilities). Here, we look at additional efficiency gaps, both macro and

<sup>46</sup>Table A4.1 in Annex 1 summarizes findings from select studies and reports related to process challenges.

<sup>47</sup>[www.thehindu.com/news/national/andhra-pradesh/private-or-public-hospitals-society-pays-the- rice/article7606546.ece;www.forbes.com/sites/suparnadutt/2017/09/12/despite-a-booming-econom-y-indias-public-health-s-system-is-still-failing-its-poor/#2141f4e478e0](http://www.thehindu.com/news/national/andhra-pradesh/private-or-public-hospitals-society-pays-the- rice/article7606546.ece;www.forbes.com/sites/suparnadutt/2017/09/12/despite-a-booming-econom-y-indias-public-health-s-system-is-still-failing-its-poor/#2141f4e478e0); <https://pulitzercenter.org/reporting/public-vs-private-hospitals-india;blogs.timesofindia.indiatimes.com/The-underage-optimist/govt-is-bad-at-running-hospitals-lets-have-medicare-instead;www.ft.com/content/842767bc-31b6-11e7-9555-23ef563ecf9a>.

micro, apparent in India’s delivery system, specifically: (i) low facility productivity; (ii) management shortcomings; (iii) “wrong siting” and hospital centrism; (iv) low worker effort; (v) idle capacity; and (vi) instances of duplications in utilization. Before proceeding it is worth mentioning that as in the case of other metrics, given the lack of data collected from the private sector, there is no systematic information available regarding private sector efficiency. In the public sector, efficiency data are generally absent, but some microstudies shed light on inefficiencies.

Recent external efficiency analyzes of public sector facilities in six states reveal both major variations and gaps in efficiency (IHME and PHFI, 2018a-e). In these studies, the authors calculated the relative efficiency of a sample of public sector facilities in each state, benchmarking against the highest performer. They found that efficiency ranged considerably within each state at each provider level. In most states, PHCs exhibited the widest range of efficiency: for example, in one state there was a nine-fold variation in the efficiency of sampled PHCs (IHME and PHFI, 2018b).

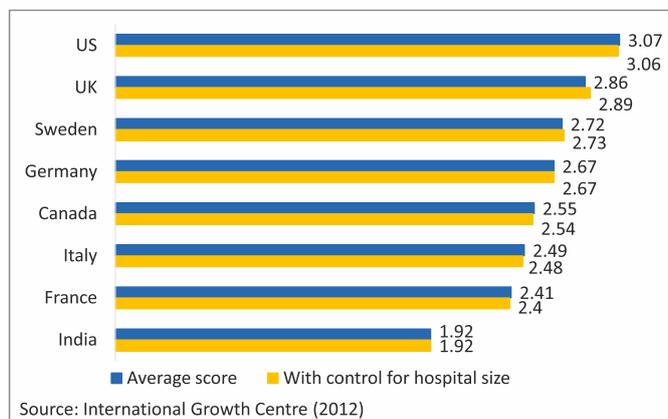
**Table 4.4: Average Number of Additional Outpatient Visits that Could be provided with the Same Inputs if Facilities were Perfectly Efficient**

State	District Hospital	PHC
Gujarat	229,838	16,439
Andhra Pradesh and Telangana	116,316	27,144
Madhya Pradesh	42,684	10,576
Odisha	58,812	10,335
Tamil Nadu	249,706	21,906

Further, as detailed in Table 4.4, if facilities operated at the level of the most efficient facilities in the sample, they could provide thousands more outpatient visits without additional inputs. Similarly, district hospitals could accommodate anywhere from about 25 per cent (Gujarat) to over 75 per cent (Andhra Pradesh and Telangana) more hospitalizations. These results show that even moderate efficiency gains could reap major returns in terms of patient throughout and better use of resources.

Second, India suffers from weak hospital management capacity. While we mentioned that lack of autonomy may contribute to this situation in public hospitals, managerial shortcomings are also evident in private hospitals. In 2011, International Growth Centre quantitatively assessed public and private hospital management practices in India utilizing the World Management Survey (WMS) methodology, which assesses management across four domains: (i) standardizing care and operations; (ii) performance monitoring; (iii) target management; and (iv) talent management (Bloom and Van Reenan, 2007). Managers at 471 non-specialty hospitals<sup>48</sup> were interviewed, and

**Figure 4.15: Average WMS Management Score**



<sup>48</sup>The average hospital had 100 beds and 140 employees. 94 per cent of hospitals in the sample were private, and 87 per cent were for-profit entities.

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each hospital was scored on a scale of one to five, with one representing poorest performance. As Figure 4.15 shows, Indian hospitals performed significantly worse than select OECD countries. Within India, controlling for size, public hospitals fared the worst,<sup>49</sup> with an average management score of 1.74, compared to 1.84 in the private non-profit and 1.94 in the private for-profit sectors (International Growth Centre, 2012).<sup>50</sup> It is worth noting that better hospital management has tangible impacts on health outcomes. In UK and US hospitals, a one-point increase in WMS management practice score was associated with a 6.5 and 7.0 per cent reduction in risk-adjusted 30-day acute myocardial infarction mortality rates, respectively.<sup>51</sup>

Third, across the public and private sectors avoidable hospital admissions appear to be an emerging issue. These are hospitalizations that would not have occurred if a patient's illness had been detected and treated at an earlier stage. There are no data on the number of avoidable admissions in India, but data from the 71<sup>st</sup> Round of the National Sample Survey (NSS) show that infections (primarily fevers of unknown origin), gastrointestinal illnesses and respiratory illnesses accounted for roughly 25 per cent, 11 per cent and 5 per cent of reported hospital admissions, respectively, in 2014. NSS data are self-reported by households, and therefore misreporting is possible; however, the high percentage of patients in these ailment categories, which are related to morbidities that can usually be detected and treated at the primary care level before they escalate (e.g. diarrhoeal diseases, flu, pneumonia), suggests that some of these hospitalizations might have been avoidable.

Global evidence shows that avoidable admissions constitute a costly inefficiency (Stranges and Stocks, 2010). In the US, about 4.4 million hospital stays could be avoided annually with better primary care, which leads to unnecessary spending of US\$31 billion (Healthcare Costs and Utilizations Project 2009). Likewise, in Brazil, about 21 per cent of total inpatient spending goes toward hospitalizations that could have been avoided with better primary care, equivalent to roughly US\$1.6 billion (La Forgia and Couttolenc, 2008).

There is also evidence of unnecessary hospital use in India. Data from the 71<sup>st</sup> Round of the NSS appear to show that patients are bypassing public primary care facilities to seek these services at hospitals instead. Specifically, 17 per cent of patients sought outpatient care at public hospitals, compared to 8.5 percent at lower-level public facilities (NSSO, 2016). Over 40 percent of all surveyed individuals directly sought outpatient care at hospitals, public or private. If this trend continues, pressures will mount for the expansion of hospital-based care.

Fourth, efficiency suffers due to low levels of provider effort. We know that public providers are frequently absent from their sanctioned public posts, but even when they are present, they often do not exert their full efforts; private sector providers behave similarly (Das et al., 2012; Das and Hammer, 2007). To test provider effort, National Bureau of Economic Research (2015) conducted a study in which standardized patients made unannounced visits to public and private primary care providers in rural Madhya Pradesh. Unbeknownst to the providers, they were assessed across numerous metrics, including length of consultation and adherence to a pre-determined checklist of questions and examinations deemed

<sup>49</sup>In an earlier subsection, "Governance Shortcomings", we discussed some of the underlying reasons for weak (or absent) management of public hospitals.

<sup>50</sup>Given that the average hospital size in the sample was 100 beds, the study likely failed to adequately capture the small (e.g. 20-

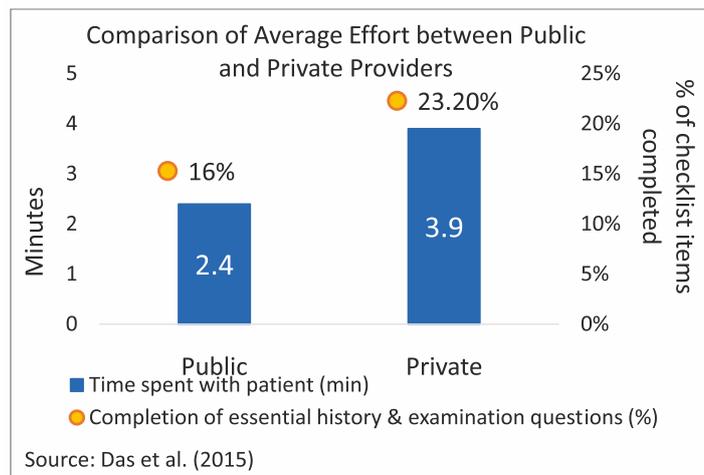
30bed) private hospitals that comprise the majority of private for-profit hospitals across India. The management capacity of small hospitals is probably low since they are generally run by one or two individuals.

<sup>51</sup>[http://worldmanagementsurvey.org/wp-content/images/2010/10/Management\\_in\\_Healthcare\\_Report\\_2010.pdf](http://worldmanagementsurvey.org/wp-content/images/2010/10/Management_in_Healthcare_Report_2010.pdf)

necessary for making a correct diagnosis. On average, private providers (the majority of whom lacked formal medical qualifications) and public providers spent little time with patients and completed few checklist items (Figure 4.16). Despite slightly higher effort, private providers were no more likely to provide a correct treatment than the 27 per cent of public providers who did so.

Inefficiency is inextricably linked to quality. For example, low provider effort negatively impacts the quality of care. In the abovementioned study, National Bureau of Economic Research (2015) found that low quality performance of the public providers is related to low effort rather than lack of knowledge. The authors found that on average, public providers nearly doubled consultation time and completed 50 per cent more checklist items when in their private practices. Perhaps as a result of this greater effort, the rate of correct treatment – a proxy for better quality – was also higher. Clearly, there is a gap between what public providers know and what they do in some cases (the “know-do gap”), which leads to inefficient (and often poor quality) care for some, especially public, patients. Low effort generates future costs for the health system, as we can assume that incorrectly treated patients must re-seek treatment when their symptoms inevitably do not subside.

**Figure 4.16: Results of a Standardized Patient Audit in Rural Madhya Pradesh, 2010-11**



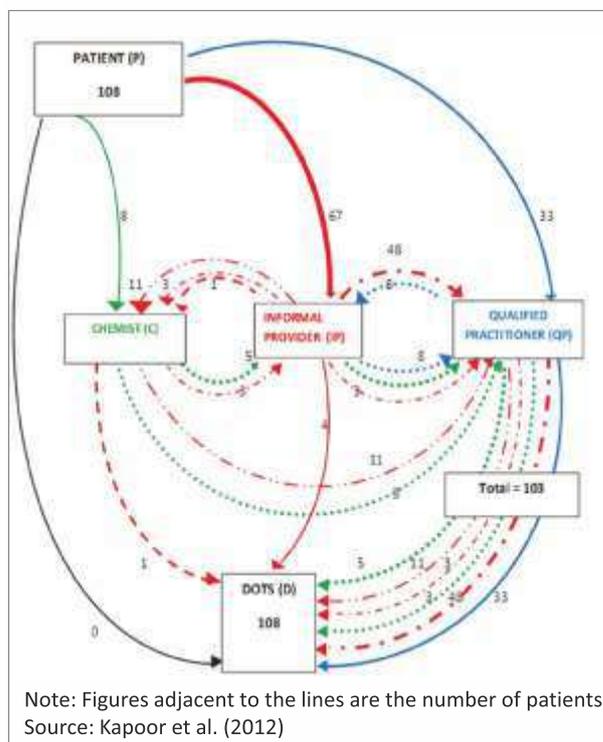
Fifth, the private sector appears to have significant underutilized capacity. The average private ambulatory provider sees about 15 to 25 patients per day (IQVIA, 2017; National Bureau of Economic Research, 2015; Salvi et al., 2015; Bhat, 1999), and spends on average five minutes or less per consultation (National Bureau of Economic Research, 2015; Das and Hammer, 2007). Thus, providers only spend about 1.5 to 2 hours with patients daily. Even accounting for time spent on administrative tasks between consultations, the average private provider has considerable idle time. Private practitioners interviewed for this chapter further reported that excess and underutilized capacity extends to nursing homes as well.

Finally, India’s healthcare system displays redundant utilization stemming from the shortcomings detailed above. Excessive use begins with the patient’s journey to diagnosis and correct treatment. Several studies document how patients “zigzag” from one provider to another – often spanning qualified and unqualified, public and private – in their quest to obtain a diagnosis and resolution of an illness episode (Yellapa et al., 2017; Kapoor et al., 2012; Veesa et al., 2018). One 2010 study is illustrative of this situation. Researchers interviewed patients treated for TB at government treatment (DOTS) facilities in Delhi to map their journeys to treatment. The results, as shown in Figure 4.17, indicate a system riddled with delays, ineffective services and considerable patient zigzagging. Over 60 per cent of patients visited more than two providers before reaching a DOTS facility, usually receiving incorrect diagnoses and treatments along the way. The mean duration from onset of symptoms to reaching a DOTS facility varied from 3.1 months for patients

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whose first medical contact was a chemist, to 5.2 months for patients who first visited a qualified practitioner (Kapoor et al., 2012). Importantly, the cause of delayed treatment was not lack of access,<sup>52</sup> but rather missing or inaccurate diagnoses. Duplication also occurs in other treatment processes. For example, patients seeking care in the public sector who were originally diagnosed in the private sector are often made to repeat laboratory tests, even if they present their private sector test results (Yellapa et al., 2017). Even within the public sector, patients often have to repeat efforts. A household survey in Karnataka found that some patients avoided public facilities because they would be required to make multiple visits for consultation and diagnostic tests. These patients preferred more expensive private facilities that offered these services in one location at the same time because they incurred fewer indirect costs (e.g. missed work, transportation) (Elias et al., 2018). Low Value-for-Money and Citizen Discontent. The challenges internal to India's healthcare delivery system and their implications in terms of performance, quality and efficiency have led to a situation in which the health system is providing low value-for-money. Healthcare costs are growing, yet health outcomes, while improving in some areas (e.g. infectious disease control), remain suboptimal. This harms not only individual patients and households, but also the country as it significantly dampens national growth. but rather missing or inaccurate diagnoses.

**Figure 4.17: Patient Pathways to Reach DOTS Facilities in Delhi, 2010 (n=108)**



Duplication also occurs in other treatment processes. For example, patients seeking care in the public sector who were originally diagnosed in the private sector are often made to repeat laboratory tests, even if they present their private sector test results (Yellapa et al., 2017). Even within the public sector, patients often have to repeat efforts. A household survey in Karnataka found that some patients avoided public facilities because they would be required to make multiple visits for consultation and diagnostic tests. These patients preferred more expensive private facilities that offered these services in one location at the same time because they incurred fewer indirect costs (e.g. missed work, transportation) (Elias et al., 2018).

### Inadequate value for money and citizen discontent

The challenges internal to India's healthcare delivery system and their implications in terms of performance, quality and efficiency have led to a situation in which the health system is providing inadequate value-for-money. Healthcare costs are growing, yet health outcomes, while improving in some areas (e.g. infectious disease control), remain suboptimal. This harms not only individual patients and households, but also the country as it significantly dampens national growth.

<sup>52</sup>The average household in Delhi has access to 80 providers within a 15-minute walking radius, and visits a doctor 2.1 times per month (Das and Hammer, 2007; Das et al., 2012). Outside urban areas, it has been found that there are approximately six healthcare providers available for the average rural Indian (Centre for Policy Research, 2011).

The system is increasingly expensive, especially for patients. Regular lapses in public sector access and quality have led patients to seek care from private providers. Further, India's traditional under investment in primary care is contributing to the formation of a hospital-centric system, in which patients either bypass lower level providers for better-resourced but higher-cost hospital care, or end up hospitalized due to ambulatory care-sensitive conditions. With poor financial protection, the result is high levels of household OOP expenditure, which disproportionately impacts the poor (Berman et al., 2010). Outpatient care is the main cause of catastrophic expenditure (Figure 4.18), and the bulk of OOP expenditure is due to medicines (NSSO, 2016) and the overuse discussed above (Nath et al., 2008).

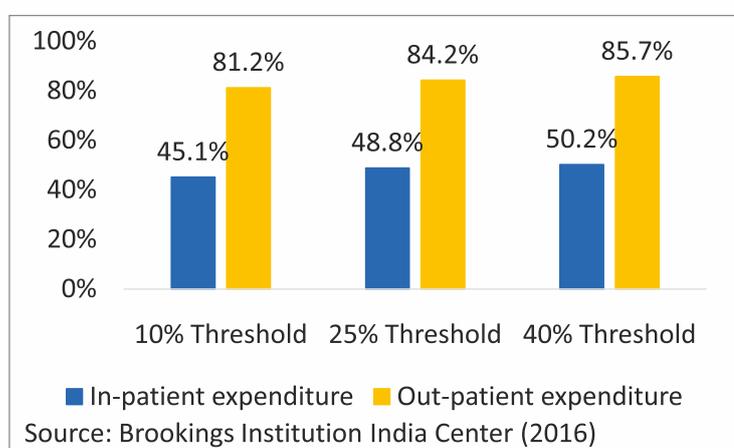
In this market in which the asymmetry of knowledge favours providers, patients are frequently duped into purchasing unnecessary (MoHFW, 2017c; Gadre, 2015). Limited access to information precarious situation (Nandraj, 2015). Stakeholder interviews verified information, many patients instead rely on perceived prestige family.

The internal challenges of India's delivery system are not just contributing to poor health outcomes. The acute care model and deal with the wave of ageing and NCDs already sweeping the communicable and MNCH disease burden, and the consequences global neonatal deaths occurred in India (UNICEF, 2017), despite 2015.<sup>53</sup> NCDs also have a disproportionate impact in India. In 2016, pulmonary disorder (COPD) and asthma were 1.7 times and 2.4 times higher, respectively, in India than the global average (Salvi et al., 2018). Further, the rate of diabetes in overweight adults in India is double the global average (of 38 compared to 19 per 100 overweight adults (Tandon et al., 2018).

NCDs also affect people at a younger age in India than in many other countries. The probability of dying prematurely from CVD, cancer, diabetes or chronic respiratory disease in India in 2016 was 23.3 per cent, higher than in Bangladesh (21.6 per cent), Sri Lanka (17.4 per cent), Thailand (14.5 per cent), China (17 per cent) and the OECD (12.4 per cent), (World Bank, 2018). In 2012, of the 16 million people who died prematurely from NCDs worldwide, 3.4 million lived in India alone – the highest in any country, including China (Mehdi, 2016). Premature death and disability from NCDs have a significant negative macroeconomic impact as they reduce labour supply and productivity. As shown in Table 4.5, it is estimated that India will suffer an economic loss of US\$4.58 trillion<sup>54</sup> from 2012 through 2030 due to five NCDs alone (Bloom et al., 2014). This is nearly double India's 2016 GDP.<sup>55</sup>

While the gravity of the situation in terms of India's long growth may not be readily apparent to the average

**Figure 4.18: Catastrophically affected households reporting OPD and IPD expenditure, 2014**



<sup>53</sup><https://data.unicef.org/resources/state-worlds-children-2016-statistical-tables/>

<sup>54</sup>In 2010 US dollars.

<sup>55</sup>India's 2016 GDP totaled 2.465 trillion as measured in constant 2010 US dollars (World Bank, 2018).

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Indian, reality of high OOP costs and individuals' experiences with poor quality and outcomes has not been lost on the public. Over the past several years, citizen dissatisfaction with the healthcare system has been growing, and trust in medical professionals appears to be waning. There has been an alarming rise in the incidence of violence against doctors and nurses in India, as patients take their anger out regarding long waits, short consultation times, poor facility conditions and undesired health outcomes on health professionals (Sharma, 2017; Nagpal, 2017). Three-quarters of doctors in India say they have faced physical or verbal violence during their lifetime (Sharma, 2017). An attack on a junior doctor working at a public hospital in Mumbai in 2017 caused well over 2,000 junior doctors in the city to go on strike, with close to 20,000 resident doctors in Delhi joining them in solidarity.<sup>56</sup>

**Table 4.5: Projected Economic Losses Due to Select NCDs**

NCD	Economic loss from 2012-2030 (trillions of 2010 dollars)
Diabetes	0.15
Cardiovascular disease	2.17
Chronic respiratory disease	0.98
Cancer	0.25
<b>Total NCDs, excluding mental health conditions</b>	<b>3.55</b>
Mental health conditions	1.03
<b>Overall total</b>	<b>4.58</b>

Source: Bloom et al. (2014)

India is at a crossroads with regards to its health system. Doing nothing is not an option. While still at an early stage of health system development and spending, India needs to avoid entrenching a high-cost, low-value delivery system. If the economy slows, health spending will probably not follow suit. An ageing population and demands for hospital care and new technologies will continue to exert upward cost pressures. If current trends hold, India's future generations will likely inherit an expensive health system that provides little value-for-money, fails to deliver improved patient health and undermines economic growth.

### Vision

India needs to transform its currently fragmented healthcare delivery system into a more organized, accountable and affordable system aligned with public objectives. While there is negative consensus on the broad shortcomings of the service delivery system, a positive consensus on the what and how of reforming organization and provision remains elusive. Unlike other but more comprehensive attempts to formulate a vision of a reformed health system for India (PHFI, 2011; Jha and Laxminarayan, 2009; NCMH, 2005), our vision centres on the healthcare delivery system, and more specifically, on a proposed set of delivery models, organizational platforms and quality improvement initiatives as well as associated elements of the broader institutional environment. Taken together, these would enable effective, affordable and high-quality service provision financed under public insurance and purchasing schemes (e.g. PM-JAY and state-sponsored schemes) recently endorsed by government (MoHFW, 2017c; GOI, 2018).

Three objectives typically guide health system reforms: (i) improving population health outcomes; (ii)

<sup>56</sup><https://www.theguardian.com/world/2017/mar/21/doctors-strike-mumbai-assaults-on-hospital-staff-india>; <https://www.hindustantimes.com/india-news/bad-day-to-fall-ill-maharashtra-doctors-strike-enters-fourth-day-delhi-docs-stop-work-in-support/story-JcvvHmFvc3A3MNecNu2AiN.html>

increasing affordability for society and financial accessibility for individuals; and (iii) improving quality of care and patient experience. Achieving this “triple aim” will require a balancing act involving difficult trade-offs (Berwick et al., 2008). India will have to determine an optimal mix of these three aims to achieve the best health for its money. For example, improving access and quality will lead to better outcomes but increase costs. Further, as India grows, cost will also be fuelled by increasing demand for healthcare. However, the rate of spending increase can be controlled through prudent decisions regarding how services are financed, organized and provided.

Far-sighted but pragmatic policy choices can redirect the health system’s trajectory along the path to higher value. India needs to consider redesigning its health service delivery system to foster patient-centeredness, care continuity, coordination across providers and higher quality of care. These changes will contribute to improved efficiency, equity and patient satisfaction, and ultimately, better health outcomes. Our proposed vision is aligned with many components of recent health policies and priorities, such as reconsidering traditional (provision) strategies, targeting preventive care and risk factors, strengthening management, accountability and quality of service delivery, and making more effective use of private provider capacity (NITI Aayog, 2017). Our vision takes a more whole-system perspective than those set forth by previous reform proposals<sup>57</sup>

Figure 4.19 outlines the main components of our vision of an effective and high-value service delivery system under strategic purchasing, which are categorized along two dimensions. The first focuses on transformative changes on the front lines to improve service delivery and involves the redesign of how services are organized and provided. This dimension consists of the following components:

- Service delivery models aligned with population health needs: The delivery system will embrace care models related to Comprehensive Primary Healthcare (CPHC) and coordinated care across all providers to address the rising onslaught of NCDs and the unfinished communicable disease and MNCH agenda.
- Increased concentration, organization and management of small providers: This involves the testing and establishment of a new set of provider organizations to cluster, support and manage heretofore small providers while enabling these organizations to enter into contracts with purchasing units to deliver a defined set of services to “insured” populations.
- Autonomy-based management arrangements for public provider organizations: The gradual transfer of decision-making responsibility and risk from hierarchical government administrative units to independent public authorities to manage public facilities, including hospitals, will incentivize more effective and accountable service provision while enabling contractual arrangements with purchasers.
- Relentless quality measurement and improvement: This entails establishing scalable “learning” initiatives on the front lines to improve the collection, analysis and use of data on quality of care while addressing quality gaps. These initiatives can be complemented by stronger provider empanelment criteria and pay-for-quality arrangements.

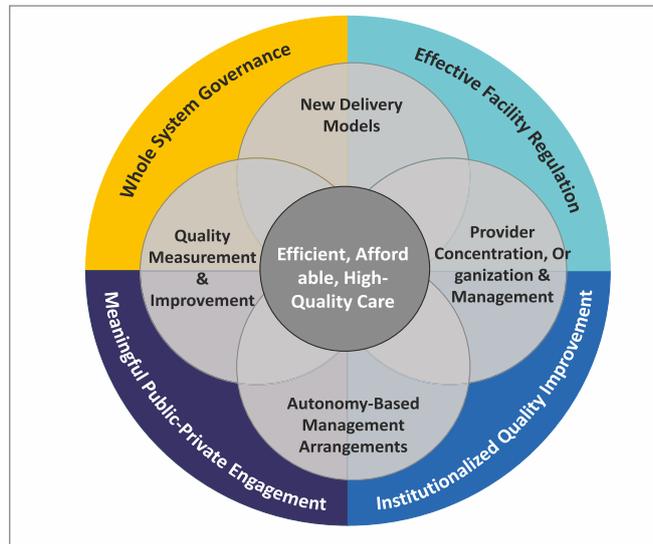
<sup>57</sup>While previous endeavours (PHFI, 2011; CGHR, 2009; NCMH, 2005) were much broader in scope and contained valuable reform recommendations regarding finance, human resources and regulations, for the most part they focused on the public and considers both public and private providers as part and parcel of the delivery system. We have worked from the principle of “one population, one delivery system and one resource base”, which can be applied to any geographical area or locality such as a municipality, district or block. Ownership of healthcare facilities matters less than the quality of their care, the robustness of their performance and the affordability of their services.

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The second dimension centres on changes in the broader institutional and “influence” environment to foster sustained service delivery transformation through fostering a shared vision across all stakeholders and strengthening capacities and governance. This dimension consists of the following components:

- **Whole system governance:** The establishment of more effective public institutions through merit-based selection of technical cadres, continuity of leadership, evidence-based decision-making and a population health orientation will contribute to competent system stewardship.
- **Meaningful public-private engagement:** An enabling environment for public-private engagement will facilitate development of policies, regulations, organizations and delivery models that align private provider behaviours with government objectives and priorities.
- **Institutionalization of quality improvement:** This involves building multi-stakeholder partnerships and corresponding mechanisms to raise the profile of quality nationally, set roles and responsibilities of key actors, and lead and coordinate quality improvement policies, strategies and reporting requirements system. Unfortunately, policy adoption has not met expectations. In a broad sense, the vision and recommendations proposed here complement the aforementioned efforts.
- **Effective facility regulation:** A stronger and independent regulatory regime together with more effective enforcement capacity will make providers accountable to regulators, purchasers and citizens for meeting patient safety standards and improving quality of care.

**Figure 4.19: Vision for an Effective, High-Value Service Delivery System**



These changes will not happen in a vacuum and will be underpinned by changes in the broader financial and informational environments, which are taken up in other chapters. For example, we consider strategic purchasing through capable institutional platforms to be a key driver of the new organizational and delivery arrangements proposed here. This will include the introduction of payment systems that incentivize efficiency and quality. Another important driver will be strengthening digital health platforms and data systems to foster more effective data collection, monitoring, use and feedback, which ultimately will provide reliable evidence on performance, and on what works and doesn't work in service organization and provision.

### Recommendations, choices and stepping-in strategies

The remainder of this chapter examines each of the components of the vision. We recommend a set of strategies, mechanisms and actions along the same two dimensions: (i) transformative service delivery change; and (ii) creating an enabling institutional and influence environment. We focus on the “what”, or content, of recommended change efforts to transform the service delivery system and also provide

guidance on the “how” in terms of stepping-in strategies. Table 4.6 presents a summary roadmap all of the recommendations and stepping-in strategies within each dimension, by component. The intended audience includes policymakers, planners, investors and entrepreneurs.

### **Catalyzing transformative service delivery change on the front lines**

This section centres on recommendations related to transforming service organization and provision. It concludes with suggested first step actions to implement the proposed recommendations. Central and state governments will be the key drivers for moving forward with the recommendations and actions presented herein. They will have to invest in capacities, institutions and new ways of doing business. We take up each of the four components outlined in our proposed vision:

- Introducing delivery models that aim to address service delivery gaps while addressing population health needs. We centre on two interlocking models: CPHC and care coordination across provider tiers.
- Consolidating and reshaping the fragmented provider landscape through establishing new forms of provider organizations to provide care to defined population groups under strategic purchasing.
- Fostering greater independence and accountability of public facilities, which in turn will create conditions for more effective management of public provider organizations.
- Presenting strategies for India to improve quality of care, including a set of micro-level actions to measure and improve quality.

*Reorienting the healthcare delivery model.* To address India’s healthcare challenges, the fundamental structure of healthcare delivery (and financing) must change. A delivery model broadly consists of the ways in which care is provided: “[A delivery model] outlines best practice care and services for a person, population group or patient cohort as they progress through the stages of a condition, injury or event. It aims to ensure people get the right care, at the right time, by the right team and in the right place,” (Agency for Clinical Innovation, 2013:3). Broadly, we propose a model in which primary care takes a foundational role in the delivery system and there is close and regular interaction along the continuum of providers including hospital-based professionals, primary care providers, community health workers and home care providers. More specifically, we recommend a delivery model with two closely-linked components: (i) CPHC; and (ii) care coordination across providers, including new roles for hospitals. We draw on both Indian and global experience to demonstrate how such models can work in practice.

Table 4.6: Summary of main recommendations and stepping in strategies

Component	Recommendations ("What")	Stepping-in Strategies ("How")
<b>Dimension 1: Catalyzing Transformative Service Delivery Change on the Front-lines</b>		
1. Reorienting the healthcare delivery model	<ul style="list-style-type: none"> <li>• Test transformative delivery models for CPHC and care coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Government establishes and finances a national contestable Innovation and Quality Improvement Fund to support scalable demonstration projects to test recommendations in each of the four components:</li> <li>• Transformative delivery models</li> <li>• Innovative organizational platforms</li> <li>• Autonomous management of public facilities</li> <li>• Quality measurement and improvement initiatives</li> </ul>
1. Consolidating and organizing the provider landscape	<ul style="list-style-type: none"> <li>• Test organizational platforms to support transformative delivery models</li> </ul>	
1. Introducing autonomy-based organizational arrangements for public providers	<ul style="list-style-type: none"> <li>• Analyze and test autonomy-based approaches to managing government facilities</li> </ul>	
1. Supporting relentless front-line quality measurement and improvement	<ul style="list-style-type: none"> <li>• Establish Quality Learning Collaboratives</li> <li>• Strengthen facility empanelment</li> <li>• Link payment to quality</li> </ul>	
<b>Dimension 2: Creating an Enabling Institutional and Influence Environment</b>		
1. Promoting whole system governance	<ul style="list-style-type: none"> <li>• Establish a multi-stakeholder coordination and governance structure in each state</li> <li>• Build capacity for performance management and evidence-based policy making and implementation monitoring</li> <li>• Strengthen population-based health interventions</li> </ul>	<ul style="list-style-type: none"> <li>• Test state-level governance structures such as a standing oversight committee consisting of senior officials and rotating members from academia, private sector and civil society</li> <li>• Implement a competency-based training program and performance measurement and improvement initiative</li> </ul>
1. Fostering meaningful public-private engagement	<ul style="list-style-type: none"> <li>• Establish a national public-private dialogue</li> </ul>	<ul style="list-style-type: none"> <li>• Design a process and organized forum for public-private engagement</li> <li>• Prepare a feasible action plan that specifies key activities and the main outputs of the proposed platform</li> </ul>
1. Institutionalizing quality measurement and improvement	<ul style="list-style-type: none"> <li>• Establish a multi-stakeholder National Quality Information and Improvement Commission</li> </ul>	<ul style="list-style-type: none"> <li>• Issue a decree creating the Commission along with objectives, a mission statement and guidelines for membership</li> <li>• Develop an action plan for the Commission</li> </ul>
1. Strengthening facility regulation, monitoring and enforcement at the state level	<ul style="list-style-type: none"> <li>• Strengthen state capacity for assessment, information collection/ analysis, and regulatory enforcement</li> <li>• Expand consumer voice through strengthening information disclosure and patient grievance procedures</li> <li>• Introduce incentive-based mechanisms to encourage regulatory compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Introduce formal grievance redressal mechanisms for hospitals as part of purchasers' empanelment requirements</li> <li>• Pilot alternative facility inspection models</li> <li>• Analyze lessons learned from implementation of CEA, CPA and state medical establishment legislation</li> </ul>

*Comprehensive Primary healthcare (CPHC).*<sup>58</sup> CPHC is designed to close care gaps to improve quality, health system performance and patient experience, which traditional primary care models struggle to achieve. The most successful health systems worldwide tend to depend on accessible and carefully structured CPHC systems (Kringos et al., 2013; World Bank, 2013b; World Bank, 2013c). They aim to make CPHC a foundational element of care delivery, serving as effective points of entry into the health system and as a “medical home” attending to most primary care and population health needs. Conceptually, this delivery model supports providers to simultaneously meet the acute care needs of a defined population of patients while also engaging in management of that population in terms of preventive services, disease management and care coordination. Coupled with new financial incentives, CPHC can enhance provider groups’ accountability for cost and quality. Notably, the model applies to NCDs, communicable diseases and MNCH conditions.

The model relies on several strategies to foster patient-centeredness, timeliness and reliability of healthcare services,<sup>59</sup> including: (i) empanelment of a specific

group of patients to particular providers; (ii) enhanced access to care; (iii) multi-disciplinary team-based care; (iv) use of registries, checklists and other data to improve care reliability; (v) standard guidelines for the evaluation and management of common conditions; (vi) formal systems of care coordination and outreach to patients, including management of vulnerable patients; (vii) attention to the psycho-social needs of patients as well as their biomedical needs; and (viii) measurement and reporting of performance to continuously improve quality. Table 4.7 outlines the features of CPHC and their possible implementation sequencing. Below, we discuss A critical first step to establishing an effective model is patient empanelment, linking an individual

**Table 4.7: Sequencing the Implementation of CPHC**

Implementation priority	
1	Empanelment of specific population to specific provider(s)
2	Team-based care and expanding roles of non-physicians
3	Provider and team education on the new model of care
4	Patient registries
5	Care protocols and visit checklists
6	Essential medications
7	Enhanced appointment access
8	Enhanced presence in the community
9	Standards and protocols for care coordination and emergency transport to hospitals or catchment area-based specialists
10	Integration with ‘vertical programs’, redeploying resources
11	Care management of high-risk fragile patients

Authors’ elaboration based on [www.safetynetmedicalhome.org/](http://www.safetynetmedicalhome.org/)

patient with an individual doctor and her team.<sup>60</sup> Together, the group of linked patients forms a panel. A physician and team are responsible for both the quality and efficiency of care delivered to the on their patient panel. Patient panels are useful as they foster a dual focus: meeting the acute needs of the individual who presents for care, augmented by the broader objectives of monitoring and managing the anticipated health needs of all patients on the panel, including those who do not voluntarily come to the clinic.

The concept of team-based care is also fundamental to CPHC. It involves expanding the roles of non-physicians to free physicians to concentrate on more complex aspects of care. Sharing of tasks, delegating Responsibility to team members and collaborative practice are hallmarks of team-based care. This requires education and culture change to prepare non-physicians for their expanded roles. This could include upskilling of existing staff such as, nurses, ANMs and ASHAs, as well as creation of roles for newly-trained

<sup>58</sup>This section draws largely on the following sources: Jabbarpour et al. (2017); [www.safetynetmedicalhome.org/](http://www.safetynetmedicalhome.org/)

<sup>59</sup>Our recommendations are fully aligned with the findings and suggestions of the MoHFW’s 2015 seminal Report of the Task Force on Comprehensive Primary healthcare Rollout. The Report encompasses many of the elements outlined below—such as team-based care, patient registration and use of standard care protocols – as well as the elements of coordinated care discussed in the following part of this section. See: [nhsrcindia.org/sites/default/files/Report%20of%20Task%20Force%20on%20Comprehensive%20PHC%20Rollout.pdf](http://nhsrcindia.org/sites/default/files/Report%20of%20Task%20Force%20on%20Comprehensive%20PHC%20Rollout.pdf).

<sup>60</sup>In India, it may not be feasible to have a doctor physically available to every patient. In these instances, many tasks can be shifted downward to locally-available upskilled health workers such as nurses and/or virtual linkages to remote physicians through telemedicine and other digital solutions can be established.

providers, possibly including unqualified providers (see Box 4.2). Physicians will also need sustained support as they shift to new ways of practice (e.g. from a reactive, passive model to a predictive, proactive model).

### **Box 4.2: Harnessing Informal Providers (IPs) for CPHC**

International and Indian experience show that banning IPs is largely ineffective, and even if successful, could create critical gaps in access among the most vulnerable that would take considerable time and additional funding to fill. However, there are options to move forward with this vast group of providers in a more constructive way in support of new delivery models.

A review of the relevant global literature reveals that training to improve IPs' knowledge/scope of work is the most commonly cited intervention. This approach has been tested in a few Indian states, and while the efficacy of most of these trainings has not been evaluated, a rigorous evaluation of a training programme for IPs in West Bengal, which covered a wide array of topics and conditions over nine months and 150 teaching hours, showed marked improvements in quality of care. This experience echoes the broader literature demonstrating the potential positive impact of training for IPs. This positive impact is amplified and more sustainable when combined with other interventions, e.g. altering the accountability environment, creating referral systems or improving market conditions.

Taking into account the global experience, one possible approach to managing India's vast IP market relates to CPHC models. IPs, who are generally omnipresent in both rural and urban areas and well-known in communities, could become important community-based assets and team members by working as outreach workers affiliated with a CPHC network. Specific tasks and responsibilities could include:

- Maintaining patient registries and risk maps
- Providing follow-up care and home care (for the elderly)
- Applying care protocols
- Acting as entry points into a network-based delivery system and helping arrange appointments with providers
- Delivering health promotion activities

Their linkages to formal providers affiliated with the network could be enhanced through digital health arrangements (e.g. mhealth, telemedicine). Clearly, this approach would require at a minimum government recognition, definition of roles and responsibilities, engagement with professional associations, building positive working relations between formal and informal providers (within a network), establishment of a revenue or income model, and training to raise IPs' quality of care. This approach, which would embed IPs in new organizational arrangements, thus altering their accountabilities and market incentives, could prove more effective than past training attempts alone, and warrants testing.

Sources: Das et al. (2016); Montagu and Goodman (2016); Shah et al. (2011); Sudhinaraset et al. (2013)

Active prevention is at the core of CPHC. Teams learn to provide preventive services at every opportunity: any interaction with a patient is an opportunity to close gaps in care. For example, patients who present for acute care or chronic disease management visits are also offered preventive services. Screenings are organized according to established protocols, segmented by age and gender. During an office visit, a pre-visit checklist highlights a patient's incomplete screenings and preventive services. Data registries also generate lists of patients who are overdue for specific screenings. To reach those patients who do not present to the clinic for care, team members engage in active outreach to encourage them to obtain needed

health services. This work can be done by community health workers, among others. The CPHC model adopts an evidence-based approach to care to ensure quality. Where available, standard protocols guide prevention and disease management activities for common conditions. Ensuring access to essential medicines is part of this approach.

Finally, CPHC can help address access challenges. Open access scheduling enables patients to reliably access primary care services from their designated physician and her team with short or no wait times. When properly implemented, a patient can call and get a same or next-day appointment. Further, not every interaction necessarily requires patients to visit the facility. In some cases, enhanced access by telephone and secure internet communication can be leveraged to communicate test results or new instructions, and for patients to ask questions.

*Care coordination, including new roles for hospitals* Often implemented with CPHC, care coordination consists of strategies that aim to support patients through the “deliberate organization of patient care activities between two or more [providers] involved in a patient’s care to facilitate the appropriate delivery of healthcare services” (McDonald et al., 2007:5). These models aim to reduce fragmentation and poor communication between providers at different levels, but especially for patients transitioning to and from hospitals. By focusing on care continuity through increased provider coordination, these models ensure that the complex needs of patients are continuously tracked and attended to, which ultimately reduces unnecessary hospitalizations and improves patient quality of life. Care coordination involves new roles for hospitals in which they look beyond their walls to foster care continuity for acute, rehabilitative, palliative and mental health services.

How can hospitals (and specialists) be better linked to the broader delivery system, especially to primary care providers and to communities? While there are few examples of system-wide reforms involving tight coordination with hospitals, there are a large number of cases that attempted to establish linkages between hospitals and the broader health and social care delivery systems. Most documented cases were small-scale initiatives that took place in high-income countries and to a lesser extent in middle-income countries. Global experience suggests a number of potential interventions (Sibbald et al., 2007):

- Personnel rotation: Rotation of hospital-based specialists to primary care settings as well as involving primary care providers in hospital-based care; it can also entail substitution of services delivered by hospitals for services delivered by primary care, such as minor surgery and chronic disease management.
- Cross-provider teamwork: Collaboration between specialists and primary care providers to provide care to individual patients; this can include technical assistance, joint consultations (and e-consultations), case management and use of integrated clinical pathways.
- Educational outreach: Training, supervision and technical assistance provided by hospital-based specialists to primary care professionals.
- Effective care linkages: Can include interventions intended to improve referrals and introducing integrated care pathways between community health workers, primary care providers and hospital-based professionals.
- Hospital outreach and “hospital-at-home” initiatives: Usually involve direct outreach by hospital

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professionals to homes and community-based social and behavioural health services; tend to target the chronically ill, high need-high cost frail elderly or patients with mental health problems, and can employ tele-monitoring and digital health technologies.

- Information sharing across provider levels: Electronic health records facilitate provider access to information on patient care and treatment plans.

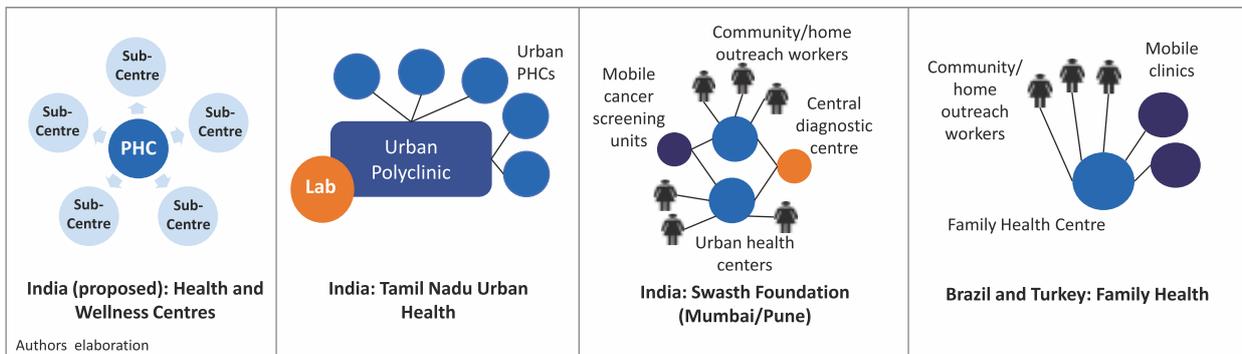
### Recommendation:

#### Test transformative delivery models for CPHC and care coordination

In India and globally, there are many examples of delivery models involving CPHC and care coordination which can be tested or expanded. Most involve some form of a “hub-and-spoke” arrangement.<sup>61</sup> Hub-and-spoke arrangements can be two-tiered with a CPHC focus (Figure 4.20) or two- or three-tiered combining (and coordinating) care at multiple tiers including home/community care, primary care, hospitals and/or other providers (Figure 4.21).

CPHC designs exist in India and elsewhere, and can be used as signposts for further testing and scale-up.<sup>62</sup> Existing and proposed Health and Wellness Centres (HWCs)<sup>63</sup> under Ayushman Bharat are an example of a CPHC design, but others are also evident in India in both the public and private sectors as shown in Figure 4.20. Importantly, all the models displayed in Figure 4.20 contain many CPHC strategies such as population empanelment, multi-disciplinary teams, expanded roles of non-physicians, community outreach and patient registries. We consider these models as robust starting points for transforming India’s delivery system.

**Figure 4.20: CPHC Models - Options for Going Forward**



The coordinated care network models represent a more developed form of the CPHC models, and are a step toward creating an “integrated healthcare system”.<sup>64,65</sup> In theory, these models aim to foster seamless patient transitions across levels of care by aligning providers at different tiers so that they are “on the same page” regarding a patient’s condition and preferred treatments. Figure 4.21 displays four examples of “network” models involving both CPHC and care coordination: a three-tier network model in India linking community health workers, primary care and hospitals; a four-tier maternal and new-born care network from Brazil that links primary care (community health workers, primary care units), secondary care

<sup>61</sup>Hub-and-spoke arrangements require a strong organizational platform that operates and manages the providers involved. This is the subject of the next subsection.

<sup>62</sup>Box A4.1 in Annexure 1 summarizes Indian and global examples of CPHC delivery models.

<sup>63</sup><http://www.nhm.gov.in/nrhm-components/health-systems-strengthening/comprehensive-primary-health-care.html>

<sup>64</sup>We distinguish between care coordination and fully integrated models. Care coordination consists of formal structures and processes to coordinate care across provider tiers (e.g. use of integrated pathways, information sharing). Fully integrated models generally assume the existence of an organization responsible for coordinating care through a single management structure or through contracts between provider organizations.

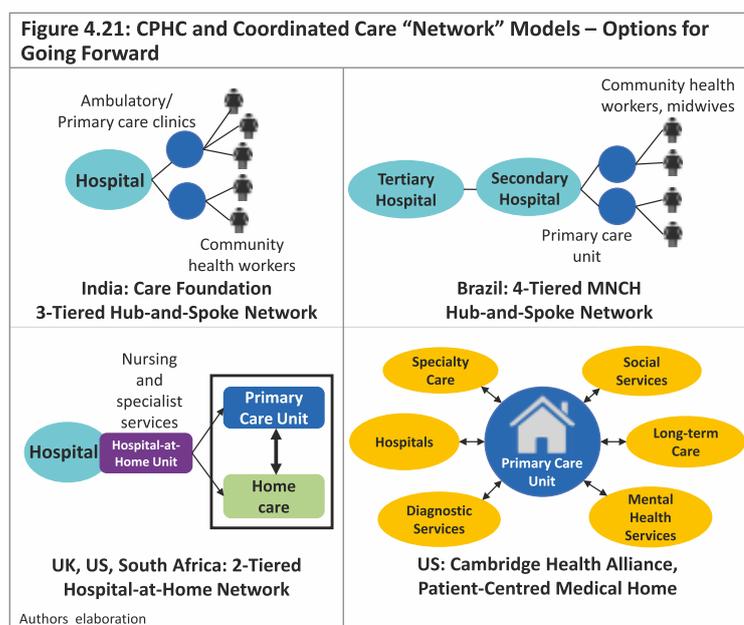
<sup>65</sup>Box A4.2 in Annexure 1 summarizes Indian and global examples of network models.

(regional MNCH units) and tertiary care (hospitals with specialized neonatal care services); a two-tier hospital-at-home model providing post-discharge follow-up care to fragile elderly patients, observed in various countries; and a medical home design from the US.

In the three hub-and-spoke models, hubs provide more advanced care while supporting the spokes with back-up support, technical assistance and training. Broadly, these hub-and-spoke models aim to strengthen patient transitions and foster “right siting” of care, that is, providing care at the most appropriate level and location for a given condition. Examples of patient transitions include patients moving between primary care and hospitals, between specialists and primary care and between hospitals and home care. Global experience has shown that ineffective care transitions often lead to adverse patient events, higher hospital readmission rates and higher costs (Joint Commission, 2012). As the technical capacity and care quality of the spokes are strengthened, care can be shifted downward from the hubs to the spokes, which in turn enhances access and affordability.

The US medical home design in Figure 4.21 is an example of a fully integrated delivery model with CPHC as the foundation. It turns the traditional hub-and-spoke model on its head: the CPHC unit is the hub while hospitals and other facilities are the spokes. This design requires effective gatekeeping and resolution capacity at the primary care level and a strong management unit responsible for all service providers in the network.<sup>66</sup> It would be an aspirational model for India. Most states and health systems lack the capacity to implement a fully integrated delivery model. As suggested above, a more feasible first step might be to patient transition management explicit processes to coordinate.

**Figure 4.21: CPHC and Coordinated Care "Network" Models - Options for Going Forward**



All CPHC and care coordination arrangements make use of available digital health technologies, including remote patient monitoring, data uploading and other connections, to foster hub-and-spoke teamwork, communication and information sharing. Digital health technologies would be particularly relevant in rural areas. What is most important are the strategies and care practices employed by providers to deliver good quality, affordable and person-centred care.

### Consolidating and organizing the provider landscape

The second component of our vision centres on the consolidation of the public and private provider markets through the creation of provider organizational platforms. These organizational platforms will be

<sup>66</sup>These management units are the subject of the next subsection.

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essential to making the above-mentioned delivery models viable. It will be these organizations that develop and oversee the delivery models, and manage and support the providers responsible for implementing the same. As reviewed earlier in this chapter, the provider market is severely fragmented, consisting primarily of solo practitioners, small providers and standalone hospitals, with few linkages between public and private sectors. Most Indians zigzag among numerous public and private providers to resolve an illness episode. Government needs to take a proactive role to consolidate and organize this market through providing seed funding and setting rules and incentives, especially in light of emerging institutional purchasing arrangements (e.g. PM-JAY).

**Figure 4.22: Toward Provider Consolidation - Options for Going Forward**

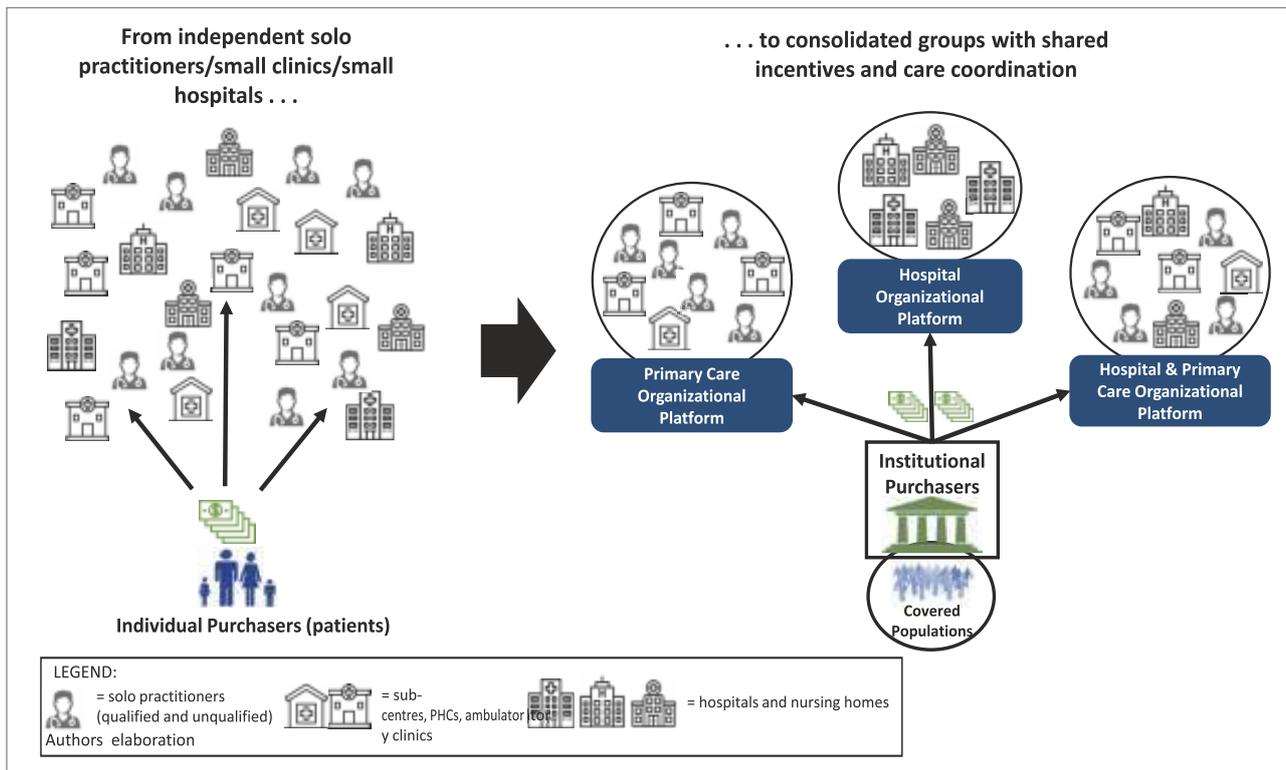


Figure 4.22 compares the current situation, in which individuals fend for themselves in a fragmented provider market (represented on the left side of the figure), to a more desirable situation in which institutional purchasers contract organized provider groups to provide defined populations with specified benefits packages (represented on the right side of the figure). In other words, under strategic purchasing we envision a shift away from the system of “individual market” competition – in which solo and small practitioners compete for individual patients who pay OOP – toward a system of “for market” competition – in which groups of providers compete for defined “covered” populations through contracts with institutional (public and private) purchasers. This will occur in both the public and private sectors, and lead to consolidation of the provider market into fewer, larger players. The crux of the success of this system will be the newly created organizational platforms under which providers will be grouped and managed. This will be especially critical as purchasers expand benefits packages to include ambulatory services and primary care.

Global experience suggests that provider organizational platforms can take many legal forms; be public, non-profit or for-profit entities; and encompass different levels of care (Table 4.8). Primary/ambulatory

care organizational platforms can group outpatient providers, like solo practitioners and small medical clinics in the private sector, and sub-centres, PHCs and HWCs in the public sector. At the inpatient level, secondary and tertiary hospitals can be grouped under hospital organizational platforms. Finally, an “integrated” network can be formed by grouping multiple ambulatory providers and one or more hospitals under the same organizational platform. The group of providers under one organizational platform may be public, private or a mix of both.

Grouping under an organizational platform can involve the co-location of providers (physical grouping), the linkage of separate facilities via shared information systems and managerial and administrative structures (virtual grouping), or both. Different options entail certain trade-offs; for example, physical grouping requires providers to give up some independence, but can also lead to better cultural cohesion, volume and coordination of care. Virtual grouping may be more appealing in India in the short-term as it is less capital-intensive and allows providers to retain greater autonomy by maintaining their own establishments and continuing to serve patients on an FFS basis outside of their contracted patient case load (Burns and Wholey, 2000; Burns et al., 2013).

**Table 4.8: Examples of Provider Organizational Platforms by Level of Care**

Level of Care	Examples of Organizational Platforms	Potential Providers Under These Platforms
<b>Ambulatory</b>	<ul style="list-style-type: none"> <li>• Non-profit organizations and associations</li> <li>• Physician associations                             <ul style="list-style-type: none"> <li>○ Physician Practice Management Companies</li> <li>○ Independent Practice Associations (IPA)</li> </ul> </li> <li>• Public administrative units or “Corporatized” public administrative units</li> </ul>	<ul style="list-style-type: none"> <li>• Solo practitioners</li> <li>• Medical clinics</li> <li>• Sub-centres</li> <li>• PHCs</li> <li>• Proposed Health and Wellness Centres</li> </ul>
<b>Hospital</b>	<ul style="list-style-type: none"> <li>• Hospital systems (for-profit, non-profit)</li> <li>• Hospital “authorities” (public)</li> <li>• Third Party Administrators (TPAs)</li> <li>• Standalone (private) and autonomous (public) hospitals with strong managerial capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Secondary hospitals (public and/or private)</li> <li>• Tertiary hospital (public and/or private)</li> </ul>
<b>Ambulatory and Hospital</b>	<ul style="list-style-type: none"> <li>• “Integrated” delivery systems</li> <li>• Healthcare and Hospital “authorities” (public)</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple ambulatory providers and one or more hospitals (public and/or private)</li> </ul>

Why hasn’t consolidation happened yet in India?<sup>67</sup> While this has not been studied in detail, the US experience may be applicable. Reasons for historical fragmentation in the US included: physician culture, in which autonomy and independence are highly valued and anti-management and anti-organizational sentiment run high; a dominant FFS payment system, which fostered individual competition and placed no economic pressure on providers to group; and lack of capital to fund expansion (Burns and Wholey, 2000; Woodcock and Crotty, 2015).

Eventually, however, these barriers to consolidation were surmounted and provider grouping occurred under organizational platforms; a similar process occurred in New Zealand.<sup>68</sup> In both cases, the major

<sup>67</sup>Over the past decade, the corporate sector has grown and the average size of private health enterprises has increased slightly, but consolidation has been slow and market fragmentation remains high (see Section 4.2).

<sup>68</sup>Box A4.3 in Annex 1 discusses how this occurred in the US and New Zealand.

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catalyst for change was the introduction of large institutional purchasers (such as Medicaid and Medicare and employer-based private insurance in the US case), use of purchasing contracts and shifts in payment policies. Providers were pressured to join together under organizational platforms in order to be competitive for such contracts. These organizational platforms also solve the issue of institutional purchasers' unwillingness to contract thousands of solo practitioners by providing a "single point of contract": a legal entity with which purchasers can sign one contract to deliver services to a defined group in a defined area (Morrisey et al., 1996). Further, being part of a larger unit gives providers more leverage in contract negotiations, and also allows for practitioners to participate in risk-sharing payment arrangements, as the organizational platform, rather than the individual providers, takes on some or all of the risk (Burns et al., 2013; Woodcock and Crotty, 2015; Muhlestein and Smith, 2016). Many providers in the US and New Zealand decided it was worth sacrificing some autonomy in order to access these new, and expanding, revenue streams as well as a guaranteed patient volume.

Belonging to an organizational platform can give heretofore small providers access to managerial, financial and technological infrastructure. For example, in the US and New Zealand, grouped practitioners gained access to contract management, insurance payment, claims processing and management services; improved practice infrastructure (e.g. modern IT systems, revenue cycle enhancement); sharing of capital expenses; and formal agreements for coordinated referrals and linkages to other facilities (e.g. hospitals, diagnostics). This creates operational efficiencies, can reduce costs for individual practitioners and allows practitioners to spend less time on administrative tasks. Organizational platforms can also support improvements in care quality and safety through initiatives such as development of internal standards, technical assistance on clinical processes and evidence-based guidance on care models (e.g. continuous care, chronic care management). Due to these benefits, many practitioners actually prefer belonging to a larger organization, which has encouraged others to join (Burns et al., 2013; Woodcock and Crotty, 2015; Kash and Tan, 2016; Thorlby et al., 2012).

In the short-term, consolidation will be spurred by new purchasing arrangements launched by government-sponsored health insurance schemes already in existence in some states (e.g. Andhra Pradesh, Telangana and Tamil Nadu) and under the national (PM-JAY) scheme. Altering provider payment systems will be key to putting in place the incentives for provider consolidation, not to mention to the development of new delivery models for CPHC and care coordination.<sup>69</sup> Provider payment will gradually shift away from FFS payment toward widespread insurance-based payment mechanisms such as capitation, case-based and bundled payments, or hybrid models. In this reformed system, purchasing units will contract provider organizational platforms, under which providers will be grouped, to deliver a defined benefits package to a defined population. Incentives and accountabilities embedded in payment mechanisms and contracts will require organizational forms with the managerial capacity to influence the behaviours and practices of providers – translating incentives into effective service delivery. Eventually, these organizational forms will require regulation in part to avoid the formation of provider monopolies or cartels.

### Recommendation:

#### **Test organizational platforms to support implementation of transformative delivery models**

Drawing on the models depicted in Figures 4.20 and 4.21, Figure 4.23 illustrates how different

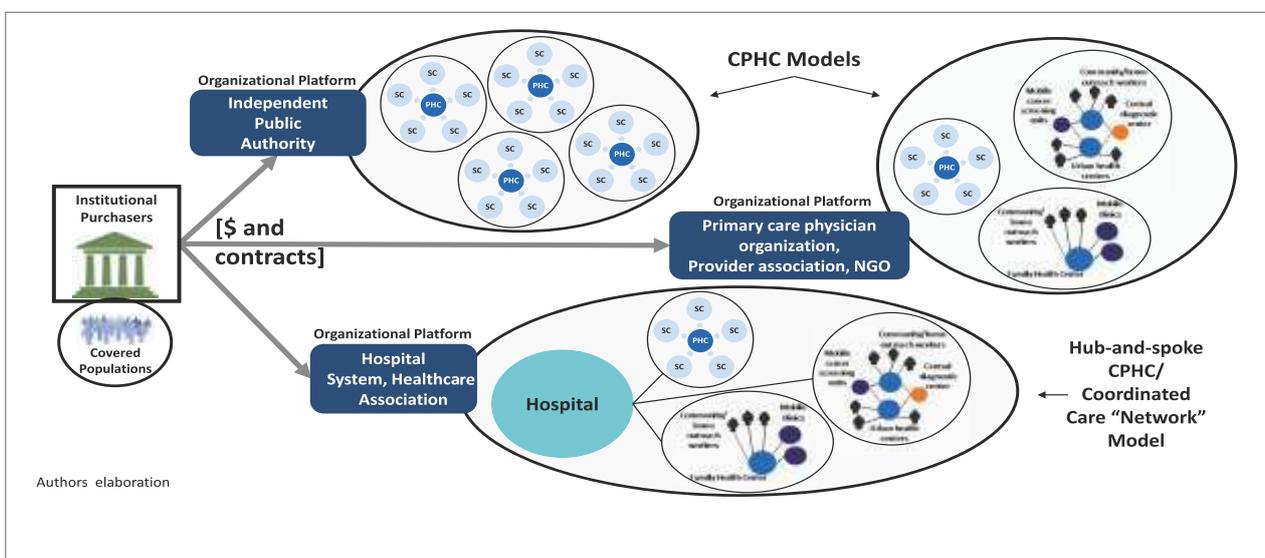
<sup>69</sup>Provider payments and corresponding incentives are taken up in Chapter 3.

organizational arrangements can function for CPHC as well as CPHC and coordinated care “network” models in India. It should be noted that network models are considerably more complex, requiring much greater capital, managerial and administrative capacity to work well. In India, it might be wiser to begin with separate inpatient and outpatient organizational arrangements, which can then serve as a foundation from which to work toward integrated network delivery models.

Consolidation of the provider market will not be fast or easy given the level of fragmentation today. However, as more providers enjoy the benefits of operating under an organizational platform, it will likely inspire others to group. Additionally, India already has some entities that could develop into organizational platforms. For example, there are multiple non-profit provider networks, including the regional, religiously affiliated networks of hospitals and clinics (e.g. CMAI, the Christian Medical Association of India). NGOs already operate a number of public PHCs under contract with state governments (PWC, 2017; Mili, 2011).

Regional provider associations also exist throughout India, and with the proper administrative and managerial strengthening, these networks may be able to establish organizational platforms. Additionally, India has many Third-Party Administrators (TPAs) that are working with public and private insurers to empanel hospitals and manage claims. These TPAs, which are already well tapped into public and private facilities, might be convinced to expand their responsibilities to provide managerial support to emerging organizational platforms. Thus, India has a basis on which to build and test new organizational models.

**Figure 4.23: Combining delivery models with provider consolidation under strategic purchasing**



Finally, independent or “corporatized” public authorities could coordinate and manage contracts for grouped public (and private) facilities. Under current governance conditions, it is unlikely that traditional public administrative units will have the account abilities, capacities and flexibilities to operate effective organizational platforms. Establishing greater managerial independence for public facilities is the subject of the next subsection.

Introducing autonomy-based organizational arrangements for public providers. Globally, autonomy of public providers emerged out a combined sense of disappointment over poor performance, political interference, citizen distrust of public care and evidence from other sectors of the benefits of delivery models incorporating or building on private sector incentives. Creative approaches to making public

facilities, especially hospitals, more flexible and responsive developed across Europe in the 1980s and 1990s. Most global initiatives have been oriented toward granting greater decision-making authority to public hospitals with the intent of removing barriers to healthcare to ensure equal access, greater efficiency, better performance, and better oversight and accountability in healthcare delivery (Saltman et al., 2011; La Forgia and Couttolenc, 2008; Harding and Preker, 2003; Jakab et al., 2002).

Autonomy reforms invariably involve the creation and use of organizational forms that can be categorized along three domains: autonomization, corporatization and public-private partnerships (PPPs). Table 4.9 outlines the main attributes of these models. These terms are also used taxonomically to describe the degree of autonomy taken on by hospitals. In practice, however, differences are often nuanced and overlap exists across the categories.

Available information on reforms involving autonomy suggest that, globally, there are as many failures as success stories (Saltman et al., 2011; La Forgia and Couttolenc, 2008; Harding and Preker, 2003; Jakab et al., 2002).

**Table 4.9: Organizational Models for Autonomy-Oriented Reforms: Global Experience - What are the choices to consider?**

Experience also suggests that reforms that transfer decision-making authority from a public administrative apparatus to hospitals tend to become highly politicized, as they alter traditional public administrative practices as servants. Under these conditions, implementation adjustments. Box 4.3 distils global lessons learned

<b>Autonomization</b>	<ul style="list-style-type: none"> <li>• Formal institutional grant of autonomy, but actual decision-making rights vary considerably</li> <li>• May involve creation of governance structure such as a board or council</li> <li>• Usually involves a limited number of facilities</li> </ul>
<b>Corporatization</b>	<ul style="list-style-type: none"> <li>• Creation of legalized organizational forms (e.g. trust, foundations, state enterprises, etc.) which are separate from government administration</li> <li>• Usually applied to a number of facilities, but may involve single facilities with “own” legislation</li> <li>• Ownership remains public</li> <li>• Autonomy usually stronger than under autonomization</li> </ul>
<b>Public-Private Partnerships (contract management PPPs)</b>	<ul style="list-style-type: none"> <li>• Long-term contract between government and a private entity</li> <li>• Joint investment in the provision of publicly financed health services</li> <li>• Different models: can include or exclude infrastructure, clinical and non-clinical operations</li> <li>• Private sector assumes financial risk</li> <li>• Ownership usually remains public (not privatization)</li> </ul>

Authors’ elaboration

Global experience shows that reforms involving corporatization of public hospitals entail converting hospitals into state enterprises or other statutory entities, and generally were applied to large groups of public hospitals, and in some countries, nearly all public hospitals. Importantly, all “corporatized organizations” were legally constituted as independent entities but came in an array of forms and corresponding nomenclatures, as shown in Box 4.3.

Two entities listed in Box 4.3 are worth noting: the Hong Kong and New York City health and hospital authorities. In both cases, the organization operates a healthcare delivery system consisting of hospitals, health centres, diagnostic units and related healthcare services. Public hospitals were not individually corporatized, but rather legally grouped under one corporatized public entity. The health authority oversees and manages all facilities under its domain, but in both cases, limited authority has been transferred to the hospitals themselves. Thus, hospital oversight and management remain centralized; control merely shifted from the government to the corporatized entity.

**Box 4.3: Granting public facilities greater autonomy – lessons from global experience**

Available evidence suggests that reforms embracing the following strategies have increased efficiency, quality and patient satisfaction, though the evidence is not definitive:

- Clear policy and legal framework specifying healthcare objectives (e.g. clinical quality, patient experience, affordable access, social functions, linkages to delivery system) and financial objectives (e.g. break-even, use resources efficiently, not profit, revenue growth)
- Autonomous managerial authority with incentives for efficiency, quality and equity
- Data to track hospital performance and financial accounts
- Strengthening of hospital managerial capacity
- Strong purchasing capacity, including capacity to monitor and enforce contracts and introduce incentives and accountabilities
- Well-defined and legally constituted governance and corporate entities (how these formed and were legally constituted varies considerably across countries – see table)

**Public Organizational Reforms in the Health Sector - Global Examples of Organizational Models**

Country	Organizational Models	Organizational Nomenclature
<b>Hospitals</b>		
Brazil	PPP	• Social Health Organizations (OSSs)
Estonia	Corporatization	• Joint-stock companies • Foundations
Portugal	Corporatization	• Public enterprises
Spain	Autonomization Corporatization PPP	• Public corporations • Foundations, consortia • Administrative concessions (to private firm)
Singapore	Corporatization	• Private company solely owned by government
Sweden	Corporatization	• Public-stock corporations
UK	Corporatization	• Self-governing trusts • Foundation Trusts
<b>Autonomous Public Bodies Managing a Healthcare Network</b>		
Hong Kong	Corporatization	• Public Authority
New York City	Corporatization	• Public Benefit Corporation

Authors elaboration

Sources: Saltman et al. (2011); La Forgia and Couttolenc (2008); Harding and Preker (2003); Jakab et al. (2002)

**Recommendation:**

**Analyze and test autonomy-based approaches to managing government health facilities**

India has a long history of establishing autonomized and corporatized units as well as PPPs at the central and state-levels in different sectors including health to decentralize decision-making from the public administrative apparatus.<sup>70</sup> Similar to global efforts, the underlying objectives were to foster more effective and efficient management of publicly-financed goods and services as well as to expand the supply of hospital care. Successful non-health sector experiences include the Delhi Metro Rail Corporation (DMRC)

<sup>70</sup>Box A4.4 in Annex 1 summarizes Indian autonomy experiences inside and outside the health sector.

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and the Indian Railways Catering and Tourism Corporation (IRCTC) (Dalberg, 2016). Within the health sector, the Emergency Management Research Institute (EMRI), which runs emergency ambulance services in a number of states, is another effective model (Haseltine, 2018; NHRSC, 2009).

While few models have been applied in public healthcare facilities, the majority of experiences have fallen short of expectations. The experience of autonomy-related initiatives in India suggests important lessons, both positive and negative, that can complement learning from international practices (Dalberg, 2016; World Bank, 2013; Duran et al., 2015). Some entities mimic government culture, procedures and processes or were granted a modicum of decision-making authority while others did not sufficiently specify roles and responsibilities of both government and corporatized entities. PPPs, such as the EMRI, in which the private party is responsible for service management appear to have achieved higher degrees of autonomy. While experiences vary and none have been thoroughly evaluated, Indian examples show that under conditions in which political interference is diminished, organizations are allowed to independently develop effective managerial processes and government supports strong accountability, public facility management can thrive and performance is enhanced.

Given India's heterogeneity, promoting any single autonomy model or organizational form should be initiated with caution. What may work for a large teaching hospital in Mumbai will be ineffective for a district hospital in rural Assam. India has attempted to grant greater managerial independence to public entities in the past, but careful evaluation of these experiences is required to provide inputs into policy formation, testing and design of any future nationwide initiative.

### **Supporting relentless front-line quality measurement and improvement**

The lack of systematic measurement and analysis of quality of care creates significant challenges for understanding the state of quality and designing appropriate quality improvement initiatives. Our vision of healthcare delivery system reform in India requires an unyielding focus on quality measurement and improvement, which will underpin and positively reinforce the broader health system transformation efforts. Our vision promotes two complementary actions: (i) establishing "Quality Learning Collaboratives" that conduct measurement and improvement initiatives in healthcare facilities as building blocks to national efforts to assess, measure, improve and sustain quality of care; and (ii) strengthening quality criteria for facility empanelment and establishing pay-for-quality arrangements through purchasers to motivate quality measurement and improvement among contracted providers.

## **Recommendation**

### **Establish quality learning collaboratives**

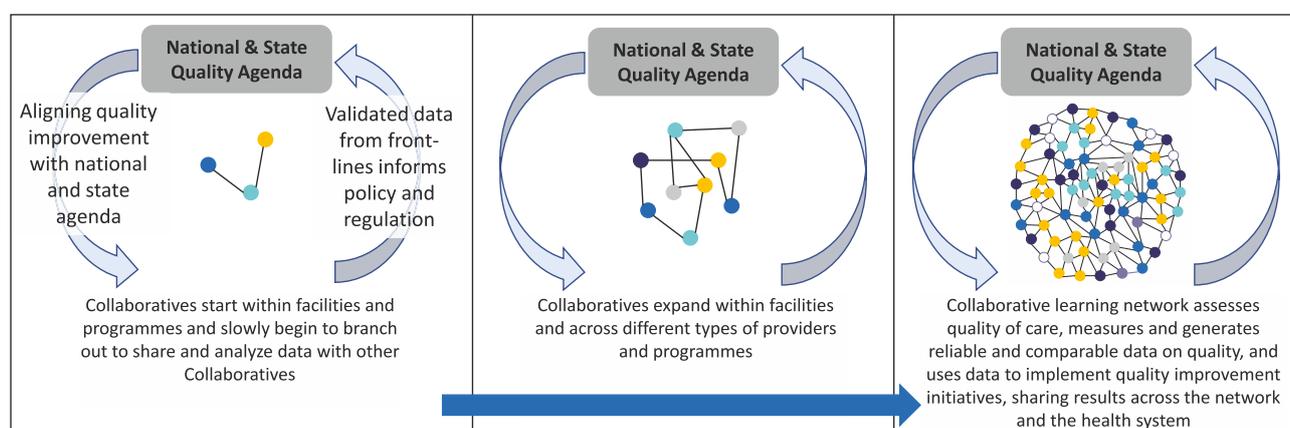
Major recommendations of recent seminal reports on improving quality of care globally include creating learning organizations that collect data, and share information among and provide feedback to front-line workers; as well as using evidence to generate continuous quality improvement initiatives (Lancet Global Health Commission, 2018; National Academies of Sciences, Engineering and Medicine, 2018). One mechanism to encourage a cycle of continuous learning within a system is through establishing learning collaboratives. A learning collaborative is a practical strategy to generate and apply evidence to improve quality of care in front-line settings. It has been used successfully in high-income countries, and there have been calls to apply this strategy in low- and middle-income settings as well (English et al., 2016; Greene et al.,

2012; Schouten et al., 2008; Olsen et al., 2007; IHI, 2003).

In this vein, we propose the creation of Quality Learning Collaboratives within healthcare facilities and programmes in India to improve the measurement and quality of care. Collaboratives would start with small teams comprising front-line workers, technical staff and managers working in facilities and programmes, including secondary and tertiary hospitals, diagnostic centres, primary care units, outreach centres and vertical programmes. They would align with national and state quality agendas by focusing on quality shortcomings that contribute to excess mortality and morbidity and higher costs at national and subnational levels. They would build the capacity of people, processes and systems to measure and analyse quality of care. As capacity builds and measurement improves, collaboratives would become platforms to design and test data-informed quality improvement interventions across settings. For example, most learning collaboratives globally employ some form of a learning cycle, such as Plan, Do, Study, Act (PDSA), which has decades of global application to improve quality processes in manufacturing, and in the late 1990s was introduced to healthcare settings (Berwick, 1998).

In sum, as illustrated in Figure 4.24, the Collaboratives would aim to: assess quality of care; measure and generate reliable and comparable data on quality using proven methods in various healthcare settings; build quality measurement capacity, strategies and metrics; and synthesize results for policy purposes and front-line quality improvement interventions. Their collaborative approach enables them to expand within and across facilities to create a network, ultimately contributing to the systematic use of data across the health sector.

**Figure 4.24: Evolution of Quality Learning Collaboratives into a Network**



Note: Each dot represents a Quality Learning Collaborative, with colour designating different types of providers and programmes.  
Source: Author elaboration

**Recommendation:**

**Strengthen facility empanelment and link payment to quality**

We propose strengthening facility empanelment and re-empanelment criteria and procedures to leverage the empanelment process for quality improvement. An initial step focuses on incorporating more process and outcome measures into empanelment criteria, in addition to the current focus on structural standards. Further, the empanelment process should evolve from being a one-time, static assessment to being a mechanism for tracking and raising quality of care over time. One way to do this is to incorporate quality threshold requirements into the empanelment process, whereby standards are gradually raised over time

according to a predetermined roadmap. For example, as is currently planned by the PM-JAY scheme and some government-sponsored health insurance schemes (GSHISs), empanelment can align with NABH accreditation tiers, thus reorienting providers toward incremental and continuous improvements in quality of care.

Payers can also incentivize quality through a variety of other financing mechanisms that link a portion of payments to quality performance, such as: pay for reporting and data; pay for process outcomes; and pay for improvement. Global evidence shows that when implemented effectively, these strategies have the potential to change provider behaviour to be more focused on collaboration and quality. Importantly, these strategies require robust information systems to accurately track services and quality improvements. In India, evidence from the Vajpayee Arogyashree Scheme, a GSHIS in Karnataka, shows that the private sector will comply with quality standards and adhere to standard treatment protocols if the financial incentives to do so are in place (Sood, 2016). Given the introduction of PM-JAY, pay-for-quality mechanisms can be a conduit to strengthen quality and regulate the private sector.

### **Stepping-in strategy to catalyse transformative service delivery**

This section outlines first step actions to implement the above-mentioned recommendations on catalysing transformative service delivery. Our proposed strategy is to create a funding and support vehicle to stimulate front-line experimentation, learning and scale-up. For this to occur, we encourage government to endorse bottom-up mechanisms of policy influence and learning in which policy innovation (and diffusion) results from evidence-based learning at the state and local levels while allowing for flexibility and iterative feedback of lessons learned (see Box 4.4). This approach – common in large federal countries and used widely in OECD countries – will be particularly important for designing and testing new delivery models, organizational platforms, quality improvement initiatives and autonomous management arrangements. There are no “one-size-fits-all” solutions to address the complex delivery challenges across India’s diverse settings.

Specifically, we recommend that government establish and finance a national Innovation and Quality Improvement Fund (“the Fund”) to support scalable demonstration projects that can test: (i) new delivery models; (ii) innovative approaches to the organization of care in the public and private sectors; (iii) quality measurement and improvement initiatives; and (iv) autonomous management of public facilities. To create the Fund, we recommend that the central government convene potential funding partners, including development partners and private sector actors. Before launching the Fund, these partners can set up its governance structure and ensure it has sufficient management capacity. Next, fund managers would draft terms of reference, establish selection criteria and issue Requests for Proposals (RFPs) for demonstration projects in the four areas. Below are some suggested guidelines for each area:

### **Delivery models**

A major activity of the Fund will be to test delivery models for CPHC (with and without coordinated care) in both the public and private sectors. Ideally, funds can be channelled through institutional purchasers such as those established under PM-JAY and state-sponsored insurance schemes. Specific operational steps can include: (i) analyse existing delivery models to inform preparation of RFPs; (ii) select pilot states and catchment areas; (iii) form a public-private working group to oversee projects in each pilot state; (iv) budget resources, including any co-financing from the states and private sector, to fund demonstration projects as

well as support provider teams with training and technical assistance (e.g. standardized care protocols, supply chain management; (v) broadly define delivery models, including benefits packages, with associated performance measures, which should be based on the local disease burden; (vi) prepare and issue RFPs to design and develop the delivery models (the RFP can ask bidders to conduct a population survey in pilot catchment areas, assign populations, and further refine the model and benefits package); (vii) fund and launch demonstration projects; and (viii) set an information collection and monitoring system, and plan for impact evaluations.

### **Organizational platforms**

This activity would be part and parcel of testing delivery models. It would include the grouping of primary care, ambulatory and hospital providers under public and private organizational platforms to support the implementation of the new delivery models (CPHC and/or CPHC and care coordination). Ideally, the organizations will be contracted by institutional purchasers. Specific steps can include: (i) identify and assess potential organizational platforms such as physician associations, NGOs and hospital systems; (ii) set criteria for selecting potential organizations in specific catchment areas (in regions/states) where demonstration project will be launched; (iii) set the functions of organizational platforms in terms of supporting provider members and testing delivery models; (iv) include organizational platforms as a component of RFPs for delivery models (see above); and (v) map critical processes and gaps including healthcare provider (member) support and training needs.

### **Autonomous management arrangements**

To catalyse the implementation of autonomous management in public facilities, we suggest that government: (i) conduct in-depth analyses of lessons learned from past and existing autonomy-oriented models in India; this review should encompass autonomized hospitals and health authorities, as well as experiences from other sectors; (ii) based on the results of the analysis, develop a plan for testing hospital and primary care autonomy and corporatization models, which would include setting criteria and identifying states and facilities for testing models, developing a policy and legal framework, including definition of governance entities, options for human resource management vis-à-vis civil servant rules, and strategies to ensure the optimal number and skills mix of the workforce as required by the location, including professional managers; and (iii) test autonomy models in a sample of public facilities.

### **Quality measurement and improvement**

The Fund can support establishing and testing the proposed Quality Learning Collaboratives among a sample of public and private providers (community- and home-based, ambulatory, hospital and diagnostic) to improve front-line quality measurement and improvement. Initial actions can include: (i) set criteria for provider organization, team and site selection; (ii) select sites and enrol participating organizations and teams; (iii) set oversight, management and monitoring systems; (iv) budget resources to support collaborative implementation, including training and technical assistance needs; (v) assess existing information infrastructure and systems for collecting, measuring, validating and using quality performance data; (vi) engage in quality measurement and root cause analysis of quality gaps using proven quality measurement methods to build an evidence base to understand the breadth, depth and nature of quality gaps – this can include cross-facility collaboration; and (vii) design and implement quality improvement interventions. Fund administrators can consider launching an RFP for steps (v), (vi) and (vii).

### Box 4.4: Toward bottom-up federalism in India

Assessments of previous but unsuccessful government efforts to improve health and social services in India have identified several factors contributing to failure, including: overly ambitious goals; top-down design, planning and implementation; the absence of evidence-based guidance; weak accountabilities, and lack of strategic vision. Central government financial support for health is mainly channelled through centrally-sponsored schemes. These programmes are conceptualized and designed centrally, are narrowly focused on the public system, and build upon inadequate existing structures and systems. States are expected to provide matching funds and implement according to the central and mostly one-size-fits-all designs. Commenting on health policy formation and implementation at the central level, Rao (2017:419) asserts that “policies are introduced, continued, or scaled up in accordance with prevailing perceptions, hunches or political expedience. . . without adequate analysis of benefits costs, fiscal implications, long-term impacts . . .” This approach ensures the continued legitimacy of the (poorly performing) status quo while limiting the space for creativity, experimentation and sustained innovation.

Policy change can occur in multiple venues. This is particularly the case in federal systems. For example, the role of the central government in setting an innovative policy agenda can influence policy innovation at the state-level. In the US, this has been done by the federal government through intentional spread strategies such as disseminating information (on innovative policies emerging from the states), issuing mandates (“policy pushes”), and providing grants to support innovative policies at the state-level (such as quality improvement collaboratives). In other words, through creating an “authorizing environment” and funding stream that encourages experimentation, the central government can serve as a catalyst of state- and local-level learning and policy innovation. Under these conditions, state and local governments as well as healthcare organizations may increase their predisposition (and risk) to innovate.

A large body of evidence exists regarding innovations that were developed and spread at the state and local levels, and subsequently influenced central level policies, which adopts, codifies, and diffuses them nationwide. The process in which a lower level of government influences a higher level has been referred to as “bottom-up federalism” (Shipan and Volden, 2006). However, this does not mean that the central government takes a passive role. The “nationalization” of state and local policy innovations by the federal government can result in their rapid diffusion as the latter mandates or stimulates innovation adoption across the country. bottom-up approach also promotes “real world” or front-line experimentation through problem-solving, active learning and iterative feedback. Such an approach is considered by some development observers as much more robust path to transformative and impactful change.

Policies can be rapidly imitated because policymakers (and politicians) replicate initiatives based on the real experiences of their state-based peers and the expected future benefits. Global examples are instructive:

- Brazil’s renowned Family Health Programme originated from a well-scaled and studied experiment at the municipal level in the state of Ceara.
- In the US, there is a long history of policy innovation development at the state and local levels which subsequently informed central level policy formation. What is interesting is that many innovations developed at the state and local level were supported, diffused back, or spread by the federal government.
- In India, bottom-up-federalism is exemplified by the rapid diffusion of innovative policies related to demand - side financing (e.g. government-sponsored health insurance schemes, GSHIS) at the state-level in the late 2000s. At least two state sponsored GSHIS (e.g. Yeshasvini and Aarogyasri) contributed to the design of RSBY in 2008.

Sources: Allen et al. (2004); Harvard Kennedy School (2012); Boushey (2012); CufinoSvitone et al. (2000); Greenhalgh et al. (2004); La Forgia and Nagpal (2012); Nicholson-Crotty (2009); NCMH (2005); Nix et al. (2018); Perla et al. (2018); World Bank (2006); Rao (2017); Shipan and Volden (2006); Tendler and Freedheim (1994); Tendler (1997); Walker (1969)

### **Creating an enabling institutional and influence environment for sustained service delivery transformation**

Pluralism is well entrenched in Indian healthcare as evidenced by the dominance of private provision, rapid expansion of PPPs, accelerated pace of technological innovations and existence of vibrant markets for traditional medicine and informal providers. Given the mixed and dynamic nature of the delivery system, Indian policymakers need to reconsider the monolithic, state-centred orientation of the past and embrace a pluralistic approach that recognizes multiple stakeholders and their potential roles.

Antiquated notions of focusing government resources (and energy) on expanding state-provided healthcare have inhibited efforts to conduct stewardship functions related to pluralistic systems, including engaging with non-state stakeholders to align behaviours with public objectives, regulating health markets to protect consumers, improving population health and addressing gaps in quality of care. These functions can no longer remain peripheral activities to health system governance. As India moves to a more organized and integrated healthcare system (and healthcare economy), it needs to strengthen, and in some cases, create, new governance, regulatory and stakeholder engagement strategies to build an enabling institutional and influence environment supporting transformative change in service delivery. These strategies can reinforce incentives in purchasing and payment mechanisms to drive providers to align their behaviours with public objectives.

Consonant with the vision outlined earlier, this set of recommendations centres on creating an enabling institutional and influence environment to foster transformative change on the front-lines of organization and provision of healthcare in India, as recommended in the previous section. We focus on four components: whole system governance, meaningful public-private engagement, institutionalization of quality improvement and effective facility regulation. The recommended actions are also complementary to mechanisms related to pooling and purchasing highlighted in previous chapters. The section concludes with suggested first steps to implement the proposed actions.

### **Promoting whole system governance**

Governance is an important but ill-defined lever for improving health system performance. Broadly, it encompasses instilling accountability, steering the system in a strategic direction, fostering stakeholder engagement (including citizen-state engagement), deploying resources effectively, and transparently collecting, analysing and sharing information. Globally, strengthening accountability and stakeholder engagement appear to be the most effective strategies. Systematic reviews consistently show that even in low-spending contexts, good governance is associated with better health outcomes (Ciccone et al., 2014; Olafsdottir et al., 2011). For example, governance interventions at the provincial level in Afghanistan, including creating multi-stakeholder consultative assemblies, fostering a shared strategic vision, strengthening accountability for performance, promoting use of information for decision-making and improving resource management, significantly impacted health outcomes (Shukla, 2018).

The quality of governance is affected by the quality of governance institutions. Governance institutions are more effective when they are inclusive, accountable, transparent and responsive to the citizenry (Buse et al., 2009; Brinkerhoff, 2004). Our recommendations, listed below, aim to support India to develop higher quality governance instructions and practices.

### Recommendation:

#### **Establish a multi-stakeholder coordination and oversight governance structure in each state with representatives from government, private sector and civil society**

This structure could be considered a standing committee. The advantage of such a committee with multi-sector participation is that it provides a means by which strategies are adhered to and do not get derailed by individual leaders, who tend to rotate frequently. The first order of business would be to set a shared strategic direction with a focus on a pluralistic but integrated health system with a strong focus on population health and accountability for results, including policies, rules and regulations, and deploying resources to meet the strategic goals. Another area of focus would be to promote data collection and analysis and information sharing to support planning and oversight of the strategy's implementation. Finally, the committee should monitor the progress toward population health regularly.

### Recommendation:

#### **Build capacity for performance management and evidence-based policy making and implementation monitoring with a focus at the state-level**

This can be achieved through two actions:

- *Develop and implement a strategy for performance measurement and improvement:* The current input-based monitoring system does not provide sufficient understanding of what works, under what conditions and with what consequences. India needs to develop a performance measurement system based on outputs and population health outcomes to align with UHC strategies as well as to guide and inform improvement. Such a system would create a limited set of “core” indicators that can be used for comparative benchmarking, to link heretofore separate programme-based systems, to improve and standardize data collection, analysis and feedback, and to hold providers to account.
- *Promote the lateral entry of public health and management professionals using merit-based criteria at senior levels of state health secretariats (and MoHFW):* MoHFW and states need to appoint well-qualified professionals at the directorate level to assist in the switch from programme- to population-based interventions, introduce whole system oversight, engage with key stakeholders, and foster evidence-based monitoring and evaluation of performance.

### Recommendation:

#### **Strengthen population-based health interventions**

Population-based health interventions have historically been underfunded and received low priority.<sup>71</sup> However, several efforts have been made by the government over the last few years to prioritise public health programmes like Mission Indradhanush and the Swachh Bharat Abhiyan. India needs to intensify the focus on large-scale vector control, immunization, garbage disposal, and access to clean water and sanitation. Mass media health literacy activities can encourage health promotion and prevention, enabling people to act upon health information to better control their health. Campaigns can also provide information to consumers on avoiding unnecessary medical practices. Some media-based campaigns focus on both providers and people. This is the case of Canada's National Literacy and Health Programme, which

<sup>71</sup>As mentioned earlier in this chapter, heretofore vertical programmes should be horizontally integrated into a comprehensive primary care strategy.

promotes awareness among health professionals and patients of the links between health literacy and health.

### **Fostering meaningful public-private engagement**

In order to meet its stated goal of UHC, government could benefit from working closely with the omnipresent and burgeoning private sector. The goal under strategic purchasing is to fully embed private providers in the healthcare system so that all providers, public and private, offer good quality and affordable services, and eventually compete for public and private funds. This can only be accomplished through a long-term and policy-based strategy jointly developed by public and private stakeholders. Global evidence suggests that effective public-private engagement can help government achieve key priorities related to more efficient resource use and improved access, coverage and quality of care (Peters et al., 2002; La Forgia and Harding, 2009; Harding and Preker, 2003; Bustreo et al., 2003).

Public-private engagement in India's health sector needs to move beyond one-off PPP transactions. Sustainable partnerships require dependable and consistent engagement supported by enabling institutional conditions. An example from Kenya is instructive. Starting in 2010, Kenya's Ministry of Health (MoH) led a process of Public-Private Dialogue (PPD) to engage the private sector to improve facility regulation. Representatives from the MoH, professional regulatory boards and the private sector (represented in part by the Kenya Healthcare Federation) engaged in a series of participatory workshops over several years to develop a Joint Health Inspections Framework, Inspections Checklist, monitoring framework, toolkit, implementation guidelines and other supporting materials. The initiative resulted in joint (public-private) regulatory inspections, a system to assess the efficacy of inspections, and consensus on appropriate sanctions for non-compliance (JLN, 2018; Mwaura, 2014).

The following recommendation is aligned with global experience demonstrating that public-private engagement requires establishing a forum for dialogue, consultation and information exchange (Joint Learning Network, 2018; Thomas et al., 2016; World Bank/IFC, 2013; World Bank/IFC, 2011).

### **Recommendation:**

#### **Establish a national dialogue to build trust, foster effective public-private engagement and collaboration, and articulate a clear and shared vision of the private sector's potential contribution to health system goals**

This will require crafting a formal platform to foment dialogue between key public and private stakeholders. Such a platform, based on broad stakeholder representation spanning the for-profit and non-profit sectors, and large and small providers alike, would work to set a common and results-oriented agenda that may include focus areas such as: (i) a policy framework for collaboration between sectors and defining public and private roles; (ii) information exchange across sectors; (iii) regulation and the business environment; (iv) strategic purchasing of healthcare services from private providers using public funds; and (v) quality improvement.

### **Institutionalizing quality measurement and improvement**

Raising quality of care forms the foundation for all transformative efforts to improve service delivery. Institutionalizing quality measurement and improvement involves raising the profile of quality in public

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and policy discourse, embedding it in UHC efforts, promoting system-wide accountability for quality, and fostering organizational structures and leadership to coordinate roles and support front-line interventions and learning (WHO, 2018; Lancet Global Health Commission, 2018; National Academy of Sciences, Engineering and Medicine, 2018). While nearly all the recommendations specified in this chapter can contribute to quality improvement, the immense quality challenges that India faces require deep and broad commitment. Elevating quality from its current peripheral position to a national priority will be no easy task. Global experience suggests that a collaborative approach with multi-stakeholder participation may work best, especially in mixed delivery settings. According to the Lancet Global Health Commission (2018: 51):

*“Improving the quality of the health system requires action from multiple sectors and stakeholders. Governing for quality includes managing these relationships and convening stakeholders under the shared vision of making large-scale sustainable improvement in quality and health outcomes.”*

There are different paths to securing multi-stakeholder commitment and action. Over the last two decades, many OECD and some developing countries have designated special organizations to coordinate and lead efforts around raising quality of care. Examples of these institutions and their primary responsibilities are summarized in Table 4.10. In most cases, these entities were created by government but benefit from strong participation of the private sector, academia and civil society. In other countries, such as Ghana and Ethiopia, the Ministries of Health created multi-stakeholder steering committees to develop, implement or monitor national quality improvement strategies (National Academy of Sciences, Engineering and Medicine, 2018). Buy-in, shared vision and participation of all stakeholders combined with independent decision-making appear to be successful ingredients to these organizational arrangements and effectively addressing quality gaps. Our below recommendation aligns with these global examples.

**Table 4.10: Examples of national quality institutions to oversee and coordinate quality-related activities**

Institution	Country	Primary Responsibilities
National Institute for Health and Care Excellence (NICE)	United Kingdom	Develops evidence-based clinical guidelines and pathways and evaluates clinical interventions
Quality Institute	Holland	Crafted a mandatory framework for the development of care standards, clinical guidelines and performance measures
Agency for Healthcare Quality and Research (AHRQ)	United States	Supports quality measure development, national quality reporting and healthcare quality research
Institute for Quality and Efficiency in Health Care (IQWiG)	Germany	Reviews evidence of diagnosis and therapy for selected conditions, provides evidence-based reports on an array of topics and develops recommendations on disease management programs
Malaysian Society for Quality in Health (MSQH)	Malaysia	Develops standards for facilities and services, and promotes safety and quality improvement through training and events

Source: Authors elaboration

### Recommendation:

#### **Establish a Quality Information and Improvement Commission with multi-stakeholder participation**

Like any broad reform, pursuing systematic improvements to health sector quality is a highly complex process and depends on strong coordination and leadership. To meet these needs, we propose a National

Quality Information and Improvement Commission (“the Commission”). The Lancet Global Health Commission on High Quality Health Systems in the SDG era recommends such multi-stakeholder governing entities as a means to embed quality in the health system. Specifically, National Quality Commissions aim to create a multi-stakeholder platform for “describing, measuring, and suggesting improvements for health system quality within their specific country focus”.<sup>72</sup> This Commission would incorporate participation public, for-profit and non-profit entities as well as civil society. The Commission would ultimately be the recognized national leader in promoting quality of care and would be the primary source of evidence-based information on all topics related to quality for both clinicians and the public.

### **Strengthening facility regulation, monitoring and enforcement at the state-level**

Global and Indian experience shows that effective service delivery requires competent professionals and timely, accurate information to review, guide and manage service providers as well as enforce regulations. Similar to many low- and middle-income countries, India has adopted an administrative, command and control approach to regulation which is decentralized to states and districts. The effectiveness of this approach relies on countries’ ability to develop robust laws, monitor compliance and enforce sanctions (Ensor and Weinzierl, 2007).

This set of recommendations focuses on strengthening regulatory oversight of healthcare facilities.<sup>73</sup> We categorize our recommendations according to three broad but complementary approaches to regulation: administrative, consumer-oriented and incentive-based. Strengthening regulation would also be supported by formal policies related to private sector engagement.

### **Recommendation:**

#### **Strengthen state capacity for assessment and information collection and analysis in support of regulatory enforcement**

State regulatory agencies require considerably greater resources, capacity and independence to effectively perform regulatory functions. First, regulatory functions should be separated from provision functions inside state health secretariats, creating independent regulatory agencies. This will contribute to creating a level playing field in which regulatory standards are applied equally to both public and private facilities while diminishing political and bureaucratic interference in regulatory functions. As is the case in other countries, such as New Zealand and Canada, inspections can be contracted out to specialized organizations, or, as practiced in Kenya, designated to joint public-private inspection teams. Second, regulatory entities require investments. They need a dedicated budget and cadre of personnel trained in regulatory functions including enforcement. Third, licensing and reporting procedures should be standardized across states. A good place to start is to craft a format or procedures for ensuring that accurate registration information (e.g. birth and death registries, notifiable diseases, services offered, personnel, etc.) are obtained from all facilities consistently and incorporated into national and state facility data banks. Finally, the division of regulatory responsibilities between states and districts requires revisiting. Too often, districts lack the minimal capacity to carry out regulatory functions, and are unlikely to secure such capacity in the foreseeable future. States should experiment with centralizing regulatory functions.

<sup>72</sup><https://www.hqsscommission.org/national-commissions/>

<sup>73</sup>Professional self-regulation is beyond the scope of this chapter. This theme is covered by the Journal of the American Medical

### Recommendation:

#### Expand consumer voice

*This recommendation consists of two actions:*

- Collecting and disclosing information on facility performance: This task is critical to any regulatory system as well as to enable consumer-driven mechanisms. Good data and robust analysis are necessary to gauge compliance and to quality of care. Government (and purchasers) can consider benchmarking facility performance, crafting report cards and making them available to consumers. The UK's Dr Rogers and the US's Hospital.gov can provide examples on disclosing information to citizens and patients. In India, there is some evidence that benchmarking of hospitals based on consumer satisfaction surveys led to changes in hospital behaviours (Paul, 1998).
- Strengthening procedures for patient feedback and grievance redressal: Effective grievance redressal needs to be embedded in day-to-day facility operations and regulatory processes. Government needs to set up new mechanisms to deal with consumer complaints. The central government should set national guidelines for an independent grievance redressal system implemented by the states and purchasers. To this end, grievance redressal should be incorporated within the mandate of the state-level independent regulatory agency proposed above, which would be responsible for oversight and monitoring. Following central guidelines, this agency can design and implement formal processes and mechanisms for grievance redressal, as outlined in Box 4.5. It is also advisable to include establishment of internal grievance redressal procedures as a requirement for facility empanelment (by purchasers), licensing and registration, at least for

#### **Box 4.5: Key considerations in establishing patient grievance redressal mechanisms**

Whenever possible, complaints/grievances should be resolved within facilities. It is recommended that facilities:

- Establish formal, clearly structured patient complaint and grievance redressal procedures
- Publicize the procedures, including how patients can appeal any decision to external authorities
- Designate a focal point, e.g. grievance redress officer, within the facility
- Establish a grievance redressal committee to hear and resolve complaints/grievances
- Implement user-friendly systems for registering complaints (e.g. in-person, written, telephone, email, SMS)
- Document all complaints/grievances, and their resolution
- Define a time frame in which to respond in writing to any complaints/grievances
- Follow-up with patients regarding any actions taken as a result of their complaint/grievance

There should be procedures in place for patients to appeal any decisions to external, impartial arbitrators, e.g. the proposed independent regulatory agency. This agency can establish and publicize relevant procedures, including transparent criteria for assessing the merit of grievances and dedicating staff/committees to manage the grievance redressal process. Notably, a patient's utilization of the grievance redress process should not affect their ability to seek redress through the courts or consumer forums.

Source: Mirzoev and Kane (2018); University of Birmingham (2015); UNCTAD and World Bank (2018)

hospitals. This would provide an incentive for providers to establish internal procedures. The agency, and when appropriate the purchaser(s), should specify sanctions for non-compliance (e.g. fines, loss of empanelment). Finally, complementary measures can empower consumers and encourage facilities to better address patient complaints. For example, initiatives in India and Bangladesh have shown that toll-free hotlines and online forums can successfully empower patients to lodge complaints with relevant health authorities (Mirzoev and Kane, 2018; University of Birmingham, 2015).

### **Recommendation:**

#### **Introduce incentive-based mechanisms to encourage regulatory compliance**

While India's traditional, sanction-based approach to regulation will not alter in the near future, it can be complemented by incentive-based approaches related to purchasing and paying for performance by linking contracts and payments to compliance with standards. These approaches encourage providers to comply with licensing and other quality standards. As mentioned previously, pay-for-quality measures can also foster improvements in data reporting and quality processes, including introducing grievance redressal procedures. Encouraging accreditation is another way to raise standards above those minimally required by licensing.

#### **Stepping-in strategies for creating an enabling institutional and influence environment**

In this section, we propose first step or "bridge" actions to initiate implementation of the recommendations for each of the components outlined the previous section: whole system governance, public-private engagement, quality improvement, and facility regulation. We consider these actions feasible in the short-term while setting the stage for deeper changes in the future. Taken together, they aim to overcome barriers and create an enabling environment to operationalize and sustain the front-line initiatives related to delivery models, organizational platforms and quality measurement and improvement. The central government can take a catalytic role in nearly all the proposed strategies. Most of the strategies entail strengthening structures and creating platforms and forums to strengthen interrelationships among key stakeholders while establishing coordinating and support systems.

#### **Whole system governance:**

stepping-in strategies for establishing a multi-stakeholder coordination and oversight governance structure and building performance management capacity in each state

- Develop and test multi-stakeholder governance structures at the state-level such as a standing oversight committee with rotating membership: This committee would be chaired by the Chief Minister and consist of the Health Minister, Minister of AYUSH, Minister of Women and Child Development, Minister of Finance and corresponding Principal Secretaries, Commissioners and senior directors from State Health Authorities as well as representatives from academia, private sector and civil society. The official (government) members will rotate since they are transferred every one or two years. Other non-governmental members from the private sector and civil society will have five-year tenures, ensuring continuity in planning, implementation and monitoring, and lending stability to the governance structure and adherence to health policies and strategies.
- Build state-level capacity for performance management. This entails two actions: (i) implement a

competency-based training programme to strengthen state capacity to manage the health department and collect, analyze and share data on system performance; and (ii) support the development of first step performance management initiatives in each state consisting of setting measurement objectives, constructing a small set of indicators whose measurement can be standardized and feasibly collected, undertaking routine measurement of the indicators, and analyzing and using the data for feedback, and ultimately, improvement. We recommend that the indicators be incorporated into a monitoring dashboard that is disclosed to programmes, providers and the public.

### **Meaningful public-private engagement:**

Stepping-in strategy for establishing a national dialogue to foster effective public-private engagement

- Design a process and organized forum for sustained public-private engagement: A first step would involve issuing a governmental decree and mandate establishing (and funding) a consultation process. The decree can include a mission statement, broad objectives or policy directions, and guidelines for member composition. The decree can mandate an organizational form such as an advisory committee but should refrain from imposing a structure, which should be decided by the participants. Broadly, the committee can consider a secretariat as well as working groups. The secretariat can set agendas, call meetings and determine research and focus areas. Working groups can focus on special themes, oversee information collection and research, and make policy recommendations to the secretariat. The committee may want to consider a set of rules to foster an open dialogue process (e.g. maintaining accurate and transparent meeting records, preparing impartial meeting minutes).
- Prepare a feasible action plan that specifies key activities as well as main outputs of the proposed organizational platform to be produced and subsequently presented to policymakers: It is best to start out with common ground actions such as filling knowledge gaps, including: (i) in-depth analysis of successful and unsuccessful PPPs in India; (ii) mapping of private providers in India, including location, composition, utilization, organizational affiliations and service capacity; and (iii) analysis of Indian and global experience with performance-based contracting and linking payments to performance. Another area of focus could be the development of policies and guidelines, including: (i) PPP policies, including guidelines for standardizing similar types of PPP models (e.g. bidding criteria, performance and quality metrics, pricing, risk transfer and management, contractual clauses, information systems and performance-based contracting); and (ii) policies and guidelines for data exchange such as a common set of indicators that public and private providers will supply to government on a regular basis.

### **Institutionalizing quality measurement and improvement**

Stepping-in strategy for creating a multi-stakeholder National Quality Information and Improvement Commission

- Issue a decree to create the Commission and set its vision and mission, including broad goals: Government can issue a call to for-profit and non-profit organizations inviting their participation in the Commission. Together, selected organizations and government partners will nominate

representatives and set the Commission's technical agenda, including defining activities and products (e.g. assessments, protocols, guidelines, data collection, empanelment criteria, standards) and guiding the implementation of quality measurement and improvement activities.

- Identify specific initiatives that the Commission can undertake from the outset: These can include: (i) developmental quality measurement and improvement policies and strategies<sup>74</sup> and associated guidelines; in other countries, similar commissions have created policies related to the development of quality measures and mandatory quality reporting, as well as guidelines related to evidence-based care standards and clinical guidelines and pathways; and (ii) encourage facilities or networks of facilities to form learning systems to foster a continuous cycle of learning through identifying and measuring quality gaps, testing quality improvement interventions, measuring their impacts and bringing these to scale. The Quality Learning Collaboratives proposed earlier are an example of a learning system.

### **Strengthening facility regulation, monitoring and enforcement**

Stepping-in strategies for expanding consumer voice

- Develop a formal and clearly structured patient complaint and grievance redressal process for hospitals that is introduced into empanelment criteria by purchasers, and eventually can be amended in existing legislation: This effort should be conducted jointly by state regulatory agencies and purchasers. The procedures would address: grievance reception, acknowledgement and registration, investigation, resolution, appeal, contact information (for complaint officer inside purchaser and state regulatory agency), management of documentation and public disclosure of procedures.
- Pilot alternative facility inspection models: These can include contracting out to specialized agencies or forming joint inspection teams with representatives from government, professional associations, private sector and civil society. Results should be publicly disclosed.
- Analyze the lessons learned regarding the implementation of the 2010 Clinical Establishments Act, state establishment legislation and the Consumer Protection Act. This should include review of enablers and disablers, including missing elements (e.g. quality processes, grievance redressal, alternative medicine, commissions and kickback practices, conflicts of interest) and states' capacity to implement (and enforce) these Acts. This will help build up an evidence-base for policymakers to guide the strengthening of regulatory actions.

### **Conclusion**

India's healthcare delivery system is at a crossroads. Considerable investment, experimentation and technological innovation has taken place in the healthcare sector over the last 20 years. Yet the underlying structures, organizational forms and financing mechanisms have not changed dramatically. The result is an inequitable system in which examples of world-class care exist alongside a generally under-resourced, under-performing public system and an unregulated, fragmented private market. This system is characterized by certain public sector and market failures, which available evidence strongly suggests have led to major quality and efficiency shortcomings and high costs at the household and national levels. A

<sup>74</sup>See WHO (2018) for detailed recommendations regarding the content of a quality strategy.

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changing disease burden, rapid urbanization, an ageing population and rising incomes are placing new pressures on an already strained system, threatening its ability to meet stated UHC goals.

Fortunately, India is at an early enough stage of health spending and system development that prudent choices will enable it to redirect its health system along a path of higher value to bridge the gap between the care that is possible and the care people receive. India needs to consider a set of changes to its health system policies and practices, including its organizational and delivery models, to achieve greater value-for-money. Specifically, we recommend transformative innovations to:

- (i) Reorient the healthcare delivery model toward CPHC and coordinated care, which are more appropriate for the changing disease burden
- (ii) Consolidate the provider market under organizational platforms and shift toward “for-market” competition
- (iii) Introduce autonomy-based management arrangements for public providers to raise quality and efficiency
- (iv) Promote relentless quality measurement and improvement, especially at the front lines and
- (v) Foster an enabling environment for whole system governance, meaningful public-private engagement, institutionalization of quality improvement, and effective facility regulation.

These changes cannot occur in a vacuum. Rather, they must coincide with changes in the broader financial, informational and institutional environment, as discussed in other chapters. Specifically, we consider strategic purchasing through capable institutional platforms as well as strengthened digital health platforms and data systems to be key drivers and enablers of our proposed organizational and delivery arrangements.

Change will be a long-term endeavour. A bottom-up approach based on testing and validating scalable demonstration projects is effective, but takes time as well as sustained political commitment, leadership, flexibility and willingness to learn from mistakes. However, these upfront efforts will pay dividends in terms greater health system efficiency, equity and, ultimately, better health outcomes.

Annexure 1

Sample of evidence of quality process breakdowns from micro-studies & reports

Source	Provider Type	Location	Findings
NHSRC, 2016	Not applicable	16 States	-6 of 16 states had developed Standard Operating Procedures for public facilities. -Where they existed, SOPs did not cover all types of public health facilities and/or staff were not well versed in content of SOPs.
IMA, 2013	312 public and private hospitals	4 states and 7 UTs	80% (250 out of 312) of hospitals and nursing homes did not have an infection control committee.
Gaidhane and Syed, 2012	Public, private facilities, immunization clinics	Nation-wide	Of 3 billion annual injections, 2.49 billion given for curative purposes and 1.89 billion were unsafe; private sector contributed 2.1 billion injections to total injections and 1.26 billion to unsafe injections.
UNDP and NIPI, 2014	10 District Hospitals	Madhya Pradesh, Rajasthan, Odisha, Bihar	-For pediatric cases, only 1 DH correctly managed dengue hemorrhagic fever; 3 correctly managed severe complicated malaria; 3 correctly managed measles; 0 correctly diagnosed and managed meningitis.
Sharma et al., 2017	18 public and 8 private hospitals	3 districts in Uttar Pradesh	-Mean percentage of essential clinical care practices completed for each mother-neonate pair during labor and childbirth: 35.7%. -Adjusted quality score 6 percentage points higher in private sector.
Das et al., 2012	Private and public primary care providers	Delhi, rural Madhya Pradesh	Delhi results: Average consultation - 5.4 minutes. Correct diagnosis 21.8 %, correct treatment 45.6%. Adherence to essential care checklist 31.8%. Madhya Pradesh results: Average consultation - 3.6 minutes; Correct treatment protocol followed in 30.4% of cases, unnecessary or harmful treatment prescribed/dispensed in 41.7%. Of standardized patients: 31.2% presenting with unstable angina correctly treated; in 12.3% of dysentery interactions patients prescribed ORS; providers gave unnecessary or harmful treatment in 62.7% of asthma cases.
Mohan et al., 2015	162 public and private ambulatory providers	Bihar	Results from standardized patient study for childhood pneumonia: -Mean number of medications prescribed: 2.2. -Percentage of practitioners who prescribed correct treatment, and no unnecessary or harmful drugs: 13%.
Pathak et al., 2011	17 pharmacies and 5 hospitals (public and private)	Ujjain City (Madhya Pradesh)	Audit of 843 diarrhea prescriptions found: -Only 6 (<1%) had correct treatment (ORS and Zinc) and no harmful or unnecessary treatment. -ORS and Zinc prescribed with other drugs in 22% of prescriptions. -Antibiotics prescribed in 71% of prescriptions.
Moorthi et al., 2011	Public and private	Erode City (Tamil Nadu)	- Inappropriate use of antibiotics: 65.67% antibiotics for simple colds. - Even when warranted, inappropriate antibiotic often chosen.
Parulekar et al., 2009	Tertiary care private hospital	Mumbai	Appropriateness of choice of antibiotic was seen in 68%, timing in 89%, dose in 75% and duration in 63% of cases. Hundred percent compliance to all criteria was observed in 52% of cases. The SSI rate was 3.3%.
Kumar et al., 2008	Public and private, primary and secondary care facilities	Uttar Pradesh (rural and urban)	- High overall antibiotic prescription rate: 81.8%. - Injection use paralleled antibiotic use.
De Costa et al., 2008a	Public PHCs and civil dispensaries	Madhya Pradesh (rural and urban)	- Average no. of prescribed drugs per patient: 2.76. - Percent of consultations prescribed antibiotics: 63.5%. - Percent of consultations given injections: 13.8%. - Generics comprised 48.4% of all prescribed drugs.
Das and Hammer, 2006	Public and private, clinics and hospitals	Delhi	Providers prescribe 2.6 medicines on average per encounter, of which 20% are antibiotics. Private sector prescribes between 0.47 and 0.62 (20% to 25%) more medicines than small public clinics.

### Box 4.1: Short summaries of Comprehensive Primary Healthcare (CPHC) models

Primary care in Brazil: Brazil's Sistema Único de Saúde (SUS, Unified Health System), established in 1988, entitles all Brazilians to comprehensive health services through the public system. SUS centres on an enhanced primary care model – Programa Saúde da Família (PSF, Family Health Programme) – characterized by population empanelment, multi-disciplinary teams, community outreach and standard care protocols.

The PSF has positively impacted the health of low-income communities. Child health has improved through large and sustained reductions in infant and post-neonatal mortality due to diarrhoea and respiratory infections. For adults, expanded access to primary care has led to reductions in hospitalization rates for ambulatory care-sensitive conditions, mortality from cardiovascular and cerebrovascular causes, and diabetic complication rates. Community participation and active outreach have been shown to be effective in identifying untreated patients and engaging these patients in care to avoid the complications of chronic disease.

**Swasth India Medical Centres in Mumbai:** Swasth is a for-profit organization operating a chain of health centres (15 as of 2015) in Mumbai's slums to provide healthcare to the underserved urban poor. Swasth provides what it calls the five "Ds" of healthcare: doctors, drugs, diagnostics, day care and dental treatment. They offer:

- Health prevention and promotion activities through community and school outreach (including through a Community Outreach Programme staffed by one to two trained community health workers per centre)
- Primary care and dental consultations (each centre is staffed by a primary care physician and dentist)
- Specialist consultations (specialists, like a paediatrician, gynaecologist and MD physician, rotate to each centre twice monthly at pre-fixed times, while others, like a general surgeon or ophthalmologist, visit as needed)
- Diagnostics/testing (Swasth's central laboratory processes basic diagnostic tests, while the organization has partnered with nearby facilities to offer advanced services such as X-ray and ultrasound)
- Primary care/emergency drugs : Swasth utilizes standard protocols and referrals, and has digitized patient records that are accessible at all health centres. Swasth's basic hub and spoke model, in which health centres act as hubs – offering care and coordinating referrals – and community outreach workers act as spokes, has reportedly led to high patient satisfaction and lower costs for patient.

Sources: Macinko and Harris (2015); Anant et al. (2014); ACCESS Health International Case Studies (2018); [healthmarketinnovations.org/programme/swasth-health-centres-swasth-foundation](http://healthmarketinnovations.org/programme/swasth-health-centres-swasth-foundation)

**Box 4.2: Case summaries of Comprehensive Primary Healthcare (CPHC) and care coordination models**

**Cambridge Health Alliance (CHA), USA:** CHA is an independent public authority in Massachusetts providing health services to a poor and traditionally under-served population of about 100,000. It is vertically and horizontally integrated, with two acute care hospitals, three emergency rooms, 12 multi-disciplinary primary care sites, psychiatric services and four polyclinics of medical and surgical specialists. CPHC with integrated behavioural health services, known as a Patient-Centred Medical Home, has been evolving at CHA for the past 20 years. All patients are empanelled with a specific physician and her team, who are responsible for the efficiency and quality of care provided to the patient panel. Performance measures are regularly reported. The team participates in quality improvement activities that target specific population-based care metrics. All CHA sites share a common electronic medical record, employ standardized referral and counter-referral procedures, and have shared clinical protocols and quality goals. Further, CHA utilizes case managers and social workers to coordinate care for the most vulnerable patients to avoid gaps in care.

Under CHA's pioneering model, care for chronic disease has improved dramatically. Hospitalizations for complications of diabetes were reduced by over 30 per cent over a period of six years while hospitalizations for childhood asthma were nearly eliminated. This care improvement has enormous clinical benefits for patients, and has yielded substantial cost savings that can be reinvested in health services under CHA's revenue model.

**Johns Hopkins Medicine (JHM), US:** JHM launched a hospital-at-home programme to address the needs of elderly patients at risk for hospital complications. The programme covers conditions with defined treatment protocols (e.g. congestive heart failure, COPD). Specifically, patients sick enough to be hospitalized but stable enough to be treated at home are identified using precise criteria, and asked if they want to enrol. Enrolled patients are assigned a physician and staff who verify that their home is suitable for at-home care. A physician explains the treatment protocol (in person or via video), and then directs clinical staff to deliver appropriate medications, treatments and tests as needed in the home. Patient vitals are monitored via telemedicine equipment, and a caregiver and physicians are on call at all times. The physician communicates daily with the patient (in person or via video). Once the patient recovers, care is transferred to their primary care physician.

Early trials found that at-home care cost 32% less than traditional hospital care, average length of hospital stay hospital shortened by one-third and hospital-related complications dropped significantly. Patient satisfaction was higher for enrolled patients, and rates of subsequent use of medical services/readmissions was the same.

**Merrygold Health Network (MHN):** MHN is a non-profit that operates a social franchising initiative to extend services to the BPL population through a network of contracted providers. It offers services related to reproductive, MNCH and adolescent care, HIV and primary care. MHN was established by Hindustan Latex Family Planning Promotion Trust (HLFPPT) and financed by USAID. HLPFPT is the social franchiser and runs the MHN through a joint venture with the State Innovations in Family Planning Services Project Agency. The three-tiered hub-and-spoke model consists of a coordinated network of contracted providers (franchisees):

- Merrygold (L1) comprises fully franchised facilities at the district level. These are 20 -bed Merrygold hospitals that provide maternal and child health services and emergency obstetric care.
- Merrysilver (L2) are partially franchised facilities located at the sub-district level. The Merrysilver clinics provide basic obstetric care, family planning services, counselling and immunization services.
- MerryTarang (L2) are contracted community workers (ANMs, ASHAs and AYUSH providers) who provide health counselling, condoms, oral contraceptives, oral rehydration salts, and iron and folic acid tablets.

HLFPPT is the organization responsible for selecting, appointing and managing the franchisees; providing training and technical assistance; helping them to access capital and secure licensing; and coordinating care across the three levels. Merrygold employs CPHC and care coordination features, including use of care guidelines, quality protocols and visit checklists; strong community (and patient) engagement; and cross-provider collaboration to ensure effective referrals. HLPFPT benchmarks performance across the network.

Sources: Anant et al. (2014); ACESS Health International Case Studies (2018); Klein (2011); <https://www.challiance.org/>

### Box 4.3: Provider consolidation in the US and New Zealand

The US provider market was highly fragmented in the first half of the 20th century: in 1965, only 10 per cent of physicians belonged to a group practice. Today, just 17 per cent of physician's report being solo practitioners. Increasingly, physicians are consolidating under organizational platforms including hospitals and physician-led management organizations.

Provider consolidation started to pick up in the 1970s due to the rise of institutional purchasers and changing reimbursement practices, which continues today. For example, the US Government created Medicare and Medicaid in 1965, two government-funded programmes financing healthcare services primarily for the elderly and low-income individuals, respectively, through contracted private providers. With the introduction of these programmes, and the ongoing growth of private employer-based insurance, the majority of care was now being paid for by third-party payers. As a result, OOP payments fell from 55.9 per cent of all healthcare costs in 1960 to about 11-12 per cent in 2012.

Around the same time, in response to rising costs, these institutional purchasers began to experiment with new payment and delivery models. The 1970s through early 2000s witnessed the rise of managed care organizations, such as Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), which were responsible for delivery care through networks of providers to a defined population at a prepaid rate. The passage of the Patient Protection and Affordable Care Act in 2010 further encouraged Medicare and Medicaid to experiment with risk-based and population-based contracting arrangements, which private insurers were already doing. For example, insurers are increasingly working with accountable care organizations (ACOs), provider-led organizations that agree to take on financial responsibility for the healthcare cost and quality outcomes of a defined population. The organizations comprise a network of physicians or physicians and hospitals and are usually paid through modified FFS with risk sharing, capitation or global budgets.

Many previously independent providers have chosen to group in order to be competitive for insurance contracts that are increasingly relying on networks of providers, to be able to negotiate contracts and manage claims, and also to have access to increased managerial, administrative and technological capacity to meet insurers' requirements. Further, as the industry shifts toward population-based contracting arrangements (e.g. capitation, global budget), providers have been pressured to join large groups that have the scope to cover the number of patients necessary to participate.

Finally, consolidation of the private insurance market has allowed providers to be better positioned for contract negotiation with insurers. Large employers are increasingly utilizing national health insurance companies. By 2007, four commercial for-profit companies accounted for over 45 per cent of covered individuals in the US. Providers have had to adapt to these changes by banding together to ensure that they get good rates.

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In New Zealand, the impetus for provider consolidation came when, in 1991, the National Party Government announced its intention to establish a purchaser-provider split in the health sector, as well as competitive contracting with hospitals and mental health providers. At this time, private general practitioners (GPs) served low-income patients subsidized by the government on a FFS basis; following the announcement, GPs predicted that the government might try to reform this payment system, possibly through the introduction of primary care contracts. As a result, GPs started to come together to form Independent Practice Associations (IPAs). A 1999 survey revealed that while many GPs were reluctant to join IPAs, they did so to strengthen their ability to win service provision contracts from new purchasers. Peer pressure also played a role, given that many GPs were joining IPAs at this time.

IPAs formed through an informal, bottom-up process, usually on the basis of geography and pre-existing personal relationships. In other words, establishment relied on a few friendly GPs coming together to form an IPA. Success often hinged on a GP (or a few GPs) particularly interested in taking a clinical leadership role. Within the first five years, IPAs consolidated rapidly as they realized larger size provided an advantage in competing for contracts, improving quality, and developing management support services.

In New Zealand, just the anticipation of potential changes in government policy related to healthcare purchasing catalyzed rapid change in the provider market (Government purchasers didn't actually start contracting with IPAs until 1993). By 1999, IPAs were the dominant primary care organizational platform: 67 per cent of GPs were part of one. The New Zealand case illustrates how an external stimulus can lead to relatively rapid market consolidation.

Sources: US: Burns et al. (2013); Kash and Tan (2016); Markovich (2003); Fox and Kongstvedt (2013); Muhlestein and Smith (2016); Center for Healthcare Strategies, Inc. (2016); healthcare Transformation Task Force (2017); N.Z: Thorlby et al., (2012)

### Box 4.4: Summary cases of autonomized public entities and services in India

#### Non-health sector cases

- The Delhi Metro Rail Corporation (DMRC) delivered results because of strong leadership that fought for decision-making autonomy. The government created a legal framework to support DMRC, drafting laws that superseded local municipal laws. From conception, the DMRC managing director was allowed staffing and contracting autonomy (conditions for his accepting the position). He picked his team, hired external consultants, and independently managed operational and capital spending. The DMRC had a board, which was filled with industry specialists. DMRC met all deadlines regarding Metro construction.
- The Indian Railways Catering and Tourism Corporation (IRCTC) operates as a separate “Public Sector Unit” linked to Indian Railways. Established in 1999, IRCTC is responsible for catering, hospitality, tourism, internet ticketing and packaged drinking water. IRCTC has broad operational autonomy to meet targets specified in a Memorandum of Understanding (MOU). Targets are related to financial performance and customer satisfaction. IRCTC is considered a success story, displaying annual net profits and serving on average 1.4 crore passengers daily and booking nearly half of Indian Railway tickets.

#### Health sector cases

- Most publicly incorporated bodies such as the Punjab Health Systems Corporation (PHSC) are essentially run as administrative and budgetary arms of the overseeing government ministry. They remain coupled to government and suffer from political and administrative interference in appointments of key staff, application of rigid government processes for personnel, procurement and budgetary management, fragmented oversight by multiple ministries, diffuse accountability and weak incentives for performance.
- All India Institute of Medical Sciences (AIIMS) is a unique model given its facility-specific legislation, institutional prestige and its proximity to and special relationship with India’s political power centre in Delhi. While not a corporate entity, it was created under a favourable and “hands off” political environment, which enabled it to develop a performance-oriented internal governance and management culture while remaining accountable to government priorities. Such conditions may not exist elsewhere.
- Emergency Management Research Institute (EMRI) provides emergency response ambulance services in 15 states through a PPP model funded mainly by state governments under a contractual arrangement (MoU). The private partner (GVK Foundation) has full autonomy to appoint its own board of directors, recruit and compensate staff, operate its call centres and manage front-line service delivery. Accountability is thus built into a data-centric model. The MoU specifies operational guidelines and established performance benchmarks that are verified via third party-audited operation reports, monthly administrative and finance reports, and quarterly fund utilization reports.

Sources: Duran et al. (2015); Dalberg (2016)

### Annexure 2

#### Data limitations

Finding and accessing reliable, complete data on many aspects of the Indian health system, and the health service delivery system, specifically, for this chapter proved challenging. In many cases the team was required to piece together evidence from available microstudies and reports – often from different years, states and settings – as well as self-reported datasets to provide at least partial evidence on certain aspects of the delivery system. We have noted in this chapter where the evidence is partial or based on small-scale studies and reports, with the knowledge that these findings may not be representative of the entire system. To mitigate this risk, we have attempted to draw on numerous and diverse sources wherever possible to support each argument.

The tables below show specifically the data that were unavailable, incomplete or lacking validation at the time of writing. Unavailable data is information that we could not find after extensive searches; this may mean that it is not collected and/or that it is not made publicly available. We mostly relied on microstudies and small-scale surveys to fill in these gaps, though in some cases even this partial information was absent. Incomplete data includes data that is publicly available but not consolidated in any one place; in most cases, it is available across numerous websites/reports which must be individually searched to extract and synthesize the desired information. Finally, some of the larger publicly available data sets lack validation, meaning that they are not independently assessed for accuracy, leaving them subject to mistakes and/or manipulation.

#### Unavailable data

Desired Data	Alternative Source (s) Used
Private provider market: number of beds, number of physicians, number of establishments	Estimates from industry and periodic national surveys
Hospital efficiency indicators: occupancy rates, bed turnover rates, average length of stay (ALOS) etc.	None
Utilization: data on use of diagnostic services, advanced technologies	None
Clinical outcomes/Quality of care: infection rates, adverse events, preventable deaths, readmission rates,	Partial information from data reported by autonomous public hospitals, data reported by private hospitals and microstudies
Patient satisfaction/feedback	Partial information from microstudies, surveys, and media reports
HRH: absenteeism and dual practice	Partial information from micro-studies and media reports
NCDs: screening, treatment and control	Partial information from surveys, microstudies and estimates

#### Incomplete Data

Desired Data	Alternative Source(s) Used
Number of healthcare associations	Pieced together information from multiple sources, including association websites
Number of healthcare PPPs	Pieced together information from multiple sources

#### Data Lacking Validation

Dataset	Concerns
HMIS data on public facilities	Self-reported by facilities
Rural Health Statistics	Self-reported by facilities

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## Organization and Provision

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**NITI Aayog**

# CHAPTER 5

**Reimagining India's Digital Health Landscape:**

**“Wiring” the Indian Health Sector**

**Dennis Streveler<sup>75</sup> and Pankaj Gupta**

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**Health System for a New India: Building Blocks**

*Potential Pathways to Reform*

November 2019

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<sup>75</sup>With contributions from the Digital Health team at Access Health International, Delhi, and other kind reviewers who made substantial contributions to this work.





### Executive Summary:

The focus of this book is to discuss the considerable opportunities that exist in India for improving its healthcare delivery and finance methods. Regardless of the choices made in these key areas, the operation, execution and management of healthcare delivery and finance require substantial revamping in order to make them modern, transparent, and efficient<sup>76</sup>. While computerization has transformed most every other sector of society, the health sector has remained somewhat impermeable. This may change now given the arrival of new health initiatives (Ayushman Bharat and PM-JAY) which both require modern information systems to be put in place for them to flourish.

### The digital health opportunity

Given these new initiatives, coupled with India's prodigious IT capacity, its success with Digital India which computerized many government services and the ever-expanding telecommunication networks, India now has a unique opportunity to take quantum leaps in its health landscape by leveraging past successes. Digital health could well be the lever that takes the country to the next levels in terms of achieving improved health outcomes.

For successful implementation of digital health in India, however, it is imperative that its technical, financial, and political aspects are clearly understood. It certainly will not happen by magic or wishful thinking. It will no doubt take considerable concentration, time and resources, as well as the coming together of many interest groups who coordinate their efforts and collaborate in the design of digital health. If those forces come together, digital health can precipitate considerable benefits in terms of improved access, equity, efficiency and quality, which themselves are proxy measures for the ultimate goal of improved health outcomes.

### Six pillars for digital health development

In this piece we outline and advocate for “six pillars” of a possible digital health initiative (which has been alternatively be described as HEALTHe India). These pillars involve improved governance of the myriad elements involved, creation of the necessary information standards to articulate a “common language” for interoperability, new and improved information systems for health facilities, a new and improved platform for health insurance payers, the design of a longitudinal electronic health record accessible by both providers and patients, and, finally, the technical infrastructure (or “exoskeleton”) as well as human capacity needed to support all this. These are the interlinked critical features of a suggested new landscape, none of which can be ignored if the “big picture” is to succeed. The power of redesigning the “wiring” of the health sector could lead India closer to achieving Universal Health Coverage (UHC) for all its citizens.

### Five objects for digitizing our messy paper world

Another aspect of this crucial redesign (dare we call it ‘transformation?’) is to replace today's paper-based artefacts with digital ones. These new objects, standardized and used pan-India ideally throughout the public and private health sectors, could become a powerful information stream for managing and streamlining the health sector overall.

The five objects described in this chapter include an **eClaim** which serves as the key electronic document

<sup>76</sup>It is estimated that around 1/3 of every healthcare rupee, dollar and euro, is wasted as a result of repeated diagnostics, expired and unnecessary drugs, and, perhaps most significantly, late diagnosis of patients' illness. Imagine if even only a small percentage of that waste could be eliminated!

for linking providers (sellers of healthcare services) with payers (buyers of those services), the reverse document, an **eProvider Payment**, which transparently and quickly reimburses providers for services rendered, the **eDischarge Summary** and **eEncounter Form** which is a standardized digital summary of what transpired in every hospital stay and outpatient visit, as well as a very important **eReferral** document which is used to initiate, manage and track upward and downward referrals between providers and facilities in the course of a patient's treatment.

### **Roadmap for those who want to begin the journey**

To launch a successful digital health initiative in India, a short-term and long-term road map is described.

### **Further reading of possible interest**

Finally, seven annexures provide more in-depth background on how to deal with standard setting and the creation of the master registries (annexures 1 and 2), information about Hospital Information Systems (annexure 3) and Health Insurance Information Systems (annexure 4), improving HIT capacity in the country (annexure 5), current HIT vendors and systems (annexure 6) and finally a glimpse of the future trends in digital health (annexure 7), particularly focusing on emerging technologies like the harnessing of Artificial Intelligence in medical applications, expanded telemedicine applications, a brief discussion of block chain accounting, and more!

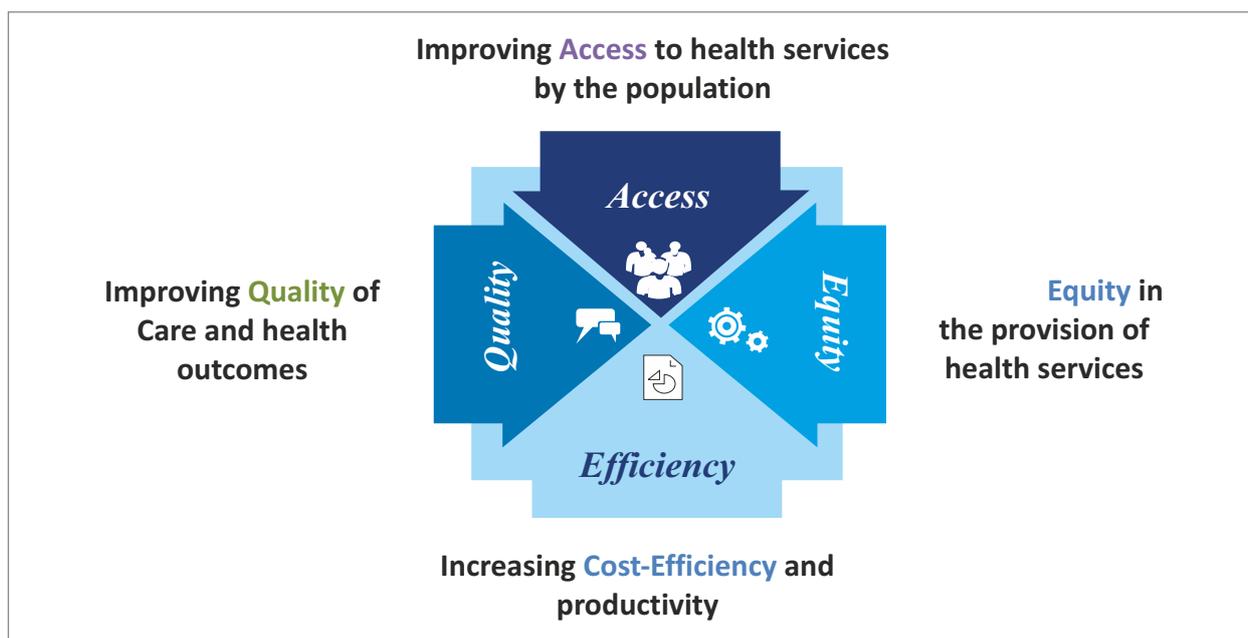
### **Introduction**

Robust information systems, carefully designed and widely deployed among key stakeholders, are prerequisites to almost any significant improvements in the overall health system in India. Unlike in other sectors of the economy, where productivity enhancements and cost-efficiencies have been enjoyed now for some decades, the health sector in India, as in other countries as well, is missing a significant opportunity to embrace technology as an important enabler of improved and more cost-effective healthcare delivery and finance.

With India's prodigious IT capacity, rapid adoption of mobile technologies, and current roll-out of widespread broadband network services even to Tier-3 cities and beyond, it is possible for India to not only catchup in the application of information technology but in fact become a model for digital health adoption.

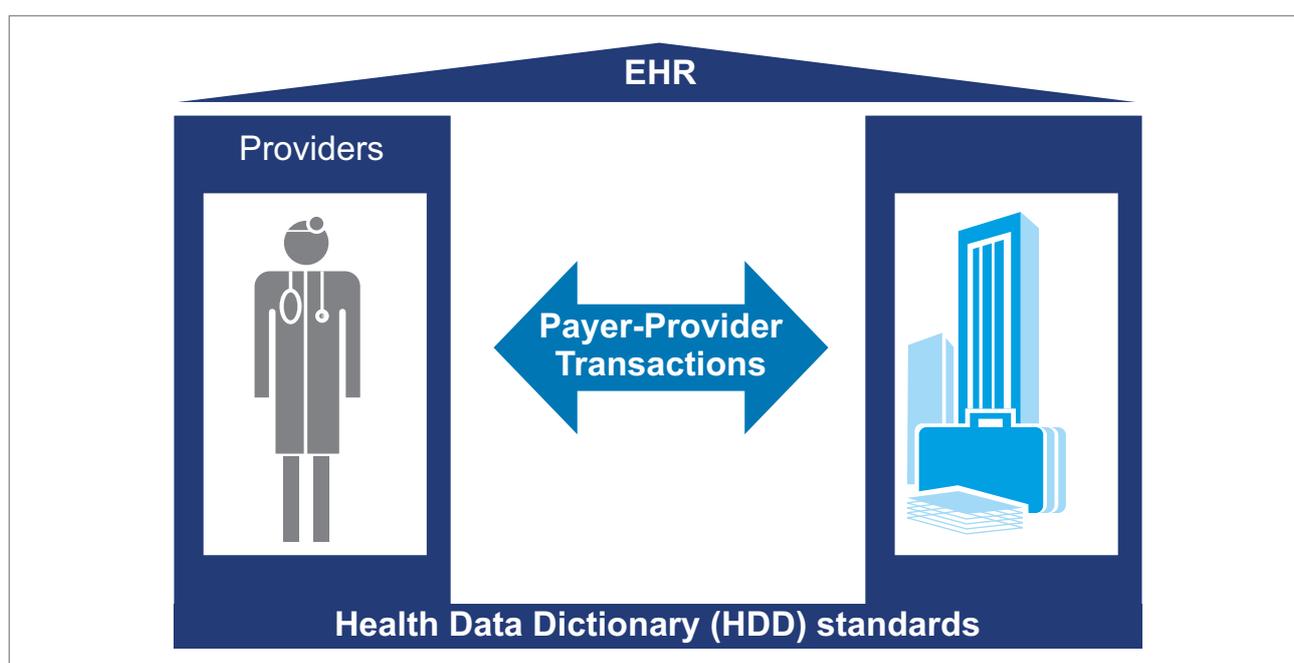
The power of these technical enablers is sure to increase in the future. Given the relatively low spend of GDP for health which India currently applies, the urgency is to be innovative with technologies which can amplify those expenditures and improve access, equity, efficiency of each rupee spent.

Figure 5.1: Digital health improves access, equity, efficiency and quality



Digital health can have an impact on all areas of healthcare delivery across both public and private health sectors. It can impact all levels of care from the smallest PHC (Primary Health Centre) and H&WC (Health and Wellness Centre) to district hospitals to the largest quaternary academic hospitals. It should ideally reach all pharmacies and diagnostic centres<sup>77</sup>. It would connect the requisite health providers as well as finance agents and institutions such as those who oversee the flow-of-funds used to finance health expenditures, including public and private health insurers and their designated TPAs (Third-Party Administrators).

Figure 5.2: Wiring the health sector enterprise



<sup>77</sup>Yes, this an ambitious goal for sure in a country of the size and complexity of India! But it is possible.

### Key issues and insights

The challenge, especially in a country of the size and complexity of India, is to know where to begin, what resources would be needed, and how best to marshal and harmonize all the necessary pieces (namely hardware, software, middleware, cloud technology, mobile technology, cyber security, network services, and many more) into an integrated, unified strategy for implementing digital health. This challenge is made more daunting given the federal nature of the country, requiring consensus and cooperation among all levels of government. It will not be possible to dictate from the central level what these systems should look like, nor will states alone be able to fashion a national lattice of these systems without central leadership. To be successful, digital health needs the cooperation and active participation of everyone involved.

**Besides these more generic challenges, there are specific issues which confront us:**

1. **Patients must be uniquely identified** either through Aadhaar and/or a unique patient identifier (often referred to as a UPID = Unique Patient Identifier) so that medical services and their resulting insurance claims can unambiguously identify the recipient of services. By linking these longitudinal health records, India will be able to fashion national “dashboards” to help assess utilization and quality measures as well as promote continuity-of-care.<sup>78</sup>
2. **Computers require coded data for analysis.** Health facilities, doctors (“providers of care”), nurses, other health professionals, different types of diagnosis, medical services, medications/drugs, medical supplies, medical specialties, and others, must be coded into master tables, otherwise known as ‘registries’. These registries and tables need to be secure, regularly updated and shared.
3. **Currently digital health is largely undeveloped.** With a few exceptions, little computerization is in place in the public health sector, especially at PHCs and HWCs, but even in the nation’s largest public hospitals. It is questionable whether there are existing systems upon which an integrated next-generation health information system can be built. And of the systems which do exist, most in use today are standalone “one-of-a-kind” systems which have been custom built for a unique healthcare setting<sup>79</sup>. The same appears to be true with existing health finance systems. This is both good and bad news. Bad news because there are few precedents upon which to build further; good news because there is less to disassemble or cast away as India moves to the next level of technological achievement. An example is the eHospital initiative, from the National Information Centre, which has not gained adequate traction after ten years of deployment. Given the usual lifecycle of systems, ten years is a long time and it is safe to assume that the eHospital design may already be quite near the end of its useful life. Therefore, it must be assessed whether eHospital is robust, comprehensive, modern and sustainable/supportable enough as a key element of infrastructure for public hospitals in India. The same is true of eSushrud, a hospital information system offered to public hospitals by the Centre for Development of Advanced Computing (CDAC), which after a similar period of time has fewer than 100 hospital implementations.
4. **Digital health’s goals of reaching as many stakeholders** as possible is exacerbated by the fact that healthcare delivery itself is highly fragmented yielding a large number of small facilities with

<sup>78</sup>While Aadhaar has made significant progress in implementing a NID (national identification) for Indian citizens, it still faces some unique challenges in identifying minors and in identifying some groups of non-citizens. The current privacy debates which are taking place around the world also offer some resistance to the acceptance of Aadhaar as the unique identifier in India. And in India, recent Supreme Court decisions may have made it more difficult to rely on Aadhaar to provide the UPID (universal patient identification) which will be needed.

<sup>79</sup>These legacy systems are often referred to as “one-off” systems. The value of technology is to design ONE system and use it many times.

pooreconomies of scale and with limited technological capacity at the facility level. India's 9 lakh doctors are concentrated in four metro areas, most of the remainder in Tier-1 and Tier-2 cities. There are about 65,000 drug stockists and almost a million retail pharmacies. If there was less fragmentation of these elements, there would be fewer 'points of presence' thereby making the task of 'wiring' the health sector easier and cheaper.

5. **The health information technology industry in India does not appear to have dominant HIT (Health IT) vendors or entrepreneurs.** The advantage of having dominant players in a marketplace is that they are more likely to be adequately capitalized, thus being able to finance continual innovation as well as provide crucial ongoing competent support to clients for maintaining smooth operations. Competent training and retraining as well as trouble-shooting capabilities are essential. Technology has already taken its toll on the hospital information systems market. Large HIS vendors have exited the market. They have either lost interest in the Indian marketplace or have been unable to make the necessary investments to succeed in this market. Without these investments they have apparently not been able to keep up with the latest technological changes sweeping the world – the use of the cloud, a robust adoption of mobile technologies, “big data” analytics, the introduction of genomic data, the use of Artificial Intelligence methods to augment clinicians' knowledge, and many more trends which descend upon us daily. If we compare this profile with global experience, it would appear that this market is now ripe for complete disruption! The emergence in the marketplace of a few large well-capitalized players can lead to new intense 'innovative competition' and 'coopetition' which could rapidly push ahead the state-of-the-art and can lead to de facto standards-setting as their market share increases. (See Annexure 6 for a list of vendors.)
6. **The current lack of information standards** makes inter-operability and the exchange of business transactions among stakeholders almost impossible, and directly impedes the functioning of a few oiled referral mechanisms between levels of care. India has witnessed several attempts at producing nationwide information standards for health, but none has been satisfying or effective to-date. The notable attempts, such as the MOHFW's “EHR standards” and its “Meta Data and Data Standards for Health (MDDS)” have not yet gained traction. This is likely because they perhaps require additional consultations with stakeholders,<sup>80</sup> especially those at the state-level.<sup>81</sup> The next push towards agreement on these information standards needs to produce unambiguous, proscriptive information standards so that new compliant systems can be certified to following these standards and thus are able to “plug into” the Indian health ecosystem. If such adequate standards do not emerge, adjudicating claims, transmitting eReferrals between institutions as well as collecting and analysing health data for utilization and quality of care will remain challenging.
7. **Fashioning a transition plan** from the current status-quo to a more advanced digital health platform will be challenging. Where certain states have developed and are rightfully proud of their progress in digital health, every attempt should be made to preserve their investment and initiative. While some backtracking is inevitable (“three steps forward, one step backward”) a clever implementation plan will need to avoid unnecessary disruptions. A key principle of moving forward with digital health must be to preserve as much as possible previous investments in information system development at both the central and state-levels.

<sup>80</sup>Stakeholders must OWN the standards. They must have the assurance that the standards are THEIRS and not created externally by those who may not fully appreciate the nuances or implications of the standards. This consensus building can be time consuming but necessary to the ultimate success of a standards-setting effort.

<sup>81</sup>We must always appreciate the fact that India is a federal nation where health has been devolved to states, which retain significant responsibility for the functioning of the country's health sector.

### Why emphasize digital health now?

Digital health is a potent lever for improving the health system. It is said that “health is an information-intensive industry” perhaps more intense than any other enterprise. Patient flows, doctor workflows, care plans, medication and supply flows, appointments/admissions/ discharges, diagnostic results all generate crucial information flows. These are at the core of the information processes in health. Putting order into these transactions could strongly influence the ability of healthcare workers to deliver quality care while minimizing inconvenience and annoyance to patients. In recent years, the financial sector has turned to online banking and ATMs, and airlines have enabled web-based ticketing providing automated kiosks. In a similar manner, the health industry can deploy analogous services if the infrastructure and necessary ‘wiring’ are put in place. In fact, some of these capabilities would spring up spontaneously if the infrastructure is in place.

India faces a multitude of challenges, the fiscal space remains limited, there is a shortage of providers, and the population continues to grow but digital health can go a long way in helping solve these burgeoning problems. This comes at a time when the IT capacity of the country remains strong, and India’s fast-advancing economy may tempt many in the Indian diaspora to return home which could further improve capacity and accelerate technical change. We live in an era when technology costs continue to deflate at a rather rapid rate, especially that of mobile devices and network access, thus making digital health ever more affordable and attainable.

However, the lead-time for digital health projects is long, therefore, time is of the essence. Complex systems design projects take time as does building the necessary consensus among stakeholders in order to proceed with implementation. As India ponders what its revamped healthcare delivery and new health finance regimes might look like, it would be wise to accelerate work on digital health now, as the resulting no-regret moves will be applicable to almost any imaginable path that India might take in the future.

### Current important developments which impact digital health

In recent times, two major initiatives have appeared which have great implications for digital health in India - Ayushman Bharat and PM-JAY. In the Union Budget 2018, the Finance Minister made several announcements related to health. These included launching the world’s largest insurance programme to provide coverage to 50 crore Indians and the creation of 1.5 lakh Health and Wellness centres. While the ambitious plan was greeted with much scepticism by many, it is, arguably, the largest healthcare reform ever undertaken globally and demonstrates the government’s increased willingness to take a holistic look at healthcare as a crucial topic in India’s development. This emphasis nicely complements the ongoing digital India initiatives. The implications of these initiatives for digital health are many:

1. PM-JAY, the insurance component of Ayushman Bharat (AB) will necessitate good communication between providers (both public and private) and payers (both public and private) in order to facilitate prompt and fair provider payments. This of course will require modern information technology to communicate and process these transactions. Furthermore, it will encourage cooperation between the public and private sector, coordination of their services for the benefit of both sectors and, most importantly, for the benefit of patients, as both sectors increasingly participate in the programme. In fact, 68% of AB beneficiaries (as of mid-November

2018) were treated by private hospitals. Just as encouraging is the news that 14,973 Hospitals have already been empanelled or are in process of being empanelled in the programme.

2. The fear of fraud and abuse will drive adoption of evermore sophisticated fraud detection algorithms. Insurance programmes, even in economically advanced countries, are plagued with fraud<sup>82</sup>; which has been estimated to vary from 2 per cent to as much as 40 per cent of claim amounts. Though current data is not available for India, one can surmise that its insurance schemes are similarly losing a large chunk of money to fraudsters. With Ayushman Bharat expanding the scope of health insurance greatly, the risk of real monetary loss to the nation has thus jumped significantly. Just as the dramatic expansion of the pool of insured people has opened up the possibility of many innovative business models in the healthcare space, it could also sharply increase the opportunities of malevolent individuals to defraud the government. The best defence against insurance fraud is a modern HIIS (see Pillar 4, Health Insurance Information System) which can recognize patterns of treatment and analyse utilization of resources<sup>83</sup> by provider, facility, medical specialty, geographic region, patient demographics, etc.
3. Digital health may be able to help improve the productivity of physicians as one way of mitigating India's perennial shortage of doctors. Once foundational information systems are in place in facilities (see Pillar 3 below) it will be possible to continue to develop them to include sophisticated AI (Artificial Intelligence)<sup>84</sup> routines and thereby increase the use of Clinical Decision-Support Systems (CDSS) capabilities to aid the physician in many of his/her clinical tasks. The impact in far-flung, underserved areas may be particularly helpful.
4. Other plans, both national and state-sponsored, as well as private insurance programmes are also expected to grow rapidly in coming years. Despite the success of Ayushman Bharat and PM-JAY reaching almost 40 per cent of Indians there remain many who are uninsured or poorly insured. Such individuals often face financial ruin should accident or disease strike them or their families. As India's economy continues to grow, more and more people will seek relief from this worry and are likely to choose from a selection of programmes (both public and private) which meet their needs and budgets. Supporting these plans with a modern HIIS, or perhaps we should term it an HIIP (Health Insurance Information Platform) would provide untold new economies-of-scale which could help these plans run more efficiently and more easily introduce innovative benefit plans for their target beneficiaries.

### The proposal for a National Health Stack (NHS)

Offered by a dedicated group of India's best computer scientists, and adopted by NITI Aayog in 2018, the National Health Stack is an important contribution to the progress of Digital Health. The NHS sprang up based on the success of the previous Aadhaar (NID) initiative. The NHS is designed to offer a suite of advanced technologies which can be incorporated into overall digital health implementation in India. The availability of these "plug-in" modules will simplify and accelerate progress in implementing digital health in facilities and for health payers. The National Health Stack will facilitate collection of comprehensive healthcare data across the country. The focus of this work will allow policymakers to experiment with policies, detect fraud in health insurance, measure outcomes and move towards smart policy making. It will also engage market players (NGOs, researchers, and watchdog organizations) to innovate and build

<sup>82</sup>It is not unusual to hear of so-called ghost patients, ghost procedures, ghost doctors, even ghost facilities which plague many health insurance programmes around the world.

<sup>83</sup>For example, the global Caesarean Section (C-section) rate is well known. Likewise, the incidence of most diseases is also well known, as is the need for surgery, for example cataract surgery requirements can be calculated based on a few parameters (age, diabetes prevalence, exposure to UV radiation, etc.)

<sup>84</sup>It is with some reluctance that we use the term "Artificial Intelligence" which sprung from computer science usage in the 1960s. A more apt term perhaps is "Augmented Intelligence" to connote the ongoing important contribution of healthcare professionals while augmenting their memory and decision-making abilities.

## Digital Health

relevant services on top of these building blocks.

### NHS components

The most significant components of the NHS are: **The National Health Resource Registry (NHRR)**, one of the crucial normalized National Health Registries which will be needed. This Registry will include information on each health facility in India. The National Health Registries are designed to manage the “master health data of the nation” in a way that multiple applications can gain access without having to create their own table.

**Claims and coverage platform** to support a variety of health insurance programmes at the national and state-levels. Notably this platform is to include “a sophisticated fraud-detection engine with inputs from a large pool of claims data”.

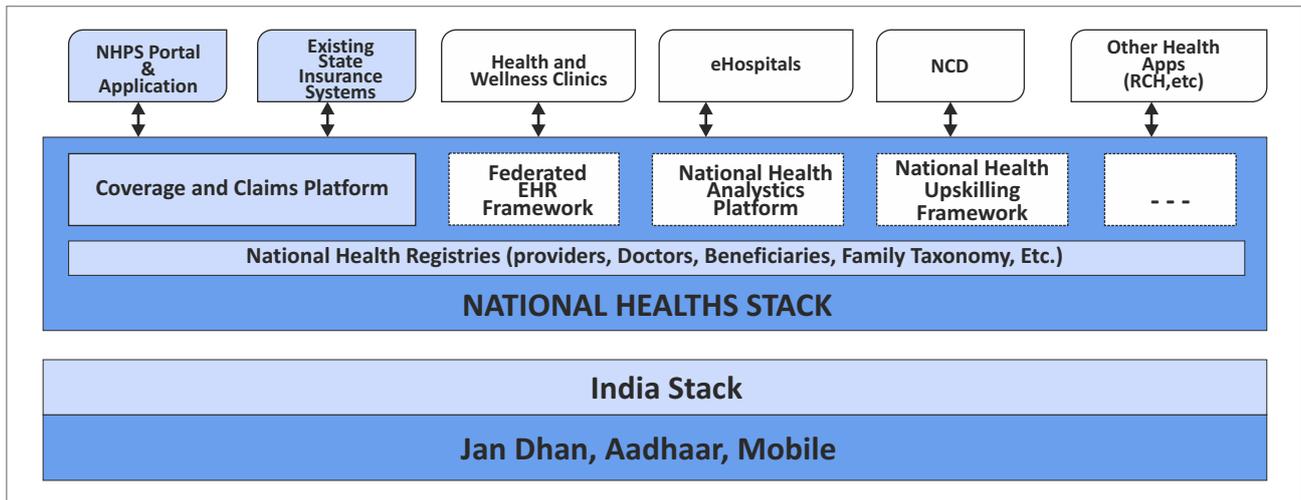
A **Personal Health Records (PHR)** framework to solve the twin challenges of access to their own health data by patients and availability of health data for medical research, critical for advancing our understanding of human health;

A **national health analytics platform** by combining information on multiple health initiatives and feed in into smart policy making, for instance, through improved predictive analytics.

This “stack” is likely to continue to grow and add more horizontal components later.

### NHS Schematic View<sup>85</sup>

Figure 5.3: The architecture of the National Health Stack



<sup>85</sup>India Stack is an earlier initiative of eGovernment (MeitY) upon which this National Health Stack (NHS) sits.

## The six pillars of digital health:

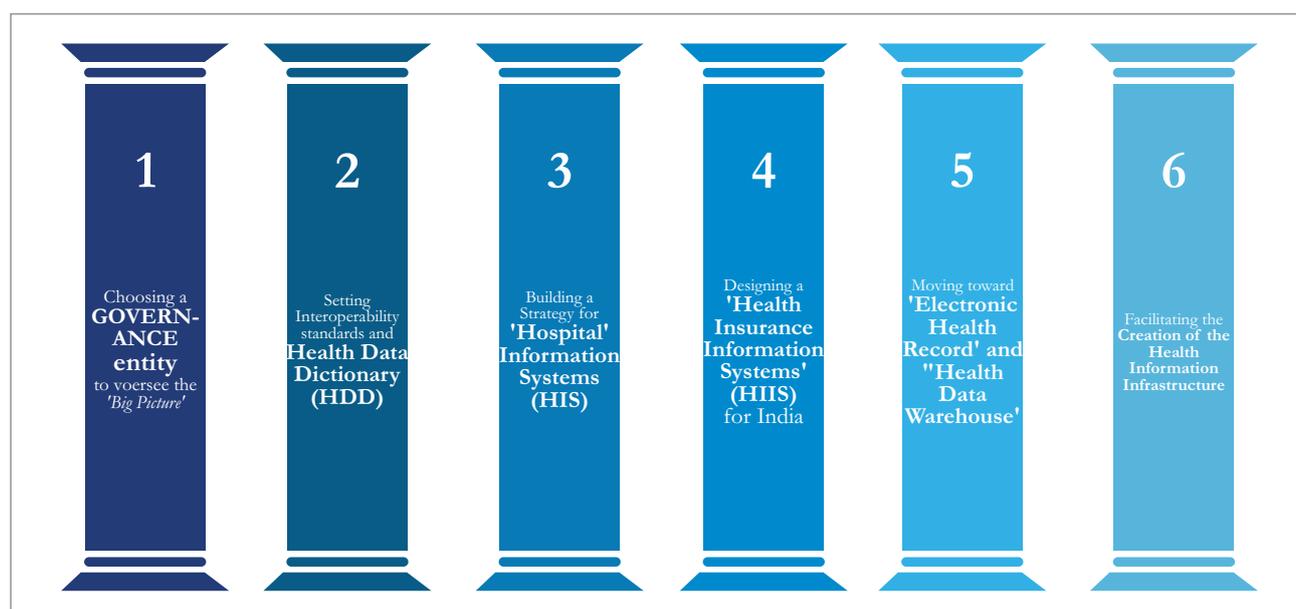
### A vision for digital health in India

To achieve India's aspirations for Universal Health Coverage (UHC), over time the health industry with all its diverse stakeholders will need to be “rewired”, that is interconnected digitally in whole new ways. This will enable everyone in the health sector (patients, providers, payers and governments) to be linked digitally. It will streamline operations as well as allow information about the patient to be accessed where needed, when needed, as needed, with privacy and confidentiality maintained. It will power business transactions linking the providers of service (the “sellers”) with the payers of care (“the buyers”).

As an important by-product, the data produced by these systems can provide a valuable stream of information which can be analysed to assess the overall performance of the health system. To fine-tune its components and put resources where they are needed, and, most importantly, to provide empirical analysis of quality and efficacy.

And, given the times in which we live, we can apply innovation, thus leapfrogging existing modalities wherever possible – creatively using mobile technologies, telemedicine applications, cloud-based technologies, and employing Artificial Intelligence techniques to their fullest advantage.

**Figure 5.4: The digital health world**



These are the proposed six interlocking pillars of a proposed digital health initiative. Each pillar adds strength and synergy to the others. Establishment and integration of these “pillars” within the health sector. Each pillar adds strength and synergy to the others. Each pillar communicates and interacts with the others. Each pillar becomes vital and, over time, must be addressed. Ignoring any one of these pillars would reduce the stability and likely success of the overall initiative. Together they enable India to build a new, more modern health information system.

### Pillar One: Governance

1

Choosing a  
**GOVERN-  
ANCE**  
entity  
to oversee the  
'Big Picture'

The effective management and oversight of the digital health initiative is crucial. Digital health requires a large number of technical elements to work efficiently together. Some of the technical elements are hardware, software, cloud technology, network control centre, standards compliance and enforcement, implementation of the road map, certified training and upgradation of skills, establishing a help desk, maintenance as well as making a provision for the regular upgradation of Technology and skills.

The non-technical elements of this governance include creating an innovative environment and culture, to encourage HIT (Health Information technology vendors) to build compliant systems for the marketplace, to continually update the standards as needed, and helping to change mindsets by training, advocating and assisting the change agents within the health industry.

Equally critical would be the responsibilities of the management in co-ordination, overseeing implementation, the procurement process and enforcement of standards. As part of the latest National Health Policy, the National Digital Health Authority (NDHA) is suggested to be the focus of this governance. Setting up its mission, objectives and organizational structure will be an important first step in beginning to create an environment in which this governance body can work effectively. More recently, there are proposals for a National Digital Health Mission (NDHM) as the executing body for these governance changes. At the time of publishing, the details of the NDHM were undergoing revisions.

### Pillar Two: Health Data Dictionary (HDD) and Master Registries

2

Setting  
Interoperability  
standards and  
**Health  
Data  
Dictionary  
(HDD)**

Computer systems must speak a 'common language' in order to efficiently process information across an enterprise<sup>86</sup>. In our case the enterprise involved is the whole of the health sector – all facilities and payers across the private and public sectors. And, of course let us not forget the patient/beneficiary as a key stakeholder in patient-centred care! The Health Data Dictionary is a collection of those standards which together define this common language which, in technical terms, fosters “interoperability”, and in non-technical terms, becomes a way for all stakeholders to communicate digitally with one another!<sup>87</sup>

The HDD process includes: Unique Patient Identifier, a universal coding syntax, and semantics of each medical reference used. It will also contain formats for eClaims and eDischarge Summaries. It will also validate standards of all those who have access to the system. It will periodically be updated to reflect changes in medical practice and also disseminate the information.

For more information regarding the steps in managing an HDD refer to Annexure 2.

<sup>86</sup>Can systems be created without creating these standards? Interface engines can help in 'translation' and mapping from one language to another but, just as in natural language translation, these translations are often imprecise. In some instances, there is no good translation possible or perhaps there are multiple translations possible (one-to-many mapping) which only adds its own ambiguity to the result.

<sup>87</sup>This is not so unlike how other events have happened in the world. Social media, for example, has linked certain groups of stakeholders and business partners together! Somehow the health sector has remained immune to accepting a more modern method of communication which banks, airlines and almost everybody else has heartily embraced many years ago!

The only successful way to fashion an HDD is to work collegially with all stakeholders who will ultimately ‘own’ the standards they fashion. Stakeholders must see the value in having common standards and thus must be actively involved in creating them. Gleaning characteristics of already existing standards to incorporate them in the new system will help minimise disruption and assure that it is a system appropriate for the Indian context.

Standards are only useful if they are actively and consistently used. The governance body will have to strive for adoption even when faced with reluctant users. In some countries (e.g. Canada) a certifying body determines which systems are compliant with applicable standards and are therefore allowed to actively market in certain provinces. In some countries the payer(s) have a great deal of influence by saying that they will not accept claims (eClaims) and other transactions from providers unless they follow the standards. The adoption of new standards may require upgradation of existing systems to comply with the new standards. All attempts should be made to minimize this disruption and minimize the expense incurred for this process. This will ease the process of adding newer systems on it later.

### **Master Registries for health**

Besides the standards themselves, a set of Master Registries for health will be needed to make certain there is ONE authoritative and up-to-date UNIQUE reference which all applications can utilize when referring to patients, providers, facilities, and geographical locations. The task of maintaining, disseminating, negotiating changes, updating, etc. is an ongoing task. These Master Registries are created once and updated periodically to reflect the prevalent conditions and reality.

### **Master Tables for health**

Beside these Master Registries, a set of Master Tables<sup>88</sup> will be needed listing diagnoses codes, medical service codes, package codes, drug codes and medical supply codes. These are discussed in more detail in Annexure 2.

### **Providing an exoskeleton for digital health**

Once a consensus is reached and the standards, registries and tables are validated, they together become a type of “exoskeleton” for digital health in India. Vendors, institutions, or open source developer groups can consider these as an “exoskeleton” provided by the government to assure maximum efficiency as well as interoperability of the collection, management and availability of health information in the country.

## **Pillar Three: Building a strategy for Hospital Information Systems (HIS) for ALL facilities, both public and private**

In any modern health facility, ‘Hospital’<sup>89</sup> Information Systems (HIS) serve many purposes:

- Their first and primary task is to aid in effectively managing the facility clinically, administratively and financially. They promote seamless communication with other institutions for eReferrals as well as the sharing of diagnostic results and patient history for those using services at multiple facilities, thus helping to assure continuity-of-care. They calculate and present “dashboards” for the management to

<sup>88</sup>Master Tables provide the look-up takes needed to categorize and organize various aspects of patient flow. They differ from Master Registries in that they do not contain dynamic, sensitive information. Their size also may differ greatly. A provider registry (a Master Registry) might have 1 crore rows, while a simple look-up table might have only 20 rows!

<sup>89</sup>For brevity we use the word ‘hospital’ to mean any healthcare facility regardless of size or complexity. We mean all facilities, from primary to quaternary level, as well as freestanding pharmacies, diagnostic centres, dialysis centres, supply chain depots and the like.

### 3

#### Building a Strategy for 'Hospital' Information Systems (HIS)

- optimize service and fashion incentives based on productivity and quality measures.
- They communicate with health payers to transmit eClaims and receive eProvider Payments.
  - They assemble and collate outputs which will ultimately form the basis of the Electronic Health Record [EHR] and Personal Health Record [PHR]. This includes eDischarge Summary objects, diagnostic results, clinical reports, etc.
  - They gather statistics for the appropriate authorities to allow calculation of burden of disease, provide epidemiological data, monitor for incipient epidemics and compare outcomes across facilities. They also play a vital role in providing epidemiological, utilization and quality data for analysis and action.
  - Last but certainly not the least, in a new health finance environment, these systems create claims (eClaims) to be sent to the appropriate health payer from information generated by the HIS which is sufficient for assuring that adequate and fair payments are made in consideration of the services rendered. Once the eProvider Payments are received, a HIS applies those payments as appropriate to the patients' account. Thus, the modern HIS plays an important role in accounting for funds throughout the facility.

Different sized institutions, those at different levels of care, and those operating within different geo-economic realities will need systems which are appropriate to them. One size will not fit all! The goal here is NOT to produce one system for all facilities but rather systems at different price points and varying levels of functional complexity as appropriate.<sup>90</sup> The support structure will thus also vary depending on the sophistication of each system and the technical capacity of the institution to operate it<sup>91</sup>.

The health information technology [HIT] sector will need to be encouraged to develop systems to meet their specific needs, but all should be based on the common Health Data Dictionary standards so they will be interoperable and thus able to communicate with each other.

To assure their compatibility of the systems in the marketplace, the governance body {See Pillar One} will certify that the newly developed systems (or any retrofitted legacy systems) comply with the agreed-to interoperability standards.

### Levels of Hospital Information System complexity

An HIS can be thought to have several levels. The simplest (and most foundational) of these can be considered the “hoteling” level (Level 1 below) which models a health facility as if it were a hotel: patients arrive, are assigned a bed, get some services and ultimately go home. This level requires a minimum of computer devices and reliability<sup>92</sup> is not as important as backup systems (for when there is a power failure, or a computer failure, or a network failure) are easier to construct and use while waiting for services to be restored. Training also can be restricted to a relatively small number of people, with few clinicians or other

<sup>90</sup>Price points and affordability may be reasons for why the existing HIT environment has functioned poorly. One way to assure affordability is to create an environment where the same system is sold many times and supported across clients.

<sup>91</sup>Presumably computer literacy and general capacity will vary depending on the level, size and geographic location of the facility.

<sup>92</sup>Reliability follows the so-called “law of nines”:

Level 1 requires 99% reliability (uptime) (“two nines”)

Level 2 requires 99.9% reliability (“three nines”)

Level 3 requires 99.99% reliability (“four nines”)

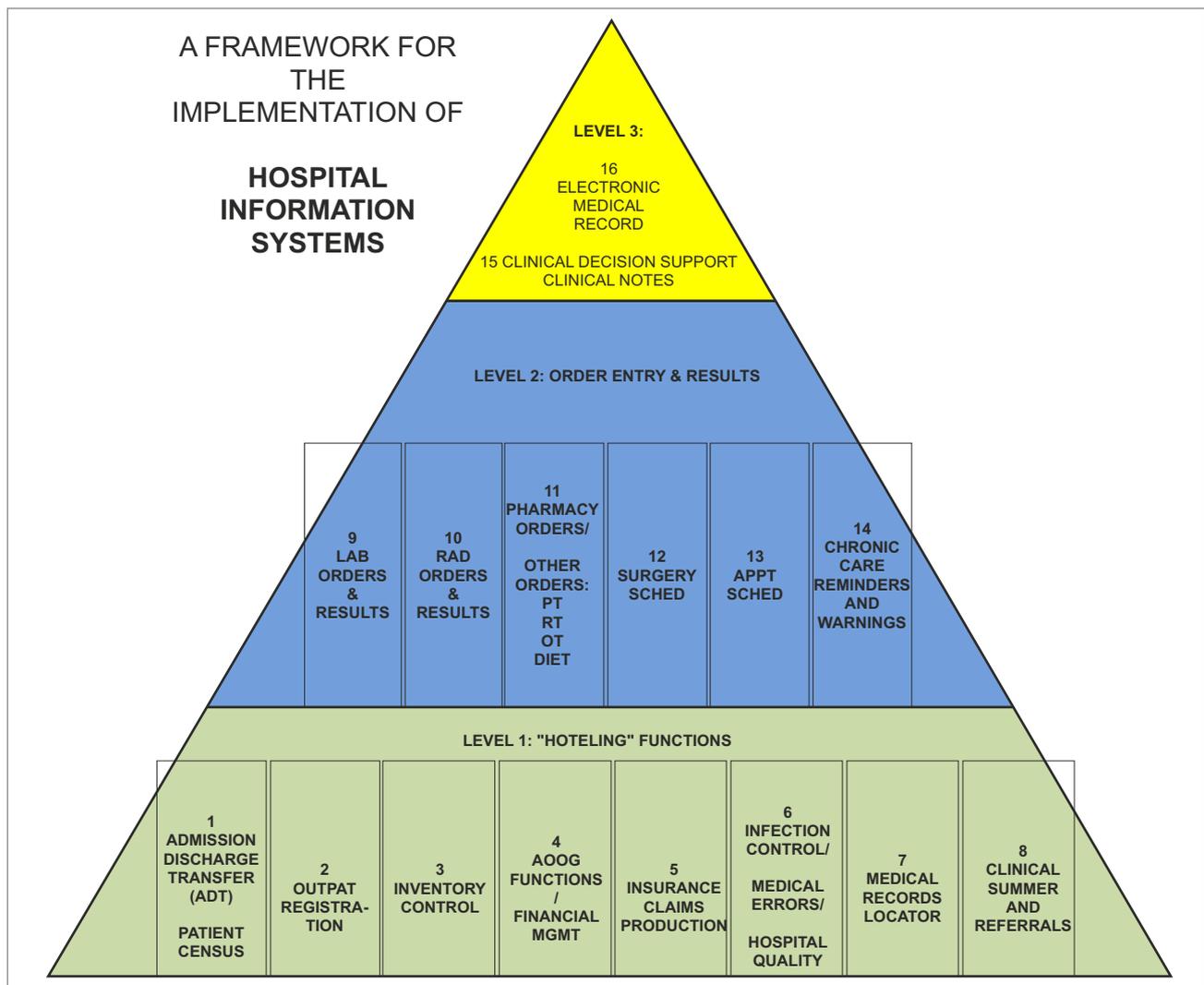
clinical professionals being required to run this application level.

Level 2, the clinical level is the first level where clinical information itself is entered (either directly by a clinician or by a surrogate). Much higher reliability of services is required and the speed of response of the system becomes more critical.

Level 3, in which the HIS plays an integral role in healthcare delivery itself, utilizing the latest advanced techniques in assistance to the clinician in pre-diagnosis, perhaps prescription writing choices, perhaps in generating alerts and warnings regarding contraindications, etc. In this case clinicians may become highly dependent on the availability of services thus near-perfect reliability will be needed, training will be crucial and concerns about liability incurred stemming from the misuse of “advice” are some of the issues which systems of this sophistication will encounter.

As one progresses through the various levels of complexity, the number of user devices needed, the transaction load on the system, the need for consistent and reliable operations becomes ever more “mission critical”.

**Figure 5.5: This framework shows modules which are typically found in ascending levels of sophistication and the HIS systems design.**



**Pillar Four: Health Insurance Information Systems [HIIS] for health payers**

4

Designing a 'Health Insurance Systems' (HIIS) for India

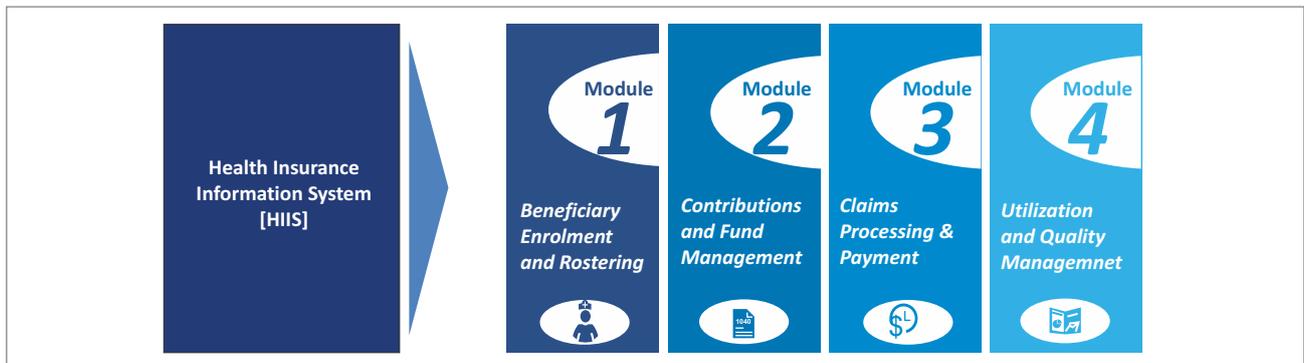
Just as all providers (health facilities) need competent systems to help them run their clinical enterprise, so do health payers. The role and responsibilities of payers will surely increase as they become ever more important partners in health. Payers will be charged with maintaining the sustainability of the fund(s) they manage, collecting any residual amounts like co-pays and deductibles which may be owed. They also be responsible for adjudicating claims fairly and in a timely manner, making fair and timely provider payments while thwarting fraud and abuse, and clamping down on unnecessary medical procedures, diagnostic tests and prescriptions. In order to process claims, remit payments, and help the government to encourage quality service delivery among its empanelled providers, the payers will need a sophisticated HIIS!<sup>93</sup>.

Advanced adjudication techniques can speed up the settlement process. The National Health Stack activity is contributing a great deal of useful information about how developers of the HIIS can apply the latest in Artificial Intelligence, cybersecurity, and fraud-detection capabilities, but much remains to be done. An interoperable and standards-based HIIS is clearly in the best interest of both providers and payers since presumably a streamlined payment process means quicker, more accurate and timelier<sup>94</sup> payments. The case for a Health Insurance Information Platform (HIIP) to support multiple insurance plans Finally, it may be possible to fashion a universal, cloud-based HIIS platform (we will refer to this generalized system as the HIIP) to support multiple health insurance plans whether operating at the national and state-levels and with different benefit plans and adjudication rules. Having such a platform would assure easier portability of beneficiary information (should beneficiaries change plans or have multiple coverages) and also assure a standard format used by providers to submit claims (eClaims). This standardization can provide huge benefits both to providers (who wouldn't have to deal with a huge number of conflicting forms and formats) and for payers (who simplify their adjudication process and also likely enjoy improved accuracy from providers who only have to know how to fill out the standard form.)

**The main functions of a modern HIIS/HIIP**

**Figure 5.6: The main modules of a modern HIIS**

A more detailed discussion on each of these functions of a modern HIIS can be found in Annexure 4.



<sup>93</sup>One can predict that daywhen payer systems in India will likely be among the largest and most sophisticated information systems in the country, larger than even the biggest banks or the most sophisticated airlines, or the tax collection systems.

<sup>94</sup>We hope that one-day settlement will happen almost instantaneously. Why not? Would any bank customer be happy if the ATM transaction concluded with the system telling them “come back next week for your cash”? Why does it have to be any different for the health insurance industry? Of course, much remains to be done to reach this kind of nirvana, but clearly it is the direction in which we should be heading.

## 5

Moving toward  
'Electronic  
Health  
Record' and  
"Health  
Data  
Warehouse'

### Pillar Five: Anywhere, anytime records for clinicians (Electronic Health Records [EHR]) and for patients (Personal Health Records [PHR])

The nineteenth century process of scribbling health notes, putting them in a folder, storing the papers in the medical records area, and hoping to find/read/act on them in the future obviously must change. Medical records are routinely lost, misfiled and moved. They are often faded, bug-eaten, water-damaged or otherwise compromised. If the patient is the custodian of the papers, s/he is likely to misplace them. In the best of all scenarios, even if none of the above tragedies occurs, the medical records are often illegible and hard to interpret.

Digital records (EHR as well as PHR) are largely a collection of information which is collected from other digital sources – digital diagnostic results, physician orders from placed using the Hospital Information System, digital outputs from those same systems (discharge summaries, A&E reports, L&D reports, OR reports, anaesthesia records, progress notes and on and on). While some of these can be scanned as a way of transitioning from the paper era to the digital era, ultimately native digital records are clearly the way to go in order to make them conformable and analysable since they are

natively computer-readable.

As India moves toward the digital health record era it is important to understand the sequence of events which can best lead to the desired result of producing digital records for both the caregiver (EHR) and for the patient (PHR). The enduring quality of these digital records is that they can be accessed anywhere and at any time from a variety of information devices (desktops, laptops, mobile phones, tablets).

The two main flows of digital information to power both the EHR (provider view of the medical record) and the PHR (a patient view of the medical record) are the flows of information from the provider-side Hospital Information Systems (HIS) and from the payer-side Health Insurance Information System(s) (HIIS) from the payers. These two gushers of information form the crucial information stream from which the EHR and PHR are created.

#### Changing to digital records however raises important issues

The issues of security, privacy and confidentiality of personal patient information are crucial to continually address. Without adequate safeguards and our keen attention to the sensitivity of this information, patients and the larger society will ultimately reject their use<sup>95</sup>. The resolution of the ownership question and who stores and oversees these records is also crucial<sup>96</sup>. It seems most sensible to leave the information where it is now (at the facility, at the payer) and use a 'Google-like' directory of links (URLs) to access the information across a Health Intranet. The ultimate 'chaperone' then for the personal data is the facility where it originated. This lack of a single 'big brother' might mitigate some of society's concern about patient confidentiality.

<sup>95</sup>This has happened in a number of countries. One is Dubai (UAE) where the clinic information system underlying the emirate's health infrastructure was rejected after the population opposed the ready-access to patient information and without its system logging who had accessed what information. It only takes a few such court cases to put in jeopardy years of work and a large investment if one becomes sloppy about handling sensitive patient information.

<sup>96</sup>It is important to emphasize that at the end of the day it is the Indian citizen who "owns" their own health data! Here we speak of ownership in a different sense, that of who owns the storage of their data.

### Planning for the Electronic Health Record (EHR)

#### The EHR has several purposes

Most importantly it is a resource for the clinicians to partially (or perhaps one day fully) replace the existing paper-based Medical Record. The EHR has many benefits over the paper record including legibility, accessibility from multiple points, and to act as a goldmine of health data (a “data warehouse”) to be studied by epidemiologists, other population health specialists, pharmaceutical interests and others with an eye toward innovation and identifying strengths and weaknesses within the health ecosystem. The EHR is a crowning effort which, to a large extent, accepts inputs from the other components described above. It allows for records to be retrieved in real-time patient settings as well as for less time-critical access outside healthcare delivery itself. A key choice in the design of an EHR is whether it will contain any human-readable documents (stored as a PDF or scan) or whether the information is to be stored exclusively in computer-readable form (in a fully digital form). The latter has clear advantages for aggregation and analysis, while the former is easier to implement and can serve as an interim solution until the more fully digital infrastructure is put in place.

#### Pillar Six: Facilitating the creation of the health information infrastructure

6

Facilitating the  
Creation of the  
Health  
Information  
Infrastructure

Pillars 2-5 of course require substantial amounts of computer power, network connectivity and human expertise on which to run. Let’s look briefly at some of the needed technical infrastructure and human capacity which will be needed:

#### Technical Infrastructure

It is assumed that, given the current state of technology, there will be widespread use of “clouds” in meeting these needs and widespread use of public networks to provide the needed connectivity. Thus, a kind of ‘utility’ for health information will need to be fashioned to power digital health in the years ahead.

Exactly how best to design and fashion this infrastructure is still not clear and will require a considerable amount of technical design.

Should state-based clouds be interlinked? Should regional health-specific clouds be created? How should the clouds be interlinked to create national coverage and national access to information. How can the cloud become resilient and fault-tolerant? Who will run the clouds? All these questions reasonably enough remain unanswered as this text is written. The engineering work needed to realize the underlying infrastructure to support the substantial functionality which is suggested in this book is daunting but certainly not impossible. The scale of India of course makes the work more “interesting” perhaps. But perhaps the most important challenge to address is how the central and state governments can best collaborate to achieve this common infrastructure.<sup>97</sup>

The interweaving of these networks is clearly indicated, since some patients will certainly migrate from state to state in search of educational or job opportunities. Other citizens live or work near state borders and may seek services across their home-state boundary. Thus, the exact, optimal cloud topology is still an open question will need to be discussed and agreed to among the stakeholders. Creating a Virtual Health Network

<sup>97</sup>Is this any different than other pan-Indian projects of creating roads which intersect some of which are “state” routes and others as “national” routes? This analogy is an apt one for us to consider perhaps.

linking the facilities and other stakeholders across the nation will require careful planning and will need to be overseen by the appropriate governance body(s) (See Pillar 1 discussion.) This network will need to be reliable, secure. The public will need to trust that the Network will safeguard their health information using the highest standards of security which are available. Alas, no system is 100% “hack-proof” but that reality does not absolve us from not using the most advanced cyber security safeguards available.

### Human capacity

Beyond the physical infrastructure described above, we must also increase the human capacity of the nation to create and support the pillars outlined in this document. The digital health initiative will surely require the talent of tens of thousands of people across the nation who are trained in HIT (Health Information Technology), Health Informatics and Medical Informatics (sometimes called Clinical Informatics). Now there are few opportunities for such training in India. The pipeline of talented young people will need to be built in order to intensity and sustain India’s efforts in this crucial area.

This training will need to be coordinated and harmonized among existing academic and other training institutes across India. A variety of skill levels will be needed to power this digital health initiative in the years to come at the university degree level as well as training workers who understand how to best support the applications which will arise from this initiative.

At the end of the day, a reasonable projection is that technology will create many more jobs than it might displace in the health sector! And these jobs will be higher-skilled, better paying and most likely more satisfying than the jobs that were displaced. In a country like India with a young demographic advantage and a burgeoning population, these new jobs should be one of the many desired outcomes of a Digital Health transformation.

### Five objects of particular interest to digital health:

#### An object-oriented approach

The six pillars have given us a functional, modular and systematic view of the tasks in implementing digital health. In computer science an alternative view is available which focuses, instead of looking at functionality, on “OBJECTS”<sup>98</sup> in an activity technically called “object-oriented design” (OOD) So, to complement the more functional view of the tasks ahead, we offer this alternative way of helping us focus on essential objects which should command attention as we decide on what is important to implementing digital health.

There are many objects which will vie for our attention, but five have been chosen here as the most essential to moving forward. The order shown is likely to predict the order in which they are designed and implemented:



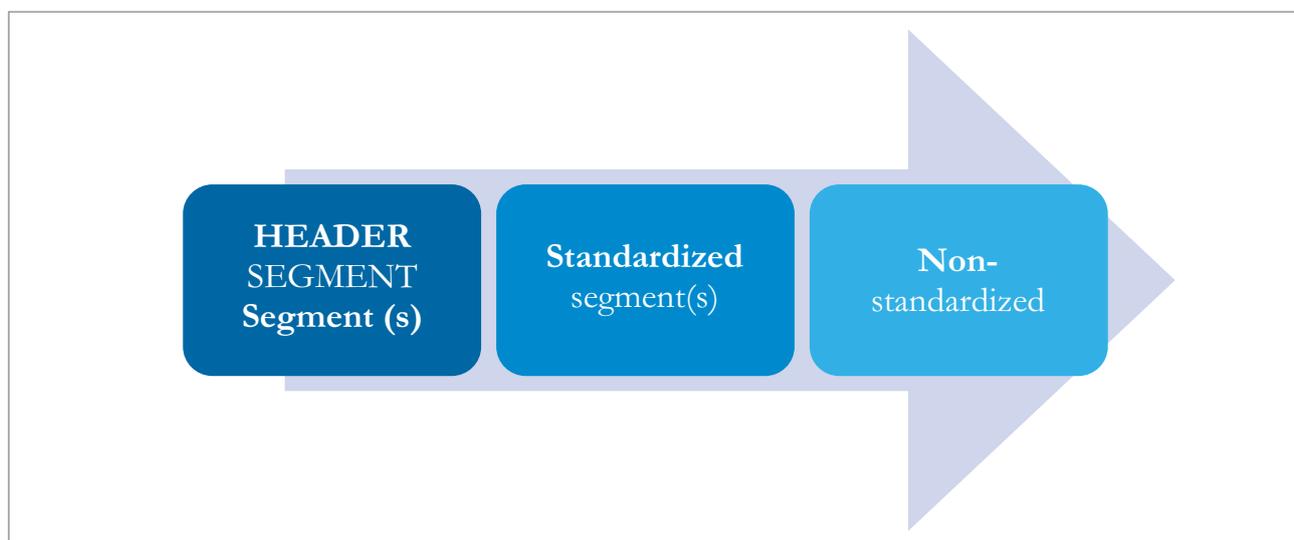
<sup>98</sup>While the notion of an “object” can be thought of intuitively as a specific container of important information. More formally in computer science, an object is defined as “a particular instance of a class, where the object can be a combination of variables, functions, and data structures”.

- 1) An **eClaim** object contains information about a request for reimbursement (“provider payment”) for either of inpatient stay or an outpatient encounter from the provider rendering the services to an appropriate payer who covers this beneficiary
- 2) An **eDischarge Summary** contains summary information about each inpatient hospital stay
- 3) An **eProvider Payment** contains information about the transmittal of funds from payer to provider in satisfaction of an eClaim accompanied by a justification about how the settlement was calculated
- 4) An **eEncounter Form** contains summary information about each clinic visit and each hospital outpatient visit
- 5) An **eReferral** contains information about either a request for services to a higher level of care (an upward referral) OR the return of a patient to a lower level of care (a downward referral) for follow-up and continuing monitoring and care

The goal for these objects is for them to be standardized and the resulting standard objects to be used across India. If that standardisation were to be attainable, then whole new opportunities would exist for manipulating, analysing and comparing outputs across the health sector (both public and private). The definition of these objects is part of the standard-setting work of Pillar 2: HDD.

We however know that total standardization will likely never be possible (it has not happened yet in this world in any but the smallest of countries), so one approach to the construction of these objects is to define the object such that its segments accommodate that reality as follows:

**Figure 5.7: A standard object might have both standardized and non-standardized segments.**



The header uniquely identifies the record and is highly standardized format. Following the header, the standard segment(s) contains further specific information about the object (may vary depending on the class of the object) in a standardized (but not rigidly standardized form<sup>99</sup>). Finally, there is room for some additional segments which contain information which is arbitrarily added based on state-specific requirements or other special situations, or here consensus on how to standardize the information was not reached. So, we have the best of both worlds: as much information as possible in standardized form while accommodating specific clinical situations and preference.

<sup>99</sup>This flexibility is needed to accommodate difference in medical specialties, and personal preferences.

**Object one: eClaim**

The eClaim is the main container which flows between provider and payer to request reimbursement by the provider from the payer for services rendered to the payer's beneficiary. The eClaim becomes the main input into Pillar 4: HIIS and its adjudication engine.

In the simplest terms, eClaim can be thought of as the digitization of the familiar paper-based Claim but it can be much more. A digital stream of eClaims becomes one of the major information flows related to health in the country. It can be mined (with appropriate safeguards of course) by health economists, financial analysts, by epidemiologist, by health planners, by actuaries. The stream of eClaims bear truly a mother load of health information usable by a large swathe of individuals interested in the status of the health sector across the country.

The flow of eClaims also serves many secondary purposes. In some countries, the eClaim also becomes a vital source of proxies for quality measures and utilization measures. It is also use by Cost Accounting and Actuarial units to define future benefits and to predict future Medical Loss. An eClaim can be cleverly designed to also aid in the identification of potential fraud and abuse. This is done by creating historical patterns of behaviours across the health sector and comparing incoming claims to what is a “reasonable” alignment to that historical record. It is the identification of anomalies in the pattern matching which signals possible strange events – be it ghost patients, ghost providers, ghost services or inflated package declarations.

The key to a successful eClaim design is to craft the object to be as small as possible (thus inviting compliance by the provider) while providing enough crucial information to aid the adjudication engine of the HIIS. This compromise is key to efficient production and processing of claims.

**Object two: eDischarge Summary**

The eDischarge Summary is perhaps the most crucial object of all. It serves an important role in linking episodes of care thus preserving longitudinal continuity-of-care. It serves as an attachment to any eReferral between venues of care. It serves as a summary of services which can help justify the services declared on an eClaim. Along with the eClaim, it serves other epidemiological and administrative needs as well in helping to calculate burden-of-disease, and quality and utilization measures. Well, the uses of a reliable, standardized eDischarge Summary are nearly endless.

The object header contains information needed to uniquely identify this discharge summary. Then the standard segment would contain the minimum data which can be collected to categorize and summarize the clinical experience during hospital stay including uniquely identifying the patient, the physician, the facility, the medical service, the date of admission and the date of discharge. It contains coded information about the reason for admission (chief complaint), the admitting diagnosis, the discharge diagnosis, the disposition of the patient, and perhaps (in the case of surgical cases) the main surgical procedure(s) performed.

The non-standardized segments contain evidence of the stay in formats which are specific to the medical service, treatment plan or other variables. It may contain scanned or otherwise non-computer readable documents to record key elements and events which are pertinent to that stay.

- Facility ID where services were performed
- Date-of-Admission

Further (standardized and unstandardized) segments contain information about diagnostic services performed, surgeries performed, total resources used (drugs, supplies) and potentially many more items. It is important to note that the eDischarge Summary is either completely or largely produced from outputs from Pillar 3, the ‘Hospital’ Information System, and not created clerically.

### Object three: eProvider Payment



As an eClaim flows from provider to payer, an eProvider Payment flows in the opposite direction, from payer back to provider. Depending on the sophistication of the transmittal method, the money will likely flow via an electronic banking transaction mechanism of some kind.

Accompanying the money transmittal is a report which justifies to the provider the amount sent<sup>100</sup> so that providers can be satisfied that their eClaim was adjudicated to the rules of the Benefit Plan of the payer and thus paid fairly and transparently. Also, key to the eProviderPayment methodology is the goal to speed up payments as much as possible to providers. It is reasonable to expect that, by the end of the 15-year scope of this study, that it might be possible to create and “clear” eProvider Payments very quickly, perhaps even overnight<sup>101</sup>.

### Object four: eEncounter Form



Analogous to the eDischargeSummary for inpatient stays is the eEncounter Form for outpatient encounters. The goal here is for every outpatient encounter in the country to result in the production of an eEncounter Form. The definition of an Encounter requires some considerable discussion. However, in ideal terms, an Encounter is defined as one patient receiving services from one provider on one specific date-of-service.<sup>102</sup> In this case, the standard segment would contain patient identification, provider identification, facility identification, date-of-service, reason for the encounter, today’s diagnosis, and the patient disposition upon leaving.

<sup>100</sup>The amount sent might not be equal to the amount “claimed”. It may be adjusted due to a number of factors and the result of the adjudication engine outputs.

<sup>101</sup>This is in line with experience with other payments such as credit card payments and check clearing methods.

<sup>102</sup>Yes, there are some exceptions to this general rule. For example, dialysis visits might well be lumped together into one encounter. Similarly, for physical therapy visits. There are many other exceptions to this rule.

## Object five: eReferral



The current referral system is broken. The introduction of an eReferral object can do much to repair this broken link. In order to have an efficient healthcare delivery system it is important to be able to move patients between levels of care, between public and private sector when needed.

This must happen in both directions – giving enough guidance and continuity to the provider receiving (temporary?) custody of the patient for higher level diagnostic and treatment options. Equally important is to inform the referring provider upon return of the patient so that the patient (often an NCD patient) can be managed longitudinally for many years to come, perhaps for the remainder of his/her lifetime. Key to improving continuity-of-care is the definition of a transaction which flows between providers. And for pre-authorization purposes this referral might also flow to the appropriate payer as well so that the transfer can be authorized (if authorization is needed).

Crucial fields for this object are patient identification, facility identification, provider identification (sending provider), provider identification (receiving provider), the date of the referral request, the reason for the referral, the expected date of return of the patient. Along with the transaction the appropriate eDischarge Summary(s) and/or eEncounter Forms(s) can be attached to give further information to the receiving provider. Additional instructions or comments between providers can be entered in further (non-standardized) segments as necessary.

### Next steps in implementing digital health

Assuming the vision described above is congruent with the goals of the Government of India, then the obvious next question is where to begin? What steps can be undertaken now to get underway in the short-term?

#### Choosing and empowering a governance entity to oversee the implementation

Implementing digital health involves a large set of interlocking and inter-related pieces. Thus, overseeing and guiding the digital health projects is an important and crucial task. The myriad pieces must fit together, and the overall architecture must lead to a unified and integrated whole. The architectural oversight and careful timing of events is key to success. It will need support from the highest levels of central and state governments in order to gain the visibility and status needed to be successful in its mission.

Different countries have used different approaches to create this entity. For instance, Australia has turned toward its universities to oversee goodly portions of its effort. In another twist, Holland has built public-private partnerships with private industry to oversee these elements. Abu Dhabi (UAE) has contracted this responsibility to a major vendor altogether while maintaining keen oversight from its Ministry of Health.

#### Creating the first draft of the Health Data Dictionary and Master Registries

It will take some time to solicit input from states and central entities as well as to form the necessary collegial working groups to debate and create these standards. Most countries take a year or more to produce a first draft, measuring from the time the working groups begin meeting. The key here is to identify the subject

matter experts in each segment of an HDD so that, once standards are proposed, they are acknowledged by most colleagues as the best possible solutions for India. An HDD usually has about 20 segments in its first draft constituting demographics, admissions, outpatient registrations, laboratory orders, laboratory results, and medication lists. Beyond the work on these standards, the first draft of the registries must also be produced for facilities, doctors, diagnoses, medical services and medications.

The various elements of the HDD/Registries will proceed at their own pace. Some will get stalled. Some will race ahead more smoothly. It is hard to predict which elements will be “easy” and “sail through” while others might get mired down in long discussions. This is a normal part of the process. The key here is to start work on several fronts simultaneously so that progress can continue despite one element getting stalled.

### **Building a strategy for ‘Hospital’ Information Systems in all health facilities**

The information systems at the health facilities are crucial to improving both the clinical management and administrative management of the health facilities. The strategy for the design of these systems has several options. It can either build upon systems which already exist, or one could build something entirely new. Alternatively, one could license or buy a product from a HIS vendor and modify it to conform to the HDD and to add the functionality which it might lack to be appropriate to the Indian context. This category of HIS systems is large -- it includes pharmacy systems, diagnostic centre systems, telemedical applications, patient-oriented mobile phone applications, appointment transaction systems, and referral transaction systems.

Innovative platforms for these systems are also an important consideration. Perhaps the smallest facilities, which constitutes the bulk of health facilities, can run ‘from the cloud’ thereby requiring a minimum of equipment and technical capacity at each site. In contrast the largest of institutions, such as AIIMS, will likely want and require a more closely held infrastructure. The strategy would likely include telemedical applications. In Iran, tele-radiology works well compensating for a shortage of trained radiologists there. Tele-psychiatry is interesting because it doesn’t require physical examination in most instances. Tele-dermatology is also highly developed since cameras can easily record lesions in ways which may make their images even more acute than the human eye. Tele-consultation is far more difficult because it requires real-time coordination between caregivers at either end of the connection, a robust video connection, and sometimes impinges on the original socio-psychological doctor-patient relationship. In general, tele-consultation systems have not yet been proved to be particularly useful for widespread use in most medical specialties.

### **Building a strategy for “Health Insurance Information Systems” for PM-JAY and other existing payers, and to prepare for any new payers**

PM-JAY will likely continue to expand its beneficiary base and its covered services as time goes by. Any new or expanded health finance scheme which the country wishes to adopt will also require appropriate information systems for them to be manageable and sustainable. Similarly, for the provider-side systems, it would be possible to create a common cloud platform to support many of the existing payers to create a heightened economy-of-scale. In this case, the platform would need to be managed by a board representing its constituent members who would also contribute to the operational costs of the platform.

### **Drawing up and justifying an infrastructure plan to Support digital health**

The infrastructure needed to support all the applications discussed above with so many diverse users is non-trivial indeed. Establishing the needed infrastructure will involve considerable cost. Therefore, it is important to make this infrastructure be as cost-efficient as possible to improve its affordability. This can be done by reducing hardware and software costs and, often overlooked, by realistically calculating the cost elements for ongoing training and adequate support which is needed to keep everything operating properly. Frequently these ongoing costs can be significant, dwarfing the capital investments in tangible infrastructure over the longer-term.

The work of the BMGF in its earlier (2017) DHAF project can be used as a starting point for these plans and calculations. The infrastructure described in that report needs to be further operationalized and made more concrete – pushing its conceptual framework toward an actual plan which could be used for budgeting purposes over the next ten years. To justify these expenditures, it is likely that a Cost-Benefits Analysis of some kind will need to be presented to the ministries involved, the parliament, the Prime Minister’s office, and to the public at large. The sums involved will be large, but the benefits will be equally large and would likely grow with time.

### **Understanding the role of the Electronic Health Record (EHR) and the Personal Health Record (PHR)**

Building a national or a regional EHR will require considerable time and expense. No country in the world has yet achieved a complete EHR, and none is likely to do so soon<sup>103</sup>. An EHR cannot be truly accomplished until the underlying systems which feed into it is completed and until the laws and regulations of the country can support it. Finally, it cannot occur until the social dialogue about the trade-offs of patient confidentiality versus accessibility is fully explored.

However, some early steps toward an EHR are possible and desirable. For example, the aggregation of Clinical Laboratory results, which are already digitized in India, could be accomplished across certain institutions with an eye toward minimizing the need for unnecessary duplicate tests. This will allow longitudinal trending of results over periods of time and across institutions.

### **The risks and rewards of starting now**

These next steps are outlined not only because they are foundational to beginning the digital health journey, but also because they, in a very real sense, could be begun tomorrow if the government wishes to step-in to Digital Health in a vigorous way. These steps are very unlikely to contradict any future direction the government might take in either reorganizing its healthcare delivery systems nor its health finance arrangements. The risks of outputs from these steps becoming obsolete or unnecessary are minimal. These steps should be undertaken together because, while any one of them would represent progress in moving forward, the real synergy is to be gained by proceeding on all fronts together. In the ongoing digital health project, if progress on any one of these fronts were to be delayed, the overall project is likely to be delayed. We can confidently say that these tasks lie on the critical path of the overall digital health initiative.

Proceeding with these steps would give India a head-start in realizing its digital health ambitions. While it of

<sup>103</sup>A “complete” digital health record in one which can dispense completely with the paper-based medical records of today, and which have the legal status to be admissible in a court of law.

course will take many years to completely realize its vision, the next steps could propel it on its way toward a connected health system, one in which access, equity, efficiency and quality are significantly improved over today's reality.

### Roadmap of Activities

The tasks listed above are likely to consume the next 3-5 years. The speed with which the above tasks can be accomplished will be determined by the priority assigned to the tasks by the authorities, the availability of the needed capacity to accomplish them, the availability of sufficient budgetary resources to fund them, and perhaps most importantly, the application of good management and coordination methods required to put this together. Coordination is necessary to avoid false-starts and poor designs.

After the above foundational tasks have been completed, where does India head next? Technology keeps changing, and the pace of that change is likely to only accelerate further in coming years. So, what we can imagine today is unlikely to give us much guidance as to what to plan past 5 years. However, we can make some predictions based on our best knowledge. (See Annexure 5: Future trends in digital health).

Also, the fiscal space is likely to change; India will surely grow in economic power which means that what is feasible to afford in the future may be quite different from today.

Attitudes toward digital health could change. On the optimistic side, technology might be even more fully embraced than now as people witness the transformations which continue to happen in other industries. On the contrary, investments in technology might be viewed far less positively if cybersecurity threats, privacy invasions and increasing malware and manual job losses sour the world on using automation. Finally, the future tasks will be discovered as the process continues, based on the factors which led to the success of the earlier elements.

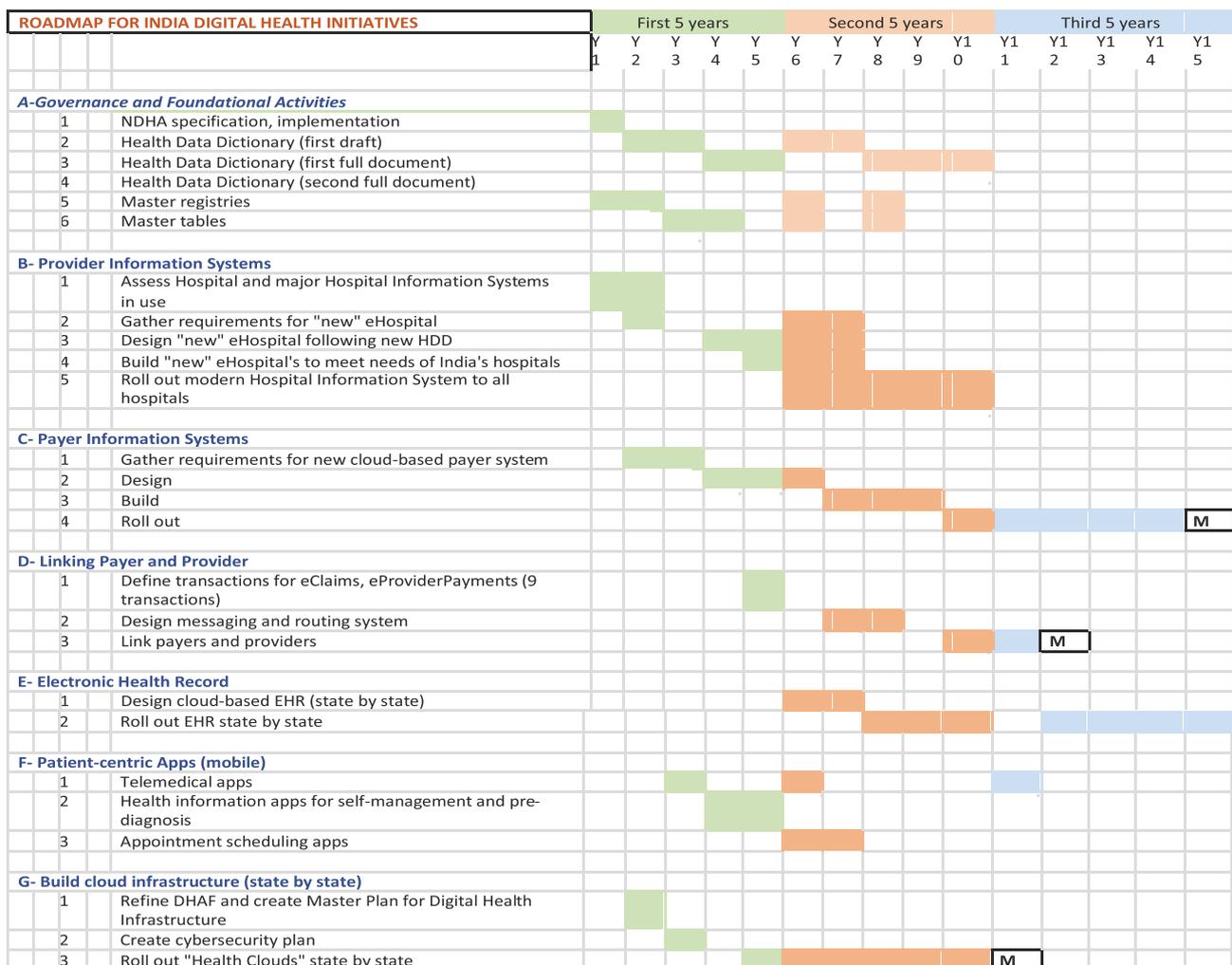
### The ideal result After 15 years

We can though propose the following goals for digital health in India over the next 15-year period:

1. All information systems in the health sector comply with the new Health Data Dictionary and access the normalized Master Registries.
2. All health facilities use technology (HIS) to manage their financial affairs including budgeting and accounting, flow of patients, workflows of caregivers and health resources. The hospitals directly capture information about the clinical processes digitally including all orders and results, all planned interventions, staffing and regularization of resources to meet demands, and supply chain flows. It also collects utilization and quality measures to analyse and optimize the functioning of the hospital. It has links to the health payers from who it receives payment.
3. Indian patients, especially those suffering from NCDs (non-communicable diseases) have access to a set of tools for better managing their own health and that of their loved ones. This includes additional information about health conditions, the prevention of disease, and reminders about their health condition. It also might include access to directories of services and other information which helps them decide when, where and from whom to best seek medical advice and treatment.
4. Indians are provided access to professionals online through various modalities aimed at helping them manage their own health, and, when an intervention is needed, the patient can conveniently

5. The Indian government (federal and state) is provided with dashboards which portray how the health sector (both public and private) is performing in terms of its efficiency and effectiveness, and, most importantly, in terms of the health outcomes which are being produced.
6. The health payers including (including PM-JAY, the National Health Protection Scheme, Rashtriya Swasthya Bima Yojna, and the state-sponsored programmes, as well as private insurance entities) can monitor quality and utilization of their programmes. They can root out inappropriate use of resources, including fraudulent uses, and can provide input to providers about how their performance compares with peers.
7. All patients have an electronic health record which is comprehensive, and which is available across the continuum - of-care which is accessible by the provider (with patient consent) and by the patient (with security) The patient can contribute to that record with information from observations as well as from self-monitoring devices such as blood-pressure and glucose monitors, as well as additional patient-generated lifestyle information as appropriate.
8. The information collected in the EHR is available for retrospective epidemiological studies, for quality assessments, for future health facilities planning, for budgetary input, for rate-setting by payers, for surveillance of emergent epidemics, and for better understanding the current burden of disease for the country as well as predicting any new threats to that burden.

Figure 5.8: A probable roadmap for digital health activities for the next 15-year period



### Annexure 1: The Health Data Dictionary (HDD): interoperability and normalization

#### Interoperability

The need for interoperability between the parties involved in a health insurance scheme is critical. It requires a set of transactions which flow between buyer/payer and the seller/provider. Although their business interests are contradictory, they cooperate in making the transaction happen. It becomes part of the flow-of-funds of the health sector, just like it happens in any other sector.

The complexity of transactions increases as the underlying schemes compound. The schemes may include the details of the benefit plans, and details of the provider payment methods used. The payer must know what he is being asked to pay for, and the provider therefore must describe in detail what services were performed. Likewise, the provider must understand the payment that is received, and the payer must describe how the adjudication process happened. In this way both sides can be assured that they are being fairly treated. In order to create an efficient and streamlined system, a great deal of investment is required. This is to avoid the mistranslation of digital information which can be problematic and create serious repercussions.

#### Existing standards for interoperability

With a few notable exceptions, the health industry communicates in a largely non-standard manner. Practices from one hospital to another, from one payer to another, differ markedly. Little has been done until now to force a convergence of these business processes or the language used to express them. India does not have set standards for interoperability among payers or providers. Two separate hospitals may use different information systems which do not communicate with each other.<sup>104</sup>

There have been some notable global attempts to facilitate interoperability, the most important of which is arguably the creation of the International Classification of Diseases (ICD), which is now in version 11. This standard can trace its origins back to 1893.<sup>105</sup> Today the ICD is used almost everywhere in the world and allows the relatively easy comparison of morbidity and mortality statistics among countries.<sup>106</sup>

Another effort was the emergence of the Health Level Seven (HL-7) standards, begun circa 1985 by Professor Don Simborg at UCSF Medical Centre, who tried to end the untenable situation of a patient needing to be registered separately in each information system within a hospital—upon admissions with the Hospital Information System (HIS), the first lab test with the Laboratory Information System (LIS), and the first radiological exam with the Radiology Information System (RIS). More recently this organization, now called HL7.org has proposed some new standards, called HL7 -FHIR which propose to extend the HL7 standards more broadly, and are gaining strong interest around the world. If it becomes widely adopted, as appears likely, the existing standards may remove about fifty per cent of the burden of coming up with the needed standards in a nation.

<sup>104</sup>For instance, in Delhi, Moolchand Hospital uses Akhil Systems Health Information System while Apollo Hospital uses TCS Med Mantra Health Information System.

<sup>105</sup>Created and championed by the World Health Organization (WHO) as a way of assuring comparability of morbidity and mortality data from around the world.

<sup>106</sup>A good example is that clinicians might argue the difference between alternative ways of indicating an inflammation of the lungs—pneumonia and pneumonitis—which as character strings are considerably different. A single ICD code, however, nicely gets rid of the ambiguity.

## Why the Health Data Dictionary?

When creating standards, one needs a suitable receptacle for gathering these standards, and disseminating them to everyone in the system. Some countries tried to disseminate them in book form such as in Turkey, but this was not very effective. For obvious reasons the need to update the standards frequently made the books rapidly out-of-date. Australia and Canada have led the world in the creation of significant standards and updated them frequently. These standards are shared publicly on the internet.

### The role of the Health Data Dictionary in health systems

Linking business transactions among providers, payers, and beneficiaries is required for health insurance to work. An HDD defines the transaction terms so that all parties can unambiguously understand exchanges between their systems. Some examples of how an HDD can improve health insurance processes include:

- Promoting clean claims: With the HDD, providers can submit claims to payers that are readily understood by both sides to avoid many causes for the claims to be later rejected.
- Promoting e-claims: Providers can submit electronic versions of claims that computers on both sides can understand.
- Streamlining provider payments: Payers can electronically route payments through the inter-banking system to providers and create a remittance advice to explain the amount of the payment.
- Resubmitting rejected claims: The process of resubmission of rejected claims can be made simpler and easier.<sup>107</sup>
- Ongoing claim status: It is convenient to offer a claims status inquiry function that allows providers, and possibly beneficiaries, to know the status of each claim.

### Components of a Health Data Dictionary

An HDD contains information about shared standards including a descriptive list of names (also called representations or displays), definitions, and attributes of data elements to be collected in an information system or database in the health sector. By standardizing definitions and ensuring consistency of use, the HDD enables conforming and comparable health information to be generated across the country, independent of the organization or system from which it originated. For instance, Ministry of Health and Family Welfare in India has adopted several Standard Treatment Guidelines prepared by the World Health Organization to streamline clinical practice across India.

<sup>107</sup> Estimates of the cost of resubmitting a rejected claim vary from 2 to 10 times the cost of submitting the original claim!

SEGMENT	DISCUSSION
1. Patient demographics	How will each person be identified, described and grouped? What Unique Patient Identifier(s) will be used? Will addresses be specified via geolocation? Can we compute the distance between the patient's home address and the health facilities nearby? Which addresses are collected? Home, work, temporary address?
2. Stable patient history	The aspects of a patient's history that will be connected. In the simplest form, this might be limited to the list of chronic disease categories to which this patient belongs, significant past surgeries, significant past health events.
3. Providers	Providers will be linked to patients in a number of ways depending on their relationship to the patient
4. Facilities	Each licensed, credentialed health venue needs to have a unique Facility ID number which can be linked to patients who have visited them
5. Health insurance	This segment will depend to a large extent on the details of the health insurance scheme(s) to which a patient can be for dependents status, different rates for provider reimbursement, and so on
6. Health resources	Including human resources and consumables (pharmaceuticals and supplies)
7. Utilization management	How will we know if health resources are being used wisely and productively?
8. Quality management	What quality measures will you adopt to measure the outcomes of the healthcare delivery system?
9. Financial management	How will budgeting and accounting be standardised so that we know the financial status?
10. Clinical protocols and guidelines	Where will clinical standards be amassed and disseminated?

### The process of creating a Health Data Dictionary

The process of creating a country's HDD has its challenges. An expert task force, or work group, representing each segment of the HDD will need to be formed to suggest appropriate standards, state them clearly, and seek validation and concurrence from agencies concerned with that segment. It is crucial to recruit the right people for this duty and to give them sufficient time and resources to seek input from peers. Many times, the difficulty of this task can be underestimated. The process of creating an HDD requires considerable energy, stamina, and compromise. Many arguments will arise about which potential standard is better as compared to another. The key goal is for everyone to agree to one standard.<sup>108</sup> It is safe to say that any standard is better than no standard. The rate at which countries complete this task varies widely, but 6 months appears to be the minimum to complete a first draft. However, one should bear in mind that an HDD is never finalised as it continues to expand and require corrections for decades to come.

### Publishing and promoting the Health Data Dictionary

As the HDD is being created, the working group should keep in mind that the HDD needs to be accessible and easily referenced by all team members on an ongoing basis, including:

<sup>108</sup>There are some who say any standard is better than no standard, and there is some truth to this approach.

- Software developers, applications vendors, and software project implementers.
- Institutions contemplating purchasing e-health applications off-the-shelf.
- International organizations that might sponsor the purchase or development of these applications.
- Statistical bureaus that interpret health data.

Although distributing printed copies of the HDD might be appropriate in some settings, web-based publishing of the HDD is more effective. This allows the HDD to be easily searched, rearranged, and sorted, and extracts can be copied into other documents.<sup>109</sup> Most importantly, electronic distribution ensures that the reader can always access the latest version of this dynamic document. Once published, the HDD must be actively promoted otherwise there is the danger that the HDD could simply languish rather than being used to streamline communications between processes.

### **Promoting and enforcing the Health Data Dictionary**

The most effective HDDs are sponsored directly by a high authority. The effort can be considered successful only if the HDD is used to improve interoperability and is willingly accepted by all stakeholders. An HDD cannot be forced on anyone who does not believe that it is in the best interest of their organization.

It will take some time for legacy systems to accommodate the new standards, thus factoring time for integration and upgradation is important. If these time frames appear too unrealistic, one is likely to engender resistance.

### **There may arise resistance from other parties as well:**

- Proprietary vendors sometimes prefer to use their own proprietary standards to gain marketplace advantage.
- Most problematically, there will be a question about what to do with systems in development at the time the new standards are published. Despite the inconvenience and cost of re-tooling the new application to conform to the new standards, this is often preferable to retro-fitting them later, when changes would also result in substantial costs.
- Finally, private-sector health institutions may not wish to participate. This can be a serious political issue to address. Losing control of data from the private sector, especially if it represents a sizeable piece of the overall health sector, as it does in India, means never being able to see the whole picture of healthcare in a country. Usually, though, health payers will have some leverage in this struggle, such as the ability to mandate that private providers follow the HDD in order to be eligible to receive funds from public health insurance schemes.

Enforcement is crucial to making the transition and making it possible for the country to progress to the next level of system development, which involves integration and interoperability of the various e-health applications. To ensure application of digital health as early as possible, it is imperative to have a firm foundation in place. Croatia and Canada have initiated a process to certify compliance of information systems to the HDD standard. When this process is used, only accredited information systems can be sold to health institutions.

<sup>109</sup>An example of this, from Australia, can be found at <http://meteor.aihw.gov.au/content/index.phtml/itemId/274816>.

### Annexure 2: “Normalization” and the master registries

#### Normalization

The key enabling concept to consider in the development of digital health is called ‘normalization’.<sup>110</sup> In the past, master registries would be present in each application. So, for example, if the application needed reference to a specific doctor/provider, that application had its own provider registry which served the application. In this example, a provider registry might appear in 10 or more applications. When there is a need to change the table, each application’s registry would need to get updated. This becomes a huge nightmare as the number of copies of the data proliferate. Once they reach 10 or more, it is nearly impossible to keep all copies in sync. Hence, there is a need for a shared table, or master registry, which contains authoritative information in one place and needs to be updated one time for all applications to learn of the change. This is an obvious improvement over the old method.

#### Master registries in digital health

**Many master registries and master tables are needed in digital health. The core group consists of:**

1. Patient registry – lists all patients, actual links to the demographic segment, of all patients who, ideally, can be uniquely and unambiguously identified.
2. Provider registry– list of all providers (doctors and certain other caregivers) who are authorized to treat patients by virtue of their licensure and/or empanelment to a health insurance scheme
3. Facility Registry –list of all health facilities, public and private, with information about their level, size, location, services offered, etc.
4. Provider Registry –list of all providers who can provide services in a geographic domain
5. Location Registry –list of political, geographic, or arbitrary ways of defining catchment areas for service provision. This is needed to help automate the referral process and to be able to optimize healthcare teams across geographies.

**Also included are coding tables:**

- Diagnoses Table –for the encoding of complaints, diagnoses, causes of accidents, etc.
- Medical Services Table –for the encoding of clinical and para-clinical services which are performed
- Drugs Table –for the encoding of medications, injectables, and certain other the rapeutic consumables
- Medical Supplies Table – for the encoding of consumable items as well as prostheses and certain other items which need to be accounted for Finally, there are many shortcut tables which can be included. Medical Specialty codes – a definitive list of the medical specialties
- Hospital Level codes – primary to secondary to tertiary to quaternary
- Normal Laboratory values
- Normal Radiology values – e.g. standards of normal chest
- Referral Reason codes
- Disposition codes – explains where the patient go after discharge
- Bed Status codes – readiness to accept patient, occupied, out of service
- Appointment Type codes
- Appointment Length codes

<sup>110</sup>For the technically inclined, this term comes from the notion of a Relational Database, one way to organize data across an enterprise.

- Anaesthesia Risk codes
- Patient Acuity Level codes and
- Pain Level codes

Provision must be made in the central management system of the network to create other such tables as per requirement.

### Annexure 3: A brief discussion of Hospital Information Systems

Information science has enabled the creation of an efficient Hospital Information System. The three levels of a Hospital Information System are:

- 1) The hoteling level: It models a hospital as if it were a hotel. It has clients who arrive, are admitted/registered, receive services, then checkout. The checkout results in summary of services received in form of a discharge summary and the costs to the patient and to any of his guarantors or insurance companies. This level is straightforward, does not require much computing power as clinicians have no need to interact with the applications. It does not require critical mission availability of computing services or network services. Generally, if the information services are down for a while, it will not have great impact on clinical processes, and, in most cases, it is possible to catch up with data entry when services are restored. (90 per cent reliability required)
- 2) The clinical level: The stakes become much higher when we add the orders/result level. In this phase, clinicians use the system either directly or through surrogates to execute their patient orders and receive diagnostic results back. The costs have gone up perhaps as much as ten times to reach this level, because workstations and accessibility are needed everywhere in the hospital. The requirements for the smooth functioning of the hospital means that we can tolerate much less downtime. (99 per cent reliability required) In fact downtime can conceivably have calamitous results. Back-up plans can be put in place for when information services are unavailable, but they can be easily forgotten unless they are practiced often.
- 3) The intelligent level is the most demanding. If one is dependent on an Electronic Health Record, given that the paper medical record might be more difficult to access, or possibly done away with altogether, it becomes crucial that the information system operate in a very reliable way (99.9 per cent reliability required).

**Annexure 4: Functions of a Health Insurance Information System (HIIS)**

The Health Insurance Information Systems (payer-side systems), is perhaps the most complex systems' designs required of Digital Health. Modern day payers have complex information specifications for beneficiaries, their benefit plans, the rules of payment inclusions and exclusions, and the medical necessity for certain diagnostics. Similarly, the information system is charged with providing input in terms of quality measures, utilization measures and is often the first bulwark towards preventing fraud and abuse. Because of these requirements, payer information system have evolved into complex information systems designs.

A brief description of each of the four main modules of a Health Insurance Information System:

<p style="text-align: center;">Module <b>1</b></p> <p><b>Beneficiary Enrolment and Rostering</b></p> 	<ul style="list-style-type: none"> <li>• Beneficiary Identity (Aadhaar or National Unique Patient Identifier)</li> <li>• Benefit package for each category of beneficiaries</li> <li>• Current status of each beneficiary (# claims, total amount spent, claims outstanding...) (co-pays, deductibles, lifetime caps, co-insurance)</li> <li>• Current status of each benefits' drain</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Eligibility inquiry transactions</li> <li>• Update beneficiary information transaction (name change, address change, family composition change, etc.)</li> <li>• Update benefit packages master files transaction</li> </ul>
<p style="text-align: center;">Module <b>2</b></p> <p><b>Contributions and Fund Management</b></p> 	<ul style="list-style-type: none"> <li>• Fund(s) Management - accounting features</li> <li>• Financial metrics-"medical loss ratio" = administrative overhead</li> <li>• Financial metrics - "days in receivables"</li> <li>• Actuarial analysis- Is the fund solvent? Will the fund remain solvent?</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Intake of funds from a variety of sources</li> <li>• Accountability and auditability!</li> <li>• Cyber security concerns must be address</li> </ul>



Module  
**3**

*Claims  
Processing &  
Payment*



- Beneficiary/Patient identification
- Provider identification
- Facility identification
- Claims intake
- Claims adjudication
- Claims rejection
- Claims reprocessing
- Claims approval
- Claims status inquiry
- Payment transmittal to providers including explanation to provider and patient



Module  
**4**

*Utilization  
and Quality  
Management*



**Utilization Management**

- Productivity measures for providers
- Hospital "occupancy rates"
- Alos (Average Length Of Stay) statistics
- Expensive equipment utilization (e.g. CAT, MRI, etc.)
- Individual beneficiary utilization - e.g. number of visits per year, pre-natal number of visits during pregnancy, etc.
- Fraud and abuse: examine unusual patterns of utilization

**Quality Management**

- Morbidity and mortality statistics; burden of disease information
- Chronic disease profiles (CVD, DM, CA, pediatric allergies, clinical depression)
- C-section rates
- Readmission rates

**Annexure 5: List of Health Informatics Education and Training Centres in India**

1. Indraprastha Apollo Hospital (<http://www.medvarsity.com>)
2. Bioinformatics Institute of India ([www.bii.in](http://www.bii.in))
3. eHCF School of Medical Informatics (*Website:* <http://www.ebcfsmi.edu.in/>)
4. Manipal - School of allied health sciences (<https://manipal.edu/soabs-manipal/programmes/programme-list/msc-health-informatics.html>)
5. Mahatma Gandhi University Medical Sciences & Technology, Department of Health Informatics & Telemedicine ([https://www.mgumst.org/tele\\_medicine.php](https://www.mgumst.org/tele_medicine.php))
6. Institute of Good Manufacturing Practices India (IGMPI): Postgraduate diploma in healthcare informatics (<https://www.igmpiindia.org/Post-graduate-diploma-in-healthcare-informatics.html>)
7. Public Health Foundation of India (<https://phfi.org/course/integrated-msc-phd-in-health-informatics/>)
8. International Institute of Health Management Research ([www.iibmrdelhi.org](http://www.iibmrdelhi.org))
9. Indira Gandhi National Open University ([www.ignou.ac.in](http://www.ignou.ac.in))
10. Osmania University ([www.osmania.ac.in](http://www.osmania.ac.in))
11. Foundation of Healthcare Technologies Society (<http://fhts.ac.in/>)

### Annexure 6: List of Hospital Information Technology vendors and products in India

Hospital Information Technology (HIT) vendors have been active in India for some time. Several were interviewed for this paper. An interesting aspect of their work has been that a large percentage of their output has been aimed at foreign countries (in the Middle East, Africa, Europe and North America) and a far lower percentage of products and services are aimed at the domestic market. While exports are good, and can be lucrative, it has left a considerable gap in product offerings for the domestic market.

The HIT vendor marketplace is highly fragmented. Few vendors have been able to reach a critical mass despite the large pool of IT talent which exists in the country. This may have led to a less than ideal level of capitalization. No vendor has a commanding lead nor is there any dominant player in the marketplace.

#### Here is A list of companies/products implemented in India :

##### In large private hospital chains:

- Med Mantra
- Hina
- OpenEMR (OHM VistA)
- CSC
- Napier
- Inter Systems

##### In private mid-sized and individual providers:

- Practo
- Lyberate
- Insta
- Praxify

##### In public hospitals and among some other public provider facilities:

- eHospital
- eShushrath

##### The following companies exist within private insurance companies (mid-2018)

- 3i Infotech / PREMIA
- Adroit Soft India / MediSteer
- Akhil Systems / Miracle
- Allerin Tech
- C2L Biz Solutions / SymbioSis
- Candela Labs
- Care 21
- Chegus Infotech / GENIE
- Hansa Solutions
- Healthfore Tech / Magnum Infinity HIS
- Newgen Software
- Remedinet / QuiClaims
- SRIT / Renaissance Healthcare Enterprise Suite (RHES)

- TCS / Med Mantra
- Track Four Infotech / eOxygen
- UBQ Technologies / Medics
- Winsoft Technologies

**Some of the international HIS vendors which sell in India (in alphabetic order):**

- 21 Century Informatics / 21 CI Apex Enterprise, 21 CI EMR the Netherlands
- DXC US
- ICT Health / HINAI Web The UAE
- Max e-care (open source / , MPHRx, MinervaUS
- Napier Healthcare / Napier Hospital Information System (HIS) Singapore

### Annexure 7: Predictions of future trends in digital health

Technology in health is changing rapidly. Some of the current developments in technology that may be applied to digital health are AI, telemedicine, and bitcoins. But given the slow rate of adoption it may take longer than a few years for these new technologies to make their presence felt in India.

If the world's supply of competent caregivers continues to lag demand, then we might be able to look toward intelligent applications and devices to help bridge that gap and to help extend caregivers' productivity. It can be said that current information systems do little to improve the lot of the physician particularly, indeed it can be said that many of the "marvels" of the past 50 years have only served to slow the physician down and make his/her work more clerical and tedious.

#### We may be able to find a way out of this morass by deploying more intelligent systems

##### **Clinical decision support systems (CDSS)**

Can computers suggest plans of treatment, choice of drug, dosages of drugs, likelihood of recurrence, chance of successful surgery. In short computers may soon be able to help physicians plan for the treatment of their patients in some essential ways which frees the physician from remembering the formulary, the treatment guidelines, and the drug-drug interaction information.

##### **Pre-diagnostic systems**

Computers can also help patients help self-diagnose themselves. A patient may input a description of their symptoms and the system calculates a simple Differential Diagnosis List. This future view might not be so far - fetched. Then patients can do further research on their own using validated information readily available on the Internet. This can inform the patient about the urgency of seeking medical care for the conditions listed and the likely treatment options they face. This might reduce the workload of overworked physicians faced with an army of people suffering simple conditions such as the common cold, a simple flu, and the like. When the symptoms are more severe, advice can be offered to the patient to seek medical care, or even to go directly to an emergency room. "I seem to have some tightness and pain in my chest this morning when I woke up" might elicit such a response!

##### **Personalized medicine and predictive systems**

Bioinformatics will in the future give us more information about the genetic (genomic) make-up of each patient and how their health might be affected by their genes. So-called "personalized medicine" will then be able to suggest which drugs might be most effective for a particular patient, and which drugs to avoid as this patient might have a greater probability of facing severe counter-indications.

##### **Telemedicine: The rise of telepresence in healthcare**

While we now have some interesting telemedicine applications we do not yet have true tele-presence. In tele-presence the walls of a hospital/medical centre disappear and no longer becomes a physical place. When we truly can remove the barriers of technology, then we can imagine that health can be managed in wholly new ways, where the physical laying-on-of-hands is no longer paramount. There are more examples of where this can be applied than one might first imagine – including tele-radiology, tele-pathology, tele-

psychiatry (and behavioural health), tele-dermatology, tele-cardiology.

Mobile technologies will continue to offer the potential for enormous change to the health sector. The real question is will we use telepresence and mobile technology to improve health? Many of the existing attempts to use these technologies have been interesting, but they have thus far had limited clinical impact. We are still waiting for one or more killer apps which will truly change our perception of what can be accomplished when we employ these technologies.

### **The impact of block chain technology**

Among the newest technologies is block chain technology, which is still in its infancy, and which was first introduced during the cyber-currency craze. Separating it from Bitcoin and the other cyber-currencies though reveals a very interesting technology with potentially wide application to health systems. The key concept to understand about block chain is that it is a new, somewhat novel way of promoting and overseeing “trust” between business partners who might not immediately extend trust to one another, either because of a conflict of business interests or because of corrupting influences in the business environment. Blockchain can potentially bridge that missing trust. It does this by offering a shared, incontrovertible and unalterable ledger of transactions between parties which are duplicated and stored in multiple places. It is next to impossible to subvert or corrupt a process since both sides can readily see if a ledger entry in any of the copies has been altered.

### **The health sector abounds with places where this technology might be employed. Here are some which immediately come to mind:**

- In the prescription process to assure that a prescription did make it to a pharmacy for dispensing
- In the supply chain of expensive pharmaceuticals (e.g. chemotherapy drugs, psychotropic drugs)
- In referral processes to assure that a referral is honoured and not dismissed out of hand
- In the claims processing at a health payer so that all parties know the “status” of each claim in the adjudication pipeline, who created the claim, to which patient it refers, the amount of the claim, etc.
- Even some of the elements of the EHR/ PHR can potentially be safeguarded using block chain. For example, the log (“ledger”) of those who have accessed a patient’s record could be “block chained” so that it could not be altered.

It is too early to know what the impact of block chain technology will be on the healthcare landscape, but it is likely to be profound; it is worth repeating that we are in the very early stages of this development.

### **The coming epidemic of non-communicable diseases (NCDs) in India**

Progress in digital health may come just in time to deal with India’s ever-increasing onslaught of the NCD burden. Managing chronic disease longitudinally over many decades will require new approaches to healthcare delivery. Involving the patient directly in their self-management of their disease may improve patient compliance and may help us avoid some severe complications from their disease by quickly recognizing the first signs of their disease.

Most NCD-management efforts to-date have focused on systems which impact a single disease called “vertical programmes”. This current approach has many downsides. Among these downsides is that they fail to recognize co-morbidities and the interaction between multiple pathologies. Also, they usually require independent data entry of redundant data, which is recorded elsewhere, thereby adding to the burden of data entry.

### Cybersecurity: the new risks

Like the clinical risk of increased NCD burdens, we also technologically face the increased risk of cybersecurity incursions. Each step of the planning process for the future must figure in the exponentially growing costs of thwarting these ever-evolving risks. Cyber-security defence costs might well eclipse software development costs in the next years. Building secure clouds, being ever-vigilant for threats, assuring secure network connections and having well-trained staff who can deal with attempted incursions when they occur will become ever-more necessary.

### Conclusion

This discussion of likely future advances was undertaken with this in mind – there is an enormous amount of future growth in digital health applications. But, for India to avail itself of those technologies in the future, building a firm foundation in digital health today is a necessary prerequisite to enjoying the benefits of future growth. There are no shortcuts to building digital health in a methodical, coordinated, and integrated way.

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