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NITI Aayog

Development Dialogues

Health System for A New India: Building Blocks

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BACKGROUND

As per the charter of responsibilities entrusted to the NITI Aayog (National Institution for Transforming India), it has been mandated to prepare a Fifteen Year Vision, a Seven Year Strategy and a Three-Year Action Agenda for India's development. The Three Year Action Agenda has already been released. The Seven Year strategy document entitled India@2022 is all set to be placed in the public domain shortly.

We are now engaged in developing the 15 year vision document and propose to engender debate and discussion on the vision for our nation through a series of consultations as part of our "Development Dialogue" series. We initiate this process with a workshop on "Health System for a New India: Building Blocks" which attempts to engage international and national experts and key stakeholders to engender an informed discussion and debate on the trajectory for India's Health System. Through these dialogues, we aim to facilitate multisectoral and stakeholder conversations on a systemic approach to reform of healthcare for India which looks at interlinked changes across multiple building blocks.

India has made significant progress in health outcomes over the last two decades, yet key indicators (Infant Mortality Rate, Life Expectancy, Malnutrition, and Maternal Mortality Rate) have remained below those of other countries at similar stages of development and levels of spending on health. There remain large disparities in outcomes and service coverage between different parts of the country, as India faces the challenge of a double burden of disease, wherein communicable diseases still account for a significant proportion of disease burden. India now needs to build on its many opportunities to achieve further progress on the health of its citizens and respond to the growing aspirations and needs of a new India.

The health vision for India in the next 15 years, accordingly, is to transform the delivery of health services in a way that health outcomes improve at a much greater pace, without financial burden on the country's citizens. This vision requires a focus on public preventive health assurance, reforming fiscal transfers, accelerating human resource development, and improving access to quality services and medicines. In a complex context, the vision for a healthy India calls for stepping back and re-deliberating on the appropriateness of long standing strategies and the challenges of the health delivery systems. For long, we have been working on schematic and programmatic approaches to health. It is now about time that we take a system view of health so that the complex linkages of various policy levers impacting the health of a common citizen are addressed in a holistic manner.

At a systems level, the challenges of fragmentation, spanning across healthcare financing and delivery, constrain optimization of both quality and access, leading to suboptimal outcomes and high out of pocket expenses incurred for healthcare. For a large country like India, while a complete removal of fragmentation remains to be a challenge, efforts aimed at aggregation and standardization will contribute to efficiency and quality.

NITI Aayog, for the first in the series of Development Dialogue brings the key themes of health financing and provisioning, through a focus on risk pooling, strategic purchasing, health service provision and organization, and digital health. The discussions will be based on analysis underway by global and national experts, in particular Dr. Cristian Baeza[a], Dr. Dennis Streveler[b], Dr. Jack Langenbrunner[c], Dr. Jerry La Forgia[d], who have been engaged in consolidating global experience in this regard and how that might inform India's 15-year vision on health. And while the final analysis will be completed over the next few months, the draft analysis offers the opportunity for deliberation, and input into the finalization of the analysis. This brief document presents an outline of the draft findings and some supporting data from this analysis, and presents a preliminary menu of strategic choices available before India to steer its Health System.

[a]Risk pooling, Executive Director, International Centre for Health Systems Strengthening
[b]Digital Health, Professor - Computer Science/Medical Informatics, University of Hawaii, and Global Expert eHealth
[c]Strategic Purchasing, Advisor to Government of Indonesia
[d]Organization and delivery of care, Chief Technical Officer, Co-Founder | Aceso Global

FOUNDATIONS OF INDIA'S OPPORTUNITY: RECOGNIZING AND CELEBRATING IMPORTANT ACHIEVEMENTS

India has a unique opportunity in transforming healthcare system to improve the lives of millions of its citizens. It can do so based on remarkable socio economic and technological advancements.

Remarkable strides in macroeconomic growth

- **Robust macroeconomic performance** is creating both increasing household purchasing power and fiscal space, presenting a substantial opportunity to accelerate the expansion of much needed access to better risk pooling coverage and ultimately to health care services.
- **The increased household purchasing power** is also driving rapid growth of the private health sector, which if driven in the right direction, can be used to accelerate expansion of access to better risk pooling and health care services.

Progress in expanding financial protection through insurance coverage

- **The launching of the new PMJAY provides a great opportunity** to bridge part of the large gap in insurance coverage for the most vulnerable, improve access to care, and strengthen institutional purchasing platforms throughout the country. Similarly, state subsidized health insurance schemes are another base from which to expand risk pooling and access to services.
    - PMJAY will provide coverage for approximately 500 million poor individuals.[1]
    - An estimated 33% of those covered under PMJAY – roughly 165 million individuals – will be "newly covered" (i.e., had no coverage previously).[2]
- **Emerging strategic purchasing platforms are laying the groundwork to effectively purchase services** from both public and private providers. Along with PMJAY, efforts to strengthen (and expand) national social insurance scheme for the lower income formal workers (ESIS) and state-subsidized health insurance schemes are evident throughout India. As these platforms – sponsored by PMJAY, national social insurance (ESIS) and state governments - gain experience and capacity in purchasing they will substantially contribute to bridging risk pooling and improving health services.
- **Although coverage is still limited, rapidly growing private health insurers** if effectively regulated, can also substantially contribute to bridging the risk pooling and health service access gaps while reducing demands for fiscal outlays in the short and medium term. This is especially the case for the large but uncovered informal non-poor population.
    - Commercial health insurance products are estimated to have about 140 million beneficiaries, almost equivalent to the size of the eligible population for ESIS, except that most of them are from the upper income quintiles.

Emerging private health service provision efforts to reach the poor and engage with the public sector to strengthen service delivery

- **The small, but rapidly growing organized private health service provision systems are expanding** to Tier 2 and 3 cities and exploring innovative models to reach the bottom of the pyramid in urban and rural areas. If properly harnessed and scaled, these initiatives can contribute to expanding effective service delivery.
    - In 2017, there were at least 124 corporate owned or operated 100+ bed hospitals in Tier 2 and 3 cities across India.[3]

- **There is broad endorsement of Public-Private Partnerships (PPPs)** resulting in a large array of models across many states to improve access and raise quality, especially for diagnostics, dialysis and primary health care (PHC).
    - From 2010 through 2017, at least 37 diagnostic and dialysis PPPs and 12 primary care service delivery PPPs were established across India.[4] Each of these PPP projects provided services in an undetermined number of public and private facilities.

Global leader in innovation and technology

There is an abundance of innovations in India already from which the system can learn and, if successful, potentially scale. Innovations take two broad forms:

- **The testing and launching of new service delivery models that reach the poor.** These consist of high quality and efficiently-run facilities that steeply discount the price of complex medical procedures for the poor, privately operated outreach models that deliver basic services to underserved communities, and government planned comprehensive primary health care (Health and Wellness Centers).
- **Global leader in digital technologies:** India possesses a huge and expanding reservoir of innovations, practical experience and expertise which can catalyze and support improvements in health financing and service delivery. The proposed National Health Stack will enable a strong IT backbone to support the future health system of India. An excellent telecommunications infrastructure combined with a rising penetration of smartphones across all population segments has engendered consumer empowerment through technology. This is complimented by the massive technology workforce that is available in India to help drive its digital agenda.

FUTURE OF THE INDIAN HEALTHCARE SYSTEM IN IT'S CURRENT TRAJECTORY

India has begun to make significant strides on healthcare. The introduction of PMJAY provides substantial transformation opportunities. However, with PMJAY under implementation, the window of opportunity for changing other key parts of the healthcare system for maximum impact is now. Beyond the important introduction of PMJAY, continuing its current trajectory may exacerbate India's challenges in the health sector, which in turn may not only hamper India's socioeconomic development but contribute to unaffordability and poor health outcomes.

The launching of PMJAY is a key step in the right direction to promote strategic purchasing and expand non-contributory risk pooling coverage for the poor. In addition, PMJAY has potential to increase resources available for this segment of the population and balance the predominant supply side funding in the public sector with money following the patient through demand side financing. Well implemented, PMJAY has the potential to change incentives in the right direction for private and public providers. However, the larger health system of India is highly fragmented across all building blocks – risk pooling, strategic purchasing, organization and service delivery, and digital health. The fragmentation in each block reinforces the others and creates a perpetuating cycle of inefficiencies, and a barrier to the change. Additional steps are critically needed to avoid this huge barrier of perpetuating fragmentation and resulting under performance across the health system in future.

Insufficient and fragmented focus on population-based public health interventions. Public health interventions (e.g., public goods such as vector control, surveillance, health promotion, disease control, and other preventive services) are highly cost-effective, but are underfunded, taking a back seat to (public) funding of medical care. As per the latest WHO's Universal Health Coverage (UHC) tracking report, India could perform much better in terms of service coverage for antenatal care, childhood immunization, access to family planning, effective treatment of TB, availability of bed nets, and controlling NCDs. Operationally, public health interventions are narrowly-defined, centrally-sponsored programs which are executed vertically in silos with little horizontal communication between them, contributing to system fragmentation. The lack of techno-managerial professionals for public health further contributes to the erosion of the public health system.

- The expenditure on the various national health programs was INR 238 million in 2014-15 (5.3% of total health expenditure).[6]
- 25.3% of public spending on health goes to population-based interventions while 62.2% goes to medical care.

A highly fragmented health financing landscape, with continued high levels of out of pocket expenditure.

- Out of pocket expenditure for healthcare at ~64% of overall health expenditure, dominates the health financing flows in India. This is one of the highest across other low-middle income countries. Limited efforts have been made till today to substantially pool in this out of pocket expenditure, in form of contributions into the existing risk pools.
- The need to strengthen social health insurance (ESIS). The recent trajectory of ESIS, the largest social health insurer in India, shows significant challenges in ensuring access to services for its beneficiaries, including utilization of health services. It maintains low claims ratios (about 50% of total revenue – low compared to other countries) and rising financial margins and reserves. The continuation of this trajectory not only entails challenges to access to care by formal workers who

are mandated to pay for their coverage but, may also incentivize informality by requiring contributions for low benefits in return. Another challenge may be the triggering of a de-facto increase in labor costs for employers, as large firms pay twice for coverage: to ESIS as mandatory contributions, and to commercial insurance for effective group coverage. This situation may reduce India's global trade competitiveness.

- Market and competition challenges in the commercial health insurance market. The current trajectory of substantial and increasing market and competition challenges in commercial health insurance needs attention. The substantial growth of commercial insurance is an asset for India's path to UHC. However, the current regulation of commercial insurance, based mostly on general insurance (rather than health specific regulation) is insufficient to prevent market challenges (e.g., risk selection behavior by insurers, shallow benefits with low individual or family spending ceilings, high co-payments, and inpatient coverage only) and adverse risk selection behavior (e.g., targeting the young and the well-off). The governance of commercial but publicly owned insurance may in practice be leading to challenging pricing practices (competing with below-cost products) affecting the commercial market development in the future.

An under-leveraged public healthcare system. Despite increases in public funding (e.g., NHM), utilization of government facilities is low, and trends remain mostly unchanged. The public system faces issues leading to low levels of provider effort, absenteeism, stock-outs, weak management, and inadequate maintenance. Decision-making is fragmented across many levels of government (e.g., central, state, district, block) and different public departments (Public Health, Medical Services, Medical Education). Facility managers are granted few decision-making authorities.

- Government primary health centers (PHC) cater to only 8% of ambulatory care patients and 18% of institutional deliveries, and act as a source for modern contraceptives for only 10%, even though these are some of the main functions of a PHC. Government hospitals only cater to 32% and 42% of all admissions in the urban and rural areas, respectively. The private sector remained the main source of care with 75% and 55% out-patient visits and inpatient stays, respectively, in 2014.[7]

- Patients' main reasons for not availing public facilities include service unavailability, (perceived) low quality and long waiting times. These indicators have worsened between 2004 and 2014.[8]

Fragmentated service delivery: Discontinuous health service provision could be exacerbated due to a disorganized provider market combined with ineffective regulations, distorted financial incentives and weak strategic purchasing. The vast majority of private providers in India are solo practitioners or small operators (e.g., nursing homes), usually working in isolation. Many don't meet minimal standards mandated by regulations, which are unevenly enforced. Finally, due to their small size and lack of capacity, these providers have not entered into contractual arrangements with insurers and other purchasers, and therefore, represent an untapped resource to expand insurance coverage. Given this fragmented provider market, an individual or family cannot count on a trusted provider or "medical home" for their basic health needs. The majority of Indians must fend for themselves and usually "zigzag" among multiple providers, both public and private, to solve an illness episode, contributing to high OOP for care and patient distrust in the health system.

- Of the over 1 million formal and informal private health enterprises delivering

healthcare in India, only 1.8% have over 10 workers.[9] In total, solo practitioners and independent/stand-alone clinics comprise an estimated 95% of the private ambulatory market.[10]

- The highly visible corporate chains make up a tiny fraction of the private hospital market. The average private hospital ("nursing home") has just 20 to 30 beds.[11]
- Over 50% of nursing homes and hospitals surveyed in 4 states and 7 union territories in 2013 were not registered with either the state or central government.[12]
- For TB patients in Delhi who initially visited a qualified practitioner in 2012, the average length of time from when TB symptoms first appeared to when they reached a DOTS facility was 5.2 months.[13] Over 40% consulted four or more providers. This indicates considerable zigzagging between providers.

Low quality and inefficient service delivery. The health system is increasingly hospital centric as many patients seek care for even low complexity conditions directly in hospitals. Public and private sectors generally work in isolation from one another except for one-off PPP transactions to fill specific short-term service delivery gaps. Under-utilized private facilities exist alongside over-crowded public facilities, particularly at the hospital level. Nearly all private providers generate revenue by charging individual patients at the point of care which is invariably paid out of pocket, which incentivizes a "volume-oriented" mindset, contributing to overprovision and unnecessary care. Available evidence suggests significant variations and gaps in quality in both public and private sectors, contributing to avoidable deaths and disabilities. Lack of information underlies all issues. Few quality or performance metrics are collected or analyzed system wide. There is inadequate monitoring of outputs at most levels and data collection often appears routine without adequate analysis or feedback.

- Inefficiencies: Global evidence on unnecessary hospitalizations for ambulatory-care sensitive conditions:
  (i) In the US, about 4.4 million hospital stays could be avoided annually with better primary care. This leads to unnecessary spending of US$31 billion;[14]
  (ii) About 21% of total inpatient spending in Brazil is spent on hospitalizations that could have been avoided with better primary care – equivalent to roughly US$1.6 billion.[15]
  Given the low efficiency of the health sector in India and larger population, the portion and number of potentially avoidable hospitalizations is probably even higher.
- Poor quality: In a survey of 4 states and 7 union territories published in 2013, one quarter of nursing homes and hospitals did not register births or deaths; 80% did not have an infection control committee; one quarter of operating theaters lacked an operating table; almost one third of operating theaters didn't have an oxygen cylinder; and almost one-half of operating theaters did not have an operating theater trained nurse.[16]
- Data limitations: Little or no systematic data exist on private provision, efficiency, quality of care, utilization and patient satisfaction. Given the lack of information, many policies and investments are made "in the dark."

Fragmented digital health landscape: The digital landscape in health has also not managed to dodge the fragmentation challenges. Gradual and to a certain extent, reactive adoption of technology in the healthcare space, has led to the existing systems lacking integration and therefore sidestepping the opportunities for synergy between the various health information systems applications, with little data/information flowing from one system to another. This has been compounded by the fact that even technology providers for health have themselves been/become extremely fragmented

and thus unable to drive the common information standards which would help promote integration and interoperability.

- Various governments (national as well as state) over a period of time have invested in Digital Health (or "ICT in Health") but the lack of cohesion in developing of these systems has led to a disconnected and disjointed system. This hampers improvement in referral systems, perpetuates a weak continuity-of-care environment which will become even more of a limitation as the epidemiological transition to NCD's places greater stress on health budgets.
- Adoption of technology often seems to be for the purpose of simple 'digitization' without sufficient focus on the real prize, an improvement in health outcomes. As governments move towards Universal Health Coverage, the key benefits of Access, Equity, Efficiency, and Quality, cannot be achieved without leveraging technology effectively to precipitate improved health outcomes.
- A fragmented and siloed approach towards digital health means that India may continue to have weak data systems, poor quality of data, misreporting, and low-level of accountability. Without robust information sources, policy-and decision-makers won't be able to develop the required level of insights to direct their (always scarce) resources toward priority areas of improvement.
  It is said that approximately one-third of the healthcare budgets of countries around the world are wasted[e]. This wastage comes from duplicated diagnostic tests (especially lab tests), unnecessary procedures, expired drugs, and, perhaps most urgently, late diagnosis of diseases which could have been managed more cheaply (and effectively) in earlier stages. Efficiency in usage of scarce resources can only be attained by aggressively deploying information technology to all corners of the health sector.

[e]Evidence suggest from the other country health care system, https://www.healthaffairs.org/do/10.1377/hblog20180530.245587/full/

PERPETUATING HIGH LEVELS OF FRAGMENTATION ACROSS BUILDING BLOCKS COULD RESULT IN UNDESIRABLE CONSEQUENCES FOR THE HEALTH AND FINANCIAL PROTECTION OF INDIA'S CITIZENS

Insufficient acceleration in reduction of mortality and disability. Ineffective population and individual health care service provision in both public and private sectors, which is characterized by fragmentation and an episodic, acute care model, contributes to avoidable mortality. The health system is not sufficiently prepared for the sudden increase in number of chronic diseases (NCDs). Only a small proportion of NCDs are adequately diagnosed and managed. Beyond the human toll, premature death has major implications for financial stability at the household level and economic growth and labor productivity at the national level. Most of the deaths due to NCDs could have been prevented with better access to care and higher quality. India also faces an unfinished agenda of infectious diseases and maternal/child survival, lagging countries with comparable economies.

- The probability of dying prematurely (between ages 30 and 70) from 4 major NCDs is 23% in India. This is higher than in Sri Lanka (17%), Bangladesh (22%) or Nepal (22%), China (17%) or Brazil (17%), and much higher than the OECD average of 12%.[17]
- The projected cumulative economic loss from premature death, disability and treatment costs to India from 5 NCDs for the period 2012-2030 is an estimated US$4.58 trillion (in 2010 US dollars). [*The NCDs are diabetes, cardiovascular diseases, cancer, chronic respiratory disease and mental health conditions*].[18]

Perpetuating higher poverty due to illness. Highly disintegrated service delivery, poorly-regulated and fragmented health insurance (risk pooling) combined with persistently high levels of out of pocket expenditure, throw millions of Indians into poverty each year.

- Out of pocket expenditure as a percentage of current health expenditure in India in 2015 was 65%. This is higher than the average in lower middle-income countries (57%), low-income countries (44%), Nepal (60%), Sri Lanka (38%), the other BRICS (Brazil – 28%, Russia – 36%, China – 32%, South Africa – 8%), and OECD countries (14%).[19]
- India's current rate of OOP reduction of 0.4% per annum is sharply slower than comparable countries such as China's 1.9%, Brazil 2.2%, Turkey 2.6%, and Mexico 1.3%.

Citizen dissatisfaction and lack of trust with the health system, contributing to increased political discontent. When facing an illness, navigating the health system can be a daunting task. Most Indians lack financial protection and enter a fragmented and underperforming fee-for-service market with little or no information on provider quality or performance. For those with health insurance, shallow health insurance products create a false sense of security.

- There has been a rise in the incidence of violence against doctors and nurses in India, as patients take their anger out regarding long wait times, short consultation times, poor facility conditions and undesired health outcomes on doctors. 75% of doctors in India say they have faced physical or verbal violence during their lifetime.[20] In 2017, an attack on a junior doctor working at a public hospital in Mumbai led to well over 2,000 junior doctors going on strike in Mumbai, and close to 20,000 resident doctors in Delhi joining them in solidarity.[21] In 2014, a clinic was burnt following the death of a boy. These incidents are not uncommon.

- Few commercial health insurance products cover out-patient care, substantially reducing incentives for continuity of care by providers or managing patients along cost-effective clinical pathways in integrated provider networks. Additionally, almost all commercial insurance products include significant exclusions for pre-existing conditions, long waiting times for actual eligibility of re-imbursement and coverage, high deductibles, and low maximum coverage caps. Most commercial health insurance products (with the exception of the top most expensive group products) behave in practice as pre-payment schemes and not as insurance schemes. This leads to creation of a low trust environment for health insurance as a product for financial protection.

Engendering higher fiscal costs and slower and more inequitable economic growth. Increasing fiscal costs will stem from substantial risk dumping by private insurers and an underperforming and inefficient public delivery system. The potential for slower economic growth may be derived from worsening Foreign Direct Investment (FDI) climate, higher informality, increasing labor cost due to rampant insurance costs, and lower country competitiveness in the global economy.

- Status Quo will result in lower labor productivity due to low adult survival rates (15-49 years old), which would lower GDP growth by 32% through 2030.

Continuing unavailability of robust health information and performance data will impede the ability of policymakers, investors, payers and providers to make informed decisions related to resource allocation policies, program design monitoring and evaluation, quality improvement initiatives, benefit design and costing, and management of health facilities.

PATHWAYS FOR SYSTEMIC REFORM FOR INDIAN HEALTHCARE SYSTEM

The promise of a more organized, affordable and accountable health system that achieves Universal Health Coverage and contributes to India's overall socioeconomic development is within reach. India can seize this moment to make real health system improvements that harness recent progress, acknowledge challenges, and pioneer a transformative change journey.

India could achieve these goals, by introducing short and long-term reforms in health system financing, health service provision and provider organization, in governance and regulations, in digital health and other key building blocks. The various building blocks are highly linked with each other. Global learning's have shown that reforms in these building blocks have to be undertaken systematically and holistically and not thought of as separate initiatives. Reducing fragmentation and increasing standardization across these building blocks will create a positive cycle of reinforcement driving a forward momentum towards a coherent, organized and interlinked health system. This is a critical journey which most countries have undertaken as they move towards UHC.

I. Streamline risk pooling and strategic purchasing to de-fragment financial flows and build a pathway for expanding financial coverage for all. The evidence suggest that one of the biggest challenges that is faced by health care systems has been fragmented nature of the pools, which feeds an even more complex layer of weak and fragmented strategic purchasing. This results in systems unable to achieve its objective in improving health outcomes through efficient health system. And thus the need for:

- **Launching a national dialogue** to build necessary agreements regarding a long-term vision and path for the organization of the health financing system to establish a pluralistic but integrated health financing for the Indian health system.
- **De-fragmenting health financing** (risk pooling and strategic purchasing platforms): Launch a transition process to integrate pooled health financing. This can be achieved by:

  (a) integrating at each state level (functionally and/or organizationally) all insurance schemes currently managed by each state; and
  (b) coordinating or integrating multiple existing public financing for health flows (e.g., MHM, PMJAY, MoH). A more streamlined and coordinated financing system encourages risk pooling and fosters strategic purchasing, which in turn sets incentives for more organized and better managed provision of services and with positive impacts on efficiency, quality and continuity of care.

- **Strengthening strategic purchasing** platforms to foster proactive results-based payment for providers in both state and national schemes (PMJAY, ESIS, NHM), as well as for commercial insurers. Transitioning towards results and output-based financing for providers could include the following steps:
  - Setting up PMJAY from the very beginning in a way that would require states and commercial insurers to implement this scheme by applying effective strategic purchasing practices (i.e., incorporating contracting arrangements and payment mechanisms linked to outputs, quality and health results).
  - Rapidly building up ESIS strategic purchasing capabilities and systems (effective contracting and provider payment mechanisms) initially to purchase from external providers, and gradually including government facilities and ESIC Hospitals.
  - Supporting IRDA's role in technical assistance and dialogue platforms to persuade and move commercial insurance to shift from currently dominating fee-for-service payments to providers to forms of risk-sharing provider payments linked to providing more integrated or continuous care to patients and, in long term, to managing patients at risk along the early stages of clinical pathways.

- **Strengthening the health insurance (publicly and privately owned) regulatory and governance framework** to align its growth and development to foster a more efficient and longer-term focus, better consumer protection, and stronger corporate governance to substantially contribute to bridging the risk pooling gap, including incorporating the large uncovered informal non-poor population. Critical regulation can include, for example, minimum coverage for health insurance products ensuring coverage focuses on insurable events rather than first-dollar coverage only; minimum burning ratios including differential taxation for low and high burning ratios; maximum administration costs and non-operational revenue with excess being taxed as profit; regulate fair competition and corporate governance practices; reexamine GST difference between service provision and provision of insurance coverage; etc. The health insurance regulatory framework can be strengthened not only for commercial insurance, but also any contributory scheme at state and social health insurance levels. Revise core governance structures and performance in public (national and state level) as well as social health insurance schemes and organizations.

- **Introducing incentives (financial and regulatory) to increase informal non-poor participation in contributory health insurance** (in ESIS, State Schemes, and/or commercial schemes), as OOP spending by the informal non-poor is the key remaining source of funding to be pooled in the system in the long run. Some of those incentives can include unbundling health insurance from pensions contributions, partial subsidies for the premium, linking mandate for contribution with desirable permits or licenses, charge contributions linked to risk rather than income of flat, and other).[22]

II. Organize the mixed Indian healthcare delivery into an accountable, affordable, high quality system and aligned with public objectives. The fragmented mixed (public and private) health care systems with a lack of continuum of delivery of health care has led to low quality of care and low customer satisfaction. There is a need for:

- **Reorienting the delivery model toward comprehensive primary care (CPHC) and effective care coordination (CC) between ambulatory units (providing CPHC) and hospitals in the public and social insurance system, as well as in the commercial sector,** using all levers available (purchasing from public and private providers, regulation, and financial incentives). Private providers can play a key role in filling service delivery gaps. CPHC and CC require the horizontal integration of vertical disease programs, the provision of a comprehensive package of services to meet the needs of a defined and registered population, the use of multi-disciplinary teams and formal links to hospitals. Global experience suggests that CPHC - when implemented effectively and accounting for variation in local contexts and health conditions – can reduce mortality, increase patient satisfaction and contain costs.
  The following first steps could be explored:
  - Launching an Innovation and Quality Improvement Fund to support:
    (i) in-depth analysis of lessons learned and impacts of ongoing models; and
    (ii) design and implementation of demonstration projects which define, test and evaluate "step-in" benefit packages and delivery models for CPHC/CC in the public and private sectors. The packages can be contracted through institutional purchasers.

- **Promoting organization and management of providers who increasingly enter into contracts with institutional purchasers to provide care to populations covered by insurance schemes.** Global experience shows that small providers who group themselves under organizational platforms improve management, raise standards (and quality) and are able to engage with institutional purchasers. For example, in the US, Germany and New Zealand, heretofore solo practitioners came together to form organizations in response to developments related to the expansion of social insurance (US and Germany) and separation of purchasing and provision (New Zealand). In all cases, physicians wanted to position themselves

to secure contracts with purchasers to provide care to large population groups. Additionally, the organizational platforms that emerged provide a number of managerial and other beneficial services to their provider members. The following first steps can be explored:

- As part of the demonstration projects supported by the aforementioned Innovation and Quality Improvement Fund;
  (i) map provider organizations in a specific region or state that can serve as platforms to group or consolidate heretofore solo practitioners to provide PHC services;
  (ii) work with local physician leaders to recruit physicians to join the organization;
  (iii) provide technical assistance to establish statutes, legal personality, and basic systems (such as claim management, payment mechanisms, information management) as well as guidelines and standards for CPHC; and
  (iv) work with a purchaser to issue a contract to cover a "step-in" package of CPHC services

- **Sponsoring relentless quality measurement and improvement initiatives system wide.** A broad literature shows that quality enhancement results from leadership, measurement, incentives and continuous quality improvement efforts. Improving quality of services can reduce premature death and disability and improve health outcomes. Better health can support economic growth. We recommend the following first steps:

  - **Quality Improvement:** Establish a National Quality Information and Improvement Commission with multi-stakeholder (public and private) participation to develop a policy framework for quality of care and support states in developing protocols, guidelines and improving measurement. Over the last two decades many countries have designated such bodies to coordinate and lead efforts around raising quality of care (UK - National Institute for Heath and Care Excellence; Holland – Quality Institute; Germany – Institute for Quality and Efficiency in Health Care; Australia – Australian Commission on Safety and Quality in Health Care).

  - **Insurers and purchasers,** both public and private, should incorporate process and outcome measures into provider empanelment criteria, while linking a portion of payments to verifiable quality improvement. These terms should be included in contracts with providers, and renewed annually. Over time, empanelment should be conditioned on securing accreditation. In Brazil, accredited hospitals performed better than non-accredited hospitals across numerous quality and efficiency indicators, including having a lower average length of stay, lower institutional mortality, lower rates of readmission, lower hospital infection rates and higher rates of bed turnover.[23]

- **Establishing effective structures and capabilities for effective provider oversight, regulation and monitoring at national, state and district levels.** Global and Indian experience show that effective service delivery requires competent (and empowered) professionals and timely and accurate information to review, guide and manage service providers as well as to enforce policies and provider regulations. This is especially the case for implementation and enforcement of the Clinical Establishments Act at the state level. The following first steps can be explored:

  - Put in place an effective patients' grievance redressal mechanism at the state level.

  - Implement a competency-based training program to strengthen state capacity for assessment, information collection and analysis.

  - Pilot joint inspection models with representation from government, professional associations and the private sector.

- **Endorsing meaningful public-private engagement to define roles and provide care.** There is a consensus in India that neither the public nor private sector acting alone can meet the health needs of the population. Finding

a platform and formula for working together effectively is in the best interests of the system. Global experience shows that such coordination groups can build trust and lead to effective public-private engagement, if they are effectively led, representative of all stakeholders, and act with full transparency (Ghana provides an example).[24] The following first steps can be explored:

- Form a high-powered committee with broad stakeholder representation spanning for-profit, non-profit, large and small providers and academic institutions to collaborate on a common, but results-oriented agenda for public-private engagement that includes the following areas:
  (i) a policy framework defining public and private roles;
  (ii) information exchange across sectors, including standardized reporting procedures and metrics;
  (iii) policies, regulations and standardized guidelines to support PPPs design and monitoring; and
  (iv) knowledge gap analyses.

- **Strengthening whole system governance:** Establish institutions and merit-based selection criteria which will ensure continuity of competent leadership and stewardship in population-based health and whole system oversight through:
  - Creating a public health/managerial cadre skilled in system management at both MOHFW and state levels.
  - Establishing a multi-stakeholder coordination and oversight committee in each state with rotating membership of secretaries, commissioners and directors, and with representatives from academia, private sector and civil society.
  - Sponsor initiatives to improve data measurement, analysis and use system-wide.

- **Strengthening public facility governance and management.** Global experience shows that if properly designed, tested and aligned with political realities, increased autonomy of public providers can result in efficiency and quality gains. However, autonomy must be accompanied by strong accountability mechanisms. For example, public hospitals that were granted autonomy in Sao Paulo, Brazil in the late 1990s and early 2000s were 50% more productive and spent one-third less money (on discharge/bed) than comparative traditional hospitals, with no discernible differences in quality.[25] India can test the potential of autonomy-based management arrangements through gradually introducing models appropriate to the Indian context. The following first steps can be explored:
  - Conduct an in-depth analysis of lessons learned from past and existing autonomy-oriented Indian models inside and outside the health sector.
  - Develop a plan to design and test autonomy models managing public providers, including hospitals and (clusters) of primary care facilities.

III. Reimagining India's Digital Healthcare landscape – Connecting India's healthcare landscape and thus improving availability, analysis and use of data/information for clinical, epidemiological, financial and administrative improvement. Digital Health is a potent tool in the streamlining and modernization of India's healthcare delivery and health finance initiatives. Like other sectors which earlier have benefited from improvements due to computerization, the potential to fundamentally restructure healthcare in order to address India's burgeoning health demand is huge, and still largely untapped.

We discuss six "pillars" of further actions which could be taken to advance and accelerate progress in Digital Health in India:

1. **Establish a Governance entity to oversee the '*Big Picture*' of Digital Health.** Implementing Digital Health involves many inter-locking components, creating a 'big picture' which must be carefully managed and harmonized as a whole so that the various pieces fit together.

- It will require ongoing, sustained funding, investment and capacity. Significant budgets for Digital Health will be needed, as the costs associated

with Digital Health, even though perhaps decreasing with the deflation in the price of technology over time, will still be a considerable expense.

- Success will depend on careful technical, administrative and financial governance and oversight over many years.
- The '*Big Picture*' includes issues involving hardware, software, middleware, cloud technology, reengineering processes, computer-ready buildings, implementation planning, training plan, re-training, user certification, standards compliance, support mechanisms, helpdesk, version control and updates, continual enhancements, etc. The list is long. These pieces must fit together to ultimately build an optimal, modern, integrated, connected Digital Health landscape.

2. **Setting Interoperability standards and Health Data Dictionary (HDD),** which will allow providers, payers, supply chain managers, public health managers, etc. to be interconnected and share information.

- One important responsibility of this agency is to oversee the creation, validation, dissemination, enforcement, and updation of the interoperability standards that specifies the format and meaning of common data items (the so-called minimum data set) along with the common forms such as eReferrals, eClaims and an eDischarge Summary.
- Referenced in the HDD are a set of crucial Master Registries containing validated and authoritative lists of providers (and their empanelment to health insurance agencies), health facilities (like the National Health Resource Repository), the drug formulary, the medical supplies inventory, codes to specify diagnoses, describe clinical situations, etc. These registries need to be regularly updated and safeguarded.

3. **Building a strategy for a new generation of 'Hospital' Information Systems (HIS)** to power the modern Indian hospital operations and management; is interconnected to allow streamlined referrals, appointments and other transactions to flow within and between institutions.

- Every health facility needs/will shortly need an appropriate information system to manage its operations, communicate with its partners (other health facilities, the health payers, public health agencies, and relevant ministries).
- As India's economy grows, the epidemiological transition toward Non-Communicable Diseases will dictate the need for improved continuity-of-care, referrals between levels of care, and monitoring/ tracking patients' disease states over many years, even decades. The current paper-based system is inadequate to perform this task and thus investment in HIS is inevitable and should be supported by all the stakeholders within the ecosystem. The data captured in the process of clinical care in the facilities are crucial to all health information flows.
- The systems in place today across the health sector - both public and private, are either non-existent or relatively undeveloped. While this is a deficit, in some sense it provides an opportunity for India to 'leapfrog' on the technology adoption cycle and also use HIS as a vehicle to drive standardization and interoperability across integrated healthcare.

4. **Designing a Health Insurance Information Systems (HIIS) for India.** Management of resources and quality of care is paramount. Like the providers discussed above, the payers will also need more advanced information systems to run their schemes, adjudicate claims, make provider payments, identify fraud.
Building epidemiological profiles and understanding the true cost-burden of disease is key as well. Monitoring infection rates (as a proxy for overall quality measures), incidence of medical errors and other parameters can continue to provide input into improving quality and thus improving India's healthcare outcomes. All these can be achieved by having a strong and robust payer platform.

- Ayushman Bharat and PMJAY provides a great opportunity to build a more sophisticated Health Insurance Information System, as well as providing an impetus to develop a platform for the processing other health insurance schemes (National and/or State) on the same platform in

the future; offering the following functionalities - managing collections, managing the fund, processing claims, making provider payments, accepting actuarial information and, last but not least, sharing a fraud detection engine.

- These systems are complex. In some countries, the largest HIIS system may be the largest computer system in the entire country! This is because it must employ advanced information techniques (artificial intelligence techniques, 'big data' analysis, sophisticated actuarial and statistical analysis).

5. Moving towards **Electronic Health Record to make sure critical health information is available** anywhere, anytime in critical care situations, assuring robust security and patient confidentiality safeguards.

- Most information in critical sectors (finance/banking, airlines, commerce, etc.) today have long been digitized. Health has lagged behind. The long-term goal is to one-day replace the existing paper-based patient medical record with a Electronic Medical Record (EMR), which is complete, timely, accurate, and is legally accepted.

- The next step in this journey will be to offer PHR (Personal Health Record) (also sometimes referred to as a "patient view") to individuals with the goal of giving them a tool to help them manage their own health. Thus, piece by piece, an EMR (and its related PHR) can be assembled as more and more information flows from other systems around the health environment: diagnostic test results, discharge summaries, appointments and encounters completed, surgical notes, anesthesia notes, ER (A&E) records, ICU records, L&D (obstetric) records, progress notes, nursing notes, etc. The goal one day is to include everything that a complete paper-record contains today, in a streamlined, legible, available-on-demand digital form.

- India's huge population will continue to drive demand for more accessible and responsive healthcare services in convenient healthcare facilities. This demand can be better managed by helping patients make better decisions about where to seek care and how to navigate the healthcare system. By providing timely health information (in the form of reminders, warnings and alerts), patients can be empowered to better manage their own health.

- Starting on this journey requires the identification of an auspicious entry point. This may be the aggregation of clinical laboratory results among India's major clinical laboratory concerns.

6. **Facilitating the creation of the needed Health Information Infrastructure to support the above applications.** Underlying the systems mentioned earlier, must be a secure, reliable, and well-managed platform to serve the applications and databases, which will be needed. This is a responsibility that will need to be taken up by the respective governments and whose procurement will need to be facilitated by the governance entity (see #1 above).

- The infrastructure that is needed, will largely have to be freestanding and health-specific given the delicate nature of health information. Thus, it will likely be necessary and advisable to create a separate 'Health Information Infrastructure', which uses dedicated networks and data centers ("health clouds") as needed.

- This should include a standardized cloud-based infrastructure as an 'information utility' to provide computing power to these new applications/systems.

- Related to this will be investments and partnerships to be made for boosting the number of, and knowledge of, health informatics professionals in the country. The leading universities, private sector providers and ministries/departments of health need to come together and create a pipeline of talent to steadily increase capacity health informatics. These professionals are key to driving innovation and adoption of information technology throughout the healthcare sector of India.

POTENTIAL IMPACT OF A HEALTH SYSTEMS TRANSFORMATION

This is a pivotal moment in the evolution of India's health system. Meaningful advancements have laid the foundation for transformative change. India has a significant opportunity to leverage this foundation and further strengthen its health system performance to improve the lives of millions of its people, while substantially contributing to economic growth and country competitiveness.

Accelerated reduction of avoidable mortality

- Adult mortality during highly productive years (15 to 49 years of age) could by 2028 decrease to 287/1000 population compared to 339/1000 population without reforms - a gain of more than 16% over the historical trend[26].
- Infant mortality could lower by year 2028 to 15.4/1000 live births compared to 21.4/1000 live births without reforms[27] - saving more than 1 million additional infant lives.

Accelerated reduction in out-of-pocket expenditures (OOP), reducing poverty due to illness and improving household's allocation of resources to human development capital.

- Out-of-pocket expenses could reduce to 45-48% of total health spending by 2028, compared to 60% without reforms - a significant 19% reduction[28]. Preliminary calculation suggest, this could result in the reduction by one-third in the number of households falling into poverty due to OOP-driven health spending -- protecting at least 1.5 million households.

Accelerated improvement in India's economic growth through higher labor productivity; improved Foreign Direct Investment climate; some increase in small and medium enterprises and individual formalization; and more equitable household income growth.

- 16% improvement in adult survival (15-49 population) could significantly increase labor productivity and subsequent growth (not including DFI climate improvements, formalization effects and others). There is likely to be a 2.8% increase in labor productivity per each 1% increase in adult survival[29]. In turn, labor productivity increases have a large effect on country economic growth and on household income. It is estimated that per each 1% of labor productivity growth, GDP growth increases by 4% in India. In this context, a 16% decline in adult mortality would increase real GDP by 64% by 2030. Up to 50% of the decline in mortality (and therefore of the potential GDP increase) can potentially be attributed to improvements in health systems performance.

Better consumer experience and citizen trust in the health system and higher policy and political support: Global experience demonstrates improved infant and adult survival, reduced OOP, good governance and universal access to quality care raises citizen trust in the health system.

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NITI Aayog