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Review Article

Can current Indian health system achieve health related SDG's?

Summary

Introduction: India has committed to Sustainable Development Goals and Universal Health Coverage by 2030. National Health Policy 2017 is in place with a Goal of The attainment of the highest possible level of good health and well-being, through a preventive and promotive health care orientation in all developmental policies, and universal access to good quality health care services without anyone having to face financial hardship as a consequence.

However, the health care system in the country suffers from inadequate funding. There are several structural problems too, like the lack of integration between Disease control, Family Welfare Programs, non- communicable diseases control and other programmes in the social sectors. Over the years differential priorities for interventions have led to poor accountability for Results of Primary Health Care and recent commitment of Universal Health Care.

The country has some good public health achievements since independence like eradication of smallpox, Guinea worm disease and recently Polio. As of 2019, the triple burden diseases like firstly, continued vector borne communicable diseases and emerging and re-emerging communicable diseases, secondly, ageing population coupled with non-communicable diseases like diabetes, cancers, and heart diseases, and thirdly silent killers in nutritional disorders haunt the countries public health system.

Poor investment in health infrastructure and human resource, Poor Accessibility & Accountability of health services especially for poor, weak regulatory systems for drugs and medical practice. Under-utilization of Technological and digital advancement in Government, Poor capacity in Public health management, Poor Public, Private Partnership in complementing health services and sub-optimal use of traditional systems of Medicines are the key challenges faced by the public health system of the country.

Socio-cultural barriers of Health & sickness Behavior of the Population, inadequate investment by national and provincial governments and want of concerted efforts for harnessing the Community Systems (Community System Strengthening) has led to poor active participation of communities in preventive and Promotive health care add to the challenges.

Conclusion: India has a healthcare system, with inequitable coverage and quality. The glaring deficiency is the lack of well-equipped public health system. The needs of public health are neglected as healthcare and public health compete for attention in a single system. Public health is a long-term investment that is yet to be constructed and expanded in India to realize the social and economic benefits alluded so far. Nationwide public health strategy is essential for achieving equity in health in near future. Indian health services need to move from input-based management to result based management by, improving the efficiency of a country's health system, setting individual and institutional performance Goals and monitoring of all the work done by country governments, private sector, foundations etc. It is people in each of these institutions that make them work and determine their success. Optimal professional performance is essential and to deliver this kind of performance, everyone in the institution must have clear performance goals and account for their achievement. Monitoring that each of the agency, organization, project, or health facility has clear performance goals for short term up to 2020, and yearly thereafter at national and provincial level and for every quarter of the year at the district and sub-district level is the need of the time.

What is required is aggressive implementation of the strategies and results monitoring. We need to monitor if everyone in the organization, project, or health facility have clear performance goals that are aligned with the overall institutional goals? Similarly does everyone have clear lines of accountability and reporting? How will individual performance be monitored?

If policy makers show their will by increasing public outlay, as low outlay so far has made it impossible for the public sector to respond to the growing health needs of the population. India has the skills & resources to provide sustainable development goals. Financial resources cannot be cited as a constraint nor fragmented as we are seeing in standalone Swachh Bharat taxes to raise resources for sanitation or Ayushman Bharat the health assurance scheme. What is needed is transformational initiative in health financing, public private mix in service delivery & strengthening Primary Health Care to take it to people's doorsteps and a viable referral mechanism and system to link to the secondary and tertiary care facilities. The health system should prioritize interventions for preventions of untimely deaths, diseases, disability limitation & rehabilitation and not just reproductive, maternal and child health plus as being done now. A robust public health system acts as first defense by preventing outbreaks, if occur controlling the spread soon and limit the damage of endemic diseases.

Approach to health care needs to take comprehensive, pay attention to broader determinants of health such as sanitation, safe drinking water, water & noise pollution, roads and transport. Last but most important is to involve people in deciding health priorities, own interventions through empowerment of the people, social mobilization and community system strengthening to lower inequities.

Accountability is the need of the time. The Role of Governments, Private sector, business houses and Civil Societies in the Implementation need to be clearly listed out and made known. It can be enforced only when there is clear chain of command.

This article analyses the existing health system, health financing, disease burden, national health policy 2017 in the context of Sustainable Development Goals and the ailments in public health system and other complimenting development support systems and competing private health care and recent national efforts to ameliorate the challenges and suggests road map to achieve Sustainable Development Goals by 2030.

Introduction

Achieving Sustainable Development Goals (SDGs) set up by United Nations [1], is the commitment of India. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, Fight inequalities and tackle climate change, while ensuring that no one is left behind [1]. The SDGs build on the success of the Millennium Development Goals (MDGs) and aim to go further to end all forms of poverty. The new Goals are unique in that they call for action by all countries, poor, rich and middle-income to promote prosperity while protecting the planet. They recognize that ending poverty must go together with strategies that build economic growth and addresses a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection [1]. India has aligned its National Health Policy 2017 [2], to achieve these goals. It had launched National Health Protection Scheme (Ayushman Bharat) [3], a health assurance scheme on 25th September 2018 to cover the health expenses of secondary and tertiary care of over 500 million poor beneficiaries and Jana Aushdhalaya's [4], -chain of pharmacies to improve the access to essential drugs at an affordable cost, Both these initiatives confirm the Indian government's commitment. As a reconfirmation their commitment Indian government has recently raised their 2019 healthcare spending by 13.6% YoY to US$8.9b from US$7.45b in 2018 [5].

In September 2015, the United Nation's General Assembly established the Sustainable Development Goals (SDGs) which specify 17 universal goals, 169 targets, and 230 indicators leading up to 2030. The Sustainable Development Goals (SDGs) have been criticized by some as "senseless, dreamy, garbled", as compared to the Millennium Development Goals (MDGs). As they are not Specific, Measurable, Attainable, Relevant, Time bound (SMART), and easy to communicate (Figure 1).

The Institute for Health Metrics and Evaluation assesses in 188 countries by drawing on their Global Burden of Disease (GBD) [6], database annually. GBD produces estimates of mortality and morbidity by cause, age, sex, and country for the period from 1990 to the most recent year, annually reflecting

Figure 1: Sustainable development goals-2030.
Source: WWW.WHO.INT/SDGs.

all available data sources adjusted for bias. Statistical methods are applied to systematically compiled data to estimate the performance of 33 health related SDG indicators. Health-related SDG indicators are indicators for health services, health outcomes, and environmental, occupational, behavioral & metabolic risks with well-established causal connections to health. SDG index is used as a powerful tool to communicate to the public the merits of investing in health by showing gains evidenced by simple numbers though the global priorities over-ride local concerns and priorities. Public health itself is the overarching system that unites interventions cutting across several administrative departments and ministries, that support of disease prevention. Public health can make full use of data from vital registrations, case-based reporting of mandated notifiable diseases, reports of epidemiological intelligence to combat the transmission of infectious diseases and risk factors of non-communicable diseases and injury. Today due to poor public health system in most of the developing countries the healthcare service is burdened with firefighting of preventable diseases outbreaks, crowded hospital beds, poor diagnostic potentials and overworked healthcare workers.

India has a healthcare system, with inequitable coverage and quality. The glaring deficiency is the lack of well-equipped public health system. Public health is most impactful if it promotes policy, analyzes the social determinants of health,

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and unearths the root cause of diseases and invests in locally relevant interventions. Organized public health should address and redress the determinants of ill health at the community and environmental levels. It keeps protecting the health of the population by ensuring all diseases are continuously monitored, promotes appropriate interventions for the timely prevention and control of risk factors that pose a threat to people's health. These functions can be achieved by the implementation of biomedical, environmental, and social interventions such as child nutrition immunizations, vector control, reduce air and noise pollution, provide safe water and ensure safe disposal excreta, sewage and sullage by appropriate sanitation measures.

Public health is a long-term investment that is yet to be constructed and expanded in India to realize the social and economic benefits alluded so far. Nationwide public health strategy is essential for achieving equity in health in near future. Public health structures are visible to the public eye, but their achievements are forgotten soon as seen in eradication of smallpox, Guinea worm and Polio in last 4 decades. No one today can see these diseases and the prevention of devastations they caused. Therefore, public health as of today is neither appreciated nor the public health professionals rewarded by the Indian media, Public and the government,

On the contrary sickness care (what hospitals and clinicians provide) on the individual is immediately satisfying and visible to the public and political leadership. That is the reason why the needs of public health are neglected when healthcare and public health compete for attention in a single system. Recent recognition of these facts has Improved the cooperation between medicine and public health. They have now started functioning based on the strengths of each discipline and mutually respecting each other, that is more likely to be effective in the years to come with the goal of achieving SDGs.

India-General Profile: India is Situated North of the equator between 6° 44' and 35° 30' north latitude and 68° 7' and 97° 25' east longitude. It is the Seventh-largest country by area (3,287,240 sq. km) and is the Second populous country in the world with 1.35 Billion (mid-year 2019). It has an annual growth rate of 1.19% with a Population density of 382 per sq. km. The population comprises of 51.5% males and 48.5% females and a Sex ratio of 940 females for every 1000 males as per 2011 Census.

Health Profile of India: India has a Crude Birth Rate of 21.6 & Crude Death Rate of 7.0/ 1000 population as per Sample Registration Scheme (SRS) of Registrar General of India (RGI) in 2017. Infant mortality rate (IMR) in 2017 was 42 per 1000 live births, maternal mortality ratio (MMR) is down to 254 per lakh live births and Total fertility rate has declined to 2.67. Life expectancy is now 63.5 years 3 years below the lower- and middle-income countries (LMICs) average. According to the Global Burden of Diseases 2010 study, total Disability Adjusted Life Years (DALYs) lost are 519 million years for the Indian population. The economic cost of these illnesses to the country is estimated to be 600 billion dollars [6].

By 2020, an estimated 97 million Indians will be aged 60 or older, up from what was 64 million in 2010. The number of diabetes cases are expected to increase (60 million in 2011) to 100 million by 2030. There is a wide divergence in the achievements across states and Inequities continue based on rural, tribal and urban divides, Gender imbalances, Economic conditions of families, Literacy and caste patterns. The children born in poorest or illiterate households run twice the risk of dying before age five or suffering irreversible stunting due to chronic under nutrition. The girls born in such families run thrice the risk of dying due to teen-age pregnancy and adults dying of Tuberculosis, Vector Borne Diseases, diabetes and Cardiovascular Diseases [6]. Though all the urban areas appear to have a rich array of health and social services agencies, the health situation in all most all slums and transient communities is bad. In nearly half of the slums and poor colony's absence of formal basic services like health, education, roads, sanitation and even emergency services is common, because of the delay in recognizing them by local bodies to provide basic services for many years.

India accounts for a relatively large share of the world's disease burden and is undergoing an epidemiological transition that is resulting in the non-communicable diseases dominating over communicable in the total disease burden of the country. The Indian State-Level Disease Burden Initiative (2017), has observed that the disease burden due to communicable, maternal, neonatal, and nutritional diseases, as measured using Disability-adjusted life years (DALYs), dropped from 61 per cent to 33 per cent between 1990 and 2016. In the same period, disease burden from non-communicable diseases increased from 30 per cent to 55 per cent. The epidemiological transition, however, varies widely among Indian states- non-communicable diseases being in the range of 48% to 75%, infectious and associated diseases 14% to 43%, and injuries 9% to 14% [7]. The Total Fertility Rate (the average number of children that will be born to a woman during her lifetime) in 12 States has fallen below two children per woman norm and 9 States have reached replacements levels of 2.1 and above. Delhi, Tamil Nadu and West Bengal have lowest fertility, that is declining rapidly, among the poor and illiterate too [7].

Burden of illness in Rural and urban india [8]

National Sample Survey Organization (NSSO) report for January-June 2014 indicates that, 1) About 12% of urban and 10% rural population reported prevalence of some ailment during last 15-day reference period of the survey. It had increased from 54 to 118 in urban areas compared to 1995-96 survey and the same had gone up from 55 to 89 in rural area in the same time gap. Among the urban females it had gone up from 51 to 101 whereas for rural females it had gone up from 58 to 135 during the same period clearly indicating that rural women sickness rate had increased more than urban females. 2) Proportion of ailing person per 1000 population (PAP- no. per 1000) was highest for the age group of 60 & above (276 in rural, 362 in urban) followed by that among children (103 in rural, 114 in urban) and the lowest being in the youth (age bracket 15-29 years) for male and 10-14 years age bracket for female, in both urban & rural areas.3) The inclination towards

seeking sickness care was clearly higher towards allopathic treatment as around 90% in both the sectors sought allopathic care. More than 70% (72% in rural and 79% in urban) spells of ailment were treated in the private and public sector facilities catered only 28 and 21.2 % in rural and urban areas respectively. 4) The highest expenditure was recorded for Cancer (INR 56712), followed by Cardio-vascular diseases (31647). For cancer treatment an average amount of INR 24526 was spent in public hospital whereas INR 78050 was spent for the treatment in private hospital clearly indicating the spiraling cost of care in private sector. 5) About 4.4% of the urban population was hospitalized (excluding childbirth) any time during a reference period of 365 days. 6) Health Insurance /assurance coverage was poor as 82% of urban population was not covered by any health insurance scheme, 12% were covered by Govt. funded insurance scheme, 3.5% by household insurance with companies, 2.4% by employer funded schemes and remaining 0.2% by others.

Who spends for Health Care in India?: The figure 2 shows that the households spend nearly 73%, followed by

Figure 2: Wealth in Health.

Figure 3: Cost of cure.
Source: NHA estimates for India 2013-14, MOH&FW.

State Governments (12.7%), Govt. of India (7.8%), Urban Corporations (2.9%), Social Insurance from Employers (1.3%) and others (2.4%).

How and Where the Money is Spent for Health: An analysis of the pattern of spending indicates (Figure 3) that about 29.5% was spent on general outpatient care, followed by general inpatient care (20.2%), specialized outpatient care (15.6%), specialized inpatient care (14.75), health conditions monitoring (6%), patient transportation(4.5%), epidemiological surveillance, health administration (2%0 and others (5,1%). Key point to notice is that around 29% of total expenditure is spent on public health.

The nature of itemized expenditures indicates that most of the money (35.7%) is spent on drugs, followed by private general hospitals (21%), Medical and Diagnostic Labs (9,9%) and rest others in the range of 4.5% to 2.1%.

Health Care System in India: Health Care System in India comprises of mix of complex multiple systems interacting and sometimes contradicting each other. The pluralistic political structures also create competing stakeholders drawn from different systems medical practices with wide range starting from a illiterate unregistered medical practitioners (RMPS / quacks) to super-specialists. The cities are inextricably linked to other sociopolitical levels, such as municipal neighborhoods, wards, metropolitan regions, cantonments and states and national systems like Railways, Employees State Insurance Scheme (ESIS) and defense, each of which make demands and offers resources to the other levels. Local political and social forces like Municipal Councilor, Member of Legislative Assemblies (MLA) and Members of parliament (MP) and Philanthropic individuals and organizations create wide variations in the contexts in which services are provided and programs are delivered. This contextual complexity demands suitable interventions. A well-coordinated intersectoral approaches to involve facilities of Industrial Corporate Social Responsibility (CRS) and Public Private Partnerships (PPP) demand excellent management arrangements, that heavily depend upon state health administrative machinery, most of who fall short of the requisite expertise and management skills. Govt. of India is responsible for developing and monitoring national health standards, linking states with funding agencies, planning, supporting and overseeing the national health programs & providing health services in union territories with no Legislative Assemblies.

Public Health Care System

The Public Health care system in India has two clear divides 1. Rural India, that is reasonably well organized over last 6 decades and 2. Urban India- that was neglected by Health ministry and the nodal ministry - the Department of Municipal Administration for very long.

1)   Indian public health system has a three-tier system of health care servicePrimary health care consisting of i) Village /community level link workers called Accredited Social Health Activists (ASHAs) with short trainings for every 1000
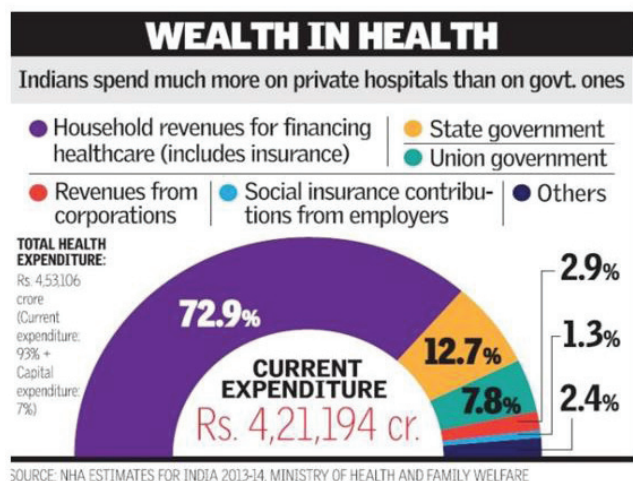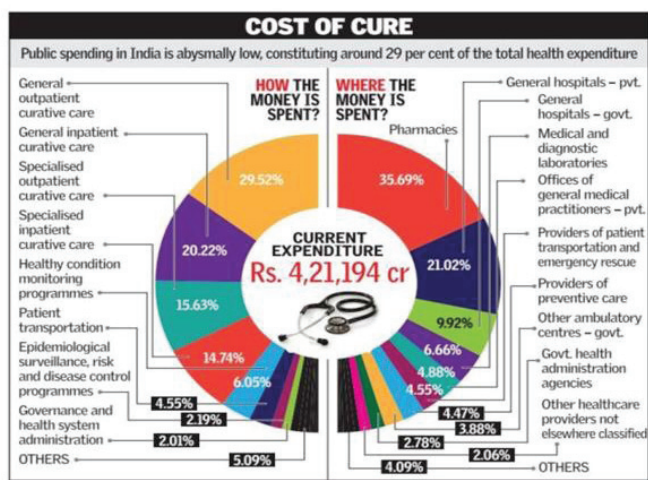
population in rural and every 2000-2500 population in urban areas. Ii) Health sub-centers for every 3000-5000 population in tribal/Hilly & Rural and every 10,000 urban areas poor population in Urban areas manned by formally trained for 2 years Auxiliary Midwives (ANMs). iii) Primary Health centers with a team of multidisciplinary workers including nurses, pharmacist, lab technician and other support staff and lead by 2 medical graduates.

2. The Secondary health Care system consists of community health centers for every 100,000 population with basic specialist in Medicine, Surgery, Obstetrics & Gynecology, a Taluka or sub district hospital and district hospitals apart from ESI, Railways and Defense hospitals and Municipal Hospitals with specialists, basic duty doctors and team of paramedical support staff for managing pharmacies, diagnostic laboratories and nursing

3. Tertiary care is available mostly in Medical College Hospitals super-specialty hospitals and rehabilitation centers. These are found mainly in state capitals and other Bigger cities like Pune, Nagpur, Hubballi, Cuttack, Vishakhapatnam and large Industrial towns like Bhilai, Jamshedpur etc.

While the rural infrastructure is being expanded over multiple five-year plan since Bhore committee [9], report of 1946, and by now reasonably well established in majority of the states, the urban primary health care system is being development under national Health Mission [10], since 2013 and is in initial stages of establishment.

The Indian System of Medicine popularly known as AYUSH includes Ayurveda (A), Yoga (Y), Unani (U), Siddhi (S) and Homeopathy (AYUSH), Tibbi, Unani and naturopathy clinics. These hospitals were running vertical facilities until 2013 and are being integrated strategically Under NHM at the primary and secondary care level facilities recently.

Urban Health Care Providers

Public Sector Health Services in Urban areas: Urban health care services are mainly dominated by Private facilities ranging from Jhola Chhap (mobile quacks- door to door service provider) unregistered care provider (RMP) to super-specialists. The complexity increases as the size of the town/city increases. Public sector service providers include municipal dispensaries, maternity homes, infectious diseases hospitals (run by Municipal Administration, state Health & Family Welfare department, CGHS, ESIC, Railways and Defense) and urban ICDS centers run by the State Women and Child Welfare Departments. Primary Health Care is provided to the urban poor population through municipal dispensaries, urban PHCs and clinics. Supplementary preventive and promotive health services are also available through School Health Clinics, ICDS centers, Balwadi's, NGOs, charitable hospitals and Mobile Dispensaries

Government of India with the help of soft loan from the World Bank under Health system strengthening projects between mid- 1980's to 2000 established urban health posts, Primary Health centers and referral hospitals in major cities like
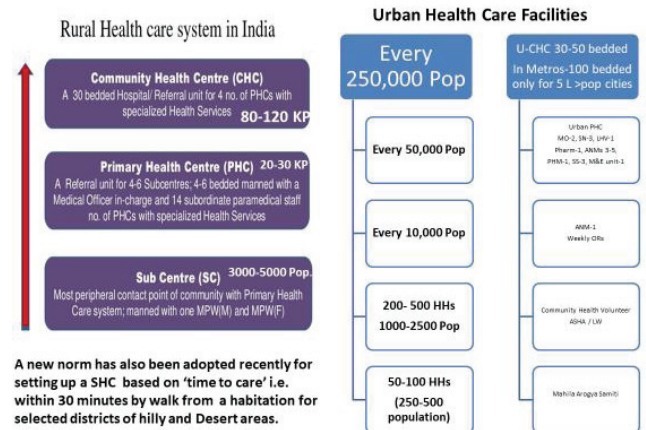

Figure 4: Public Health infrastructure in india.

Mumbai, Delhi, Kolkata, Chennai, Bengaluru and Hyderabad, that are under the administrative control of local Municipal corporations. After the launch of National Health Mission in 2013, Primary health care set up (Figure 4) for Universal Health Coverage (UHC) are coming up in all categories of towns & cities, though the take- off has been slow across the country.

State and national Governments influence the health of urban populations by providing municipal services and regulating activities that affect health and regulating parameters of urban development. Therefore, Government policies do exacerbate or reduce social inequality and support living conditions that promote or damage health. Government's successes and failures in sectors like, education, public & private transport, public safety, criminal justice, welfare, housing, and employment affect health.

The urban local bodies and urban poor populations have limited resources to face multiple determinants that effect their health namely education, employment, crime prevention, environmental protection, and sanitation. Any investment or disinvestments in these areas will be key to improving or deteriorating the health of the population. The priority given by municipal governments is to inter--sectoral approaches within their agencies and to assemble the coalitions with voluntary agencies and garnering political support determines the success. For this to happen urban public planners need to define disparity reduction as an explicit goal.

Urban Private Sector Health Care Providers

The complexity of private health care in urban areas also increases as the size of the town/city increases. Host of Private health providers including Private Medical colleges, pro-profit corporate hospitals and nursing homes and clinics run by family physicians are the hallmark of the urban health services. Bigger cities will also have some Trust & Charitable Hospitals.

Private Sector provides care to 70% of outpatient episodes of which Private Hospitals contribute (62%), Nursing Homes (24%), Charitable Hospitals (3%), Corporate Hospitals (2%),

Others (1%), In terms of service providers Medical & Dental constitute (52%), AYUSH Doctors (10%), Diagnostic Labs, ISM hospitals (14%), Nursing & Physiotherapy (2%) and Others (2%) [8].

What is unique about urban population in the context of health? [11]

The urban population is unique in some determinants of Health.

1) **Population composition:** The urban populations have no urban genotype; genetic characteristics interact with environmental conditions to produce urban phenotypes with health resiliencies and vulnerabilities. Changes in urban population composition over time because of urbanization, aging immigration and fertility decline have a profound impact on health

2) **Economic conditions:** Heterogeneous economic conditions are explicit as on one side we have some filthily rich or influential people having access to both private and Government facilities, and on another side we have urban poor that include homeless, Jhuggi-Jhopri (JJ), relocated from JJ, Dalit Basti's, Nomadic, construction site camps, unauthorized slums, regularized slums and registered slums, approved colonies, transient population who need health services most and generally have either geographical or financial difficulty in accessing.

3) **Social Conditions:** The migrated population from different rural background from certain districts /states settle together in any city. This leads to continued gender inequity, poor educational & skill background, socio-cultural practices, Alcoholism & drug abuse

4) **Living Environment:** The slums have insecure land tenure and poor housing standards, overcrowding and having poor access to water supply, sanitation and sewerage system that dd to the health problem.

5) **Unlisted slums with Rapid mobility:** Almost all the slums are unregistered for initial 5-10 years with temporary migrants. Therefore, they are denied access to health and other development services. They are compelled to commute long distances to go for work and are exposed to additional risk of road accidents, sound and smoke pollution in addition to commuting pain.

6) **Multiple Disease burden:** Since people come from different background, bring various area specific infections, chronic diseases and mental health conditions and expose other for the risk of transmission

7) **Collective Capacity:** They lack collective efforts or organizing the community for Fighting against civil authorities as people would have come from different background and takes time to build mutual trust,

8) **Environmental Pollution:** Since most of these slums are built on land fills many of them would not have faced in their rural life the challenges of air, water and Noise pollution adding to health risks

9) **Access to use of Public Health Facilities:** The public health facilities like dispensaries, Anagnwadi centers are far away and provide low quality of services, that might discourage them seeking early care or go to private sector and get exploited leading to getting trapped into poverty.

National Health Programs [12]

The Government of India, Ministry of Health and Family Welfare is responsible for planning and State governments for implementation of various programs of prevention and control of communicable and non-communicable diseases. These programs provide an additional opportunity to the states by sharing standard case management protocols, supplies, diagnostics, human capacity building, apart from preventive and promotive activities that include surveillance and outbreak management guidelines and technical support as and when needed. The National Health Programs launched since independence, include A. Communicable Diseases: 1. Revised National TB Control Program (RNTCP), 2. National Leprosy Eradication Program , 3. National Filaria Control Program, 4. National Aids Control Program, 5. Integrated Disease Surveillance Project (IDSP), 6. National Vector Borne Disease Control Program (NVBDCP). B. Non-Communicable Diseases, Injury & Trauma: 1. School Health Program, 2. National Program on Prevention and Control of Diabetes, CVD and Stroke, 3. National Program for Prevention and Control of Deafness, 4. Universal Immunization Program, 5.National Cancer Control Program, 6. Mental Health Program, 7. Iodine Deficiency Disorder Control Program, 8. Program for Control of Blindness, 9. Vit. A and IFA Supplementation Program, 10. National Program for Prevention and Control of Fluorosis (NPPCF), 11. National Tobacco Control Program and 12. National Program for Health Care of elderly (NPHCE). All level Govt. facilities are involved in NHPs and since last decade many private facilities are being roped in HIV/AIDS program, Revised National Tuberculosis control program B and National vector borne diseases control program (VBDCPs).

Indian Public Health Successes: The Indian Public Health history stands by the country that if there is a political commitment and resource allocation, we can achieve any goal despite all challenges. We have to our credit eradication of small pox in 1977 (last case May 1975), Guinea worm disease (dracunculiasis Medinensis) in mid-February 2000 (last case reported in July 1996) and polio in 2012. India is certified as NNT free (April 2015) and Yaws free (2015) much before WHO mandated time-line of 2020.

Crude Birth Rate (CBR) has come down to-20.4/1000 population, Crude Death Rate (CDR) has come down to-6.4 IMR-34 (SRS-2016) [13], under five mortality rate (U5MR) came down from 126 in 1990 to 43 in 2016 with an annual reduction rate 4.1 [14]. Maternal Mortality Ration came down from 254 in 2004-06 to130 in 2014-16 [15].

Access to primary health care for Non-communicable Diseases for has improved up to PHC level. Access and quality of tertiary care and rehabilitation has also improved especially in private sector especially in State Capitals and some major

cities. Streamlining home visits by Accredited Social Health Actvisits for homebased maternal and neonatal care is expected to further improve these rates.

Health Infrastructure in India as of 31st March 2018 [16]

In India the total infrastructure as of 31 March 2018 included 314 medical colleges and hospitals; 1130 sub-district and 764 district (12760) Govt. hospitals, Community Health Centers (CHCs) 5624, Primary Health Centers (PHCs) 25743, Sub-centers (SCs)158417. Even then there is a shortfall of 32900 SCs (18%), 6430 PHCs (22%) and 2188 CHCs (30%) across the country as per the Rural Health Statistics (RHS) 2018 [7]. Population per Government Hospital Bed 2012.Blood banks – 2445, Eye Banks – 586. There is a huge private sector in towns and cities for health care, majority of which is unregulated. Overall health sector limitations can be summarized as: i) As against a WHO recommendation of 2.5 per 1000 population we have 1.65 trained allopathic doctors and nurses. Ii) The total hospital bed density in the country is around 0.9 per 1000 population as compared to the global average of 3.0 and the WHO guideline of 3.56. During the last two decades the private

sector grew a lot its share of beds increased from 49 per cent in 2002 to 63 per cent in 2010. Private diagnostics market is growing at 20 per cent and the pharmaceuticals market at around 15% per annum [6]. The private sector accounted for 60 percent of all in-patient admissions and 78 percent of outpatient consultations [8].

Why Health Care Facilities matter? Healthcare facilities are the basic building blocks of a health system. A healthcare facility is designed to provide a certain type of services based on the size of the local population and their epidemiological pattern.

Primary health care set up (Figure 4) in India provide the essential preventive and curative care required to address the most prevalent conditions, including reproductive and maternal health, child health, nutrition and diagnostic and treatment services for most common conditions. It is also from these PHC facilities that we run public health programs and community-based programs using community health workers like {Accredited social health activists (ASHA's) Anagnwadi workers (AWWs), Traditional Birth (TBAs) Attendants and other community volunteers}. The importance of coordination and

Map of India
State boundaries & No of Districts by State-2019 and Other Health Information

- 5000 years old Ancient Civilization
- 325 Languages Spoken & 18 OLs
- 3.28 Million square kilometre Area
- 29 States + 7 Union Territories
- 7516 Kms of Coastal line
- 1. 35 billion population http://www.indiapopulation2019.in/ (51.6% male, 48.4 female)
- India shares 17.5 % of the world's population & 2.4% of surface area
- GDP (nominal) 2019: India at current prices is $2957.72 billion. Rate 8%
- Health (2014) expenditure –Global- 1067.987 US$ (9.945% of GDP) & India 75 US$ (4.7% of GDP) ,
- OOPs expenditure on health was Global- 18.154% in India it was 62.4%

Infrastructure as of January 2019

States (29) 7UTs(7)	36
Districts (CMOH/DHFWO)	723
Health Sub-centres	1, 58,417
Primary Health Centres	25,743
Community Health Centres	5,624
Sub-divisional Hospitals	1,130
Districts Hospitals (DH)	764
Medical Colleges (2017)	460
Hospitals for DNB	146

Source: Map- http://www.goidirectory.gov.in/district.php retrieved 15/08/18. Other information from multiple sources i.e. MOH&FW, Ministry of Statistics & Planning

Map of India- State boundaries & No of Districts by State-2019 and other Health Information.

accountability in managing the Primary Health Care facilities and national health programs in any developing country needs no emphasis.

The patients with less frequent or serious conditions that require specialized diagnostic and treatment services are referred to a secondary care (sub-district & district) hospitals where more complex medical technology can be accessed and basic specialists like Physicians, surgeons, Pediatricians and Obstetrician and Gynecologists provide services Specialized hospitals that deliver tertiary and even quaternary levels of care for trauma, cancer, burns, cardiac surgeries etc. are provide are located in state capitals and some other big cities depending on geographic accessibility. In an extraordinary decision Govt. of India has made provision to hire such services from the market if they are not available in the nearest public health facility under National Health protection Scheme popularly known as Ayushman Bharat. For this reason, India needs to have an effective health surveillance and information system that allows it to plan and monitor effective programs to prevent and control diseases. Mandatory spending of 2% of the profits as Corporate Social Responsibility (CSR) by Industries has opened a new opportunity for Public Health Good in the country. Many Private Health Insurance Companies are competing for big share in market justice but are yet to include coverage of outpatient care which forms a big component of out of pocket expenses on health care by families.

Response of Government of India for achieving SDGs & UHC: In response to its commitment, Government of India has put up a National Health Policy 2017 (NHP 2017) to address the challenges of SDGs and Universal Health Care in particular. The work started in 2015 as NITI Ayog carefully studied and summarized the national health and health services situation as i) Indian GDP (nominal) in 2014 at current prices was $2,049.5 billion. It contributed 2.65% of total world's Gros Domestic Product (GDP) in exchange rate basis. India is now 9th largest economy in the world, 3rd after China and Japan among Asian Countries. India has 17.5 % of the world population & 2.4 % of the surface area. Health expenditure (2014) was 75 US$ (4.7% of GDP) as against a global average 1067.987 US$ (9.945% of GDP). Out of Pocket (OOPs) expenditure on health in India was 62.4% as against 18.154% globally. Overall, Non-communicable diseases contribute to 39.1%, communicable diseases to 24. 4% of the entire disease burden. Maternal and neonatal ailments contribute to 13.8%, and injuries (11.8%) now constitute the bulk of the country's disease burden. India today possesses a sophisticated arsenal of interventions, technologies and skilled human resource required for providing best health care to her people but the gaps in health outcomes continue to widen year after year. Finally, it inferred that the almost exclusive focus of policy and lack of monitoring aggressive implementation has led to provide universal coverage for less than 10% of all mortalities and only for about 15% of all morbidities. More than 75% of communicable diseases are not yet part of existing national programs and non- communicable diseases programs have very limited coverage and scope, except perhaps in the case of the Blindness control programme [2].

The analysis inferred that the power of health systems to deliver the power of health interventions to those in greatest need, in a comprehensive way, and on an adequate scale was not matched. Hence NHP 2017 has incorporated 7 Key Policy Shifts –a) Ensuring comprehensive primary Health Care (CPHC) care that has continuity with referral facilities at higher levels by an appropriate referral mechanism, b) Changing the resource allocation from an input oriented, budget line financing to an output-based financing. This also includes need based strategic purchasing of secondary and tertiary care from private facilities c) It assures free, diagnostic and emergency services to all seeking care in public health facilities, d) It has targeted Infrastructure & Human Resource Development to reach under-serviced areas throughout the country. e) It has recommended specific plans to scale up health services in urban areas with a focus on urban poor and establish linkages with national programs, from what was a token under-financed intervention in all previous national health plans. It also envisages to achieve convergence among various departments and agencies responsible for wider determinants of health urban population f) For the first time it also envisages to Integrate National Health Programs with health systems for better effectiveness and also contributing to strengthening health system's efficiency g) A three-dimensional mainstreaming of hither to stand-alone AYUSH system of medicine for better cafeteria approach of service provision (Box 1).

Box 1: National Health Policy 2017 statement of good Intentions?

What Does Indian NHP 2017 Commitment of UHC & SDG mean?

The domains of Health-related SDGs included in National Health Policy 2017 are [2]

Mortality Reduction Targets: The country aims to reduce its i) MMR to less than 70), ii) Child Mortality Rate to less than 25, iii) Neonatal Mortality Rate to less than <12 iv) Premature mortality from NCDs by one third. It also plans to halve the number of deaths from road traffic accidents and substantially reduce the number of deaths from hazardous chemicals and air, water and soil pollution and contamination

Ending the epidemics: It also has plans for substantial reduction of AIDS, tuberculosis, vector borne diseases and neglected tropical diseases and combat hepatitis, water-borne and other communicable diseases.

NCD: India has plans to promote mental health on a large scale & Halve injury from road traffic accidents and substantially reduce illnesses from hazardous chemicals, air, water and soil pollution.

Substance abuse: Strengthen prevention & treatment of narcotic drug abuse & harmful use of alcohol.

General Sexual & Reproductive Health-Care Services: Ensure universal access to General Sexual and Reproductive Health care Services

UHC: Achieve universal health coverage by 2030

Research and development: Support the research and development of vaccines, health equipment, tools & medicines

Increase Health Resources: Substantially increase health financing & Health workforce

Strengthen the capacity: Of all Countries for Tobacco control, early warning, risk Crucially, the national and State health communities need to move beyond assessing individual health-related SDGs to investigating the links between different goals. The issues like reduction of Poverty (SDG-1), Hunger/Nutrition (SDG-2) education (SDG-4), gender equality (SDG-5), access to clean water and sanitation (SDG-6) peace, justice, & strong civil institutions all have a profound impact on health. Sanitation has already been made national priority with Swachh Bharat Mission. Many studies have indicated that Education contributes for increasing the number of trained health workers at the community level, who in turn will help change the behaviors and habits of people that have a positive impact on an individual's health. Everybody knows that the Children who complete basic education eventually become more capable parents for providing quality care for their own children and better users of health and other social services available to them. Evidence indicates that when girls with a basic education reach adulthood, are more likely to manage the size of their families according to their capacities and are more likely to provide better care for their children and send them to school than those without an education. Better nutrition efforts like Ending hunger by employment generation and Nutrition (macro & micronutrients: under & over) programs have direct influence on the health status and resistance to many infections. End poverty in all its forms everywhere especially during natural calamities like Floods, Fire, Famine, Earthquakes & Accidents and disease disasters (outbreaks) are the basic needs for maintaining health. Gender inequality in seeking health care is the most glaring phenomenon we see and neglected by people and Government. It needs a social revolution and better behavior from service providers.

Other Key Health Related Initiatives that will contribute to Health

1. **Pradhan Mantri Bhartiya Jan Aushadhi PariYojana**

Kendra (PMBJPK) [4]: A countrywide Sample Survey on healthcare, in 2014, indicated that the medicines emerged as a principal component of total health expenses—72% in rural areas and 68% in urban areas [10]. To address the problem of availability of quality medicines at affordable prices to common man, a campaign called "Pradhan Mantri Bhartiya Jan Aushadhi Pari Yojana (PMBJP)" was launched by the Department of Pharmaceuticals, Govt. Of India. The scheme envisaged to make available the basic essential medicine through special Centers known as Pradhan Mantri Bhartiya Jan Aushadhi Kendras (PMBJPK), that were set up to provide generic drugs, at lesser prices but are equivalent in quality and efficacy as expensive branded drugs. Procurement of drugs under this scheme is done by Bureau of Pharma Public Sector Undertakings of India (BPPI) established under the Department of Pharmaceuticals, Govt. of India, from World Health Organization approved and good manufacturing practices compliant companies only. The Scheme can have negative impact on Pharma companies which resort to established unholy nexus of doctors and drug industry. Large pharma companies are not keen to participate in this as it would disturb their existing cost structure and directly cannibalize their products in the retail market. Scheme will be beneficial for small scale industries and improve their quality. It can foster rise of pharma industry in the nation which can compete globally with their assured quality and competitive cost. The ability of the government to create more suppliers for scheme will depend on the guarantees the government gives for both timely payment and specified minimum offtake. Pharma companies would decide on the products they would like to focus on, leaving out products covered under scheme. There are about 5000 centers as of now covering almost all the district headquarters, being expanded in phased manner. There are about 425 generic drugs available covering major health problems in the country like diabetes, hypertension, analgesics, antibiotics etc. This has reduced the expenditure on drugs by 60-70% among its users.

2. **Swachh Bharat Abhiyan:** In the year 2014 31% of Indians had access to Toilets. Then the Prime Minister took a decision of launching Swachh Bharat Mission on 2 October 2014. Amidst lot of criticism GOI and the Prime Minister himself pursued. Innovative measure was involved, and community participation was mobilized. By 2017 most states picked up the pace. Today the sanitation coverage is well over 90% and to be confident of making country open air defecation free (ODF) by October 2019 as targeted. This has put India at the forefront of global efforts to end ODF. WHO estimates that lives of 300 thousand children will be saved because of Swachh Bharat Mission. The claims of ODF by the district and state government authorities may be challenged and, in some case may not be true but no one can take away the improvement in sanitation across the country. Not everything is perfect, a lot more needs to be done, but Swachh Bharat is a remarkable achievement, that has been acknowledge by the international community [17].

3. **National Health Protection Scheme [3]:** The National Health Protection Scheme (Ayushman Bharat-The NHPS) is a government-sponsored health insurance program, riding piggyback on similar schemes that are in practice in some of

the southern states. It may be the extension of the existing Rashtriya Swasthya Bima Yojana (RSBY) with the sum assured now a raised to Rs five lakhs as against RSBY's Rs 30,000. The coverage has enabled expansion to include tertiary care making provision for purchasing it from the private sector where the such services are not available in public sector. The Centre finances 60 per cent (90% for north eastern and hill states) of the costs incurred on the target beneficiaries in the states. The state governments fund 40 per cent of the scheme cost and bear the responsibility implementation.

Current Scenario of Modes of Health Services Provision in India [18]: The basic strategy followed is provide services through what is known as continuum of care in Time and Place (Life Cycle) Approach (Figure 5). The services may be as simple as empowering young mothers for breast feeding at home- or home-based newborn care through ASHA's AWWs and ANMs, periodical outreach services like immunization, micro-nutrient supplementation and individual care starting from homes to tertiary care facilities.
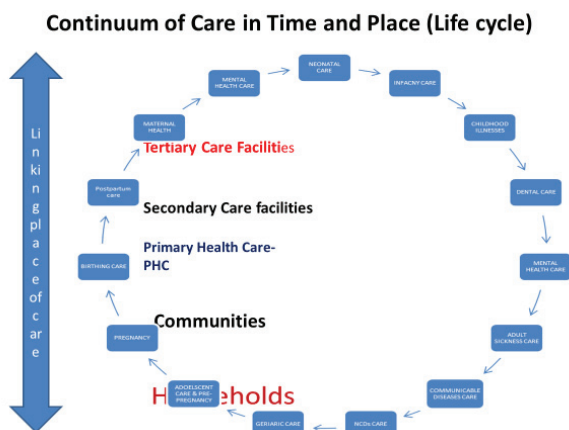

Figure 5: Continuum of care in time and place (Life cycle).

The services are provided at three levels.

1. House hold &Community Level: services like empowering families to provide services like breast feeding, nutrition, homebased newborn care, diarrhea management (ORS Depot, Drug distribution centers, Fever treatment depots) Physical exercise etc. The service providers like ASHA & AWWs and Community Based Organizations and Non- Governmental Organization volunteers empower the mothers and family and community members through awareness creation and skill building support.

2. Outreach Services: These are services that are delivered at community level on periodical basis. These include monthly Routine immunization, Antenatal care, contraceptive distribution, prophylaxis against nutritional anemia with daily/weekly supplementation of Iron and folic acid tablets to all pregnant mothers and all school going age children and half yearly supplementation of Vit. A and Anti-helminthic in endemic communities.

3. Individual Care: This is the most critical of the three modes of services, delivered at the above two levels by paramedical workers and at the facilities starting from PHC to the tertiary level care institutes. Though many studies suggest that the private sector meets two thirds (78%) of OPD care and nearly half (60%) of inpatient care but It is a fact that if one desegregates the proportions by socio-economic status and communicable diseases (TB, Leprosy, Malaria, Dengue, H1N1 and Chikungunya) majority of the population seek care in Public sector. The field observations during the implementation of Integrated Diseases Surveillance Project (IDSP-2004-2010) supported by The World Bank has brought this fact out in 2005-06 for the first time. The outbreaks studied over last decade have confirmed this trend of reach and coverage by public health system services over the last decade (Box 2).

Box 2: Operational Service delivery packages
Source: Marginal Budgeting for Bottlenecks- UNICEF India 1998-2006.

The Public sector follows "Product Centricity" strategy [19], with Long-term focus on strengthening the product portfolio and constantly finding to new ways to expand it. It started with management of diarrhea cases through Oral Rehydration Therapy (including ORS) at community & subcenter level in 1980's, then expanded to cover Pneumonia management in 1990's and standalone newborn care and Integrated management of neonatal and childhood illnesses (IMNCI) at the homes and facilities in early 2000.

The NHP 2017 envisages Comprehensive Primary Health Care at Sub-center level. Client satisfaction is the strategy followed & all clients are treated equal. The brand equity of the public health services is poor in India according to many users and non-users. The basic doubt is about the quality of services and human behavior of the service providers and of course irritants like long waiting time, the feeling that unless you know someone in the facility you are not cared for restrict the use of the services. But the lower middle class and poor population have no choice as the private services are not affordable. The new UHC with free comprehensive PHC and providing secondary and tertiary care through health assurance scheme will establish customer equity that is the sum of the customer's lifetime value across local customer basis [19].

Therefore, individual care centers must have to struggle to get back the clients by not only providing available services, but also advising referral to appropriate facilities so that these customer-centric recommendations help lock in the clients for long as effectively as the quality of services themselves

On the other hand, Private sector is moving towards Customer Centric [19], Strategy. Customer Centricity is a strategy that aligns the corporate hospitals deliver their product and services with current and future needs of their patients of a select customer in order to maximize their long-term profit. It is based on an understanding that not all customers are created equal. Patient centricity develops sustainable profit on the long term. The three key areas that helps are i) Customer acquisition ii) Customer retention iii) Customer development. It involves investment in the technologies, and human capacity necessary to collect and analyze data of their customers to meet the needs of their core customers. The other customers are also serviced but for short term, such much more numerous other clients will probably generate more profits than right customers, as they don't have to put much effort to make that profit happen [19]. Most of the corporate hospitals especially in major cities of India are investing in such strategies i. Recognizing fundamental and inevitable differences among their customers ii. There is a quantifiable value to be found in individual clients to focus on long term marketing efforts iii. By working to quantify each customer they gain valuable insights as to how much they are willing to spend to keep existing customer and to acquire new clients iv. By doing this they serve better and in a personalized manner than their competitors [19]. By following these norms, the private health Industry is attracting lots of health tourism and some of the institution make more profit from international clientele. There is already growing concern about some of these facilities treating the local clients as other short-term beneficiaries and giving more importance and better services to the foreigners.

The strategic (bottleneck) analysis for investment in Health across all major states in India during 1994-2006 with the support of UNICEF India strongly recommended five policy steps [18]   :

1. Identify most deprived population and invest in improving their health

2. Invest in proven, cost-effective interventions.

3. Overcome implementation bottlenecks.

4. Partner with communities and

5. Make the most of available resources.

All these have been incorporated in NHP 2017 and will pave way for achieving UHC.

The service delivery mechanism under NHP 2017 is going to change a bit and will consist of 1. Family / Household and community services 2. Services at Health and Welfare Centers and their outreach services 3. Referral Services. The major change will be brought in the functioning of Health and Wellness Centers (HWCs) compared to the present-day sub centers. They will schedule both clinic and outreach services simultaneously by the HWCs staff such that the one of them will run OPD for 6 hours a day and the other will go for outreach sessions daily. The strengthening of HWCs will be a learning process on building a shared vision of Universal access & coverage.

The Principles of Health & Wellness Centers

1. Transforming some of the present Health sub-Centers and Primary Health Centers to Health into Health and Wellness Centers to ensure universal access to Comprehensive Primary Health Care.

2. Adopt a people-centric, holistic, equity-based response to people's health needs through a process of family's empanelment, regularly interacting at homes and community to promote community system strengthening and people's participation.

3. Build capacity to deliver high-quality care covering health risks and disease conditions through expansion in availability of medicines & diagnostics, use of standard treatment and referral protocols and advanced technologies including IT systems to maintain health records

4. A team-based approach to deliver quality health care including preventive, promotive, curative, rehabilitative and palliative care will be promoted.

5. A two-way referral system and follow up support will be ensured for continuity of care

6. Emphasize health promotion (including through school education & individual centric awareness and public health action) through active engagement & capacity building of individual volunteers and community-based organizations (CBOs)

7. Implement mechanisms of flexible financing, like performance-based incentives and responsive resource allocations.

8. Deliver Yoga and AYUSH services through existing health facilities to meet peoples needs

9. Use appropriate technology for improving access to health care advice, treatment initiation, reporting and recording, progressing to electronic records for individuals and families.

10. Social accountability through participation of civil society will be Institutionalized.

11. Govt. will partner with not for profit agencies & private sector for gap filling of PHC functions.

12. Govt. will systematically share information for feedback, improvements & innovations scale up.

13. To build up accountability for improved performance on measures that matter to people Govt. will develop strong

Box 3: Expanded Range of Services
1. skilled c
2. Neonatal & infant health care services.
3. Childhood& adolescent health care services.
4. Family planning, Contraceptive services and other Reproductive Health Care services.
5. Management of Communicable diseases including National Health Programs
6. Management of Common Communicable Diseases and Outpatient care for acute simple illnesses and minorailments.
7. Screening, Prevention, Control and   -Communicable diseases.
8. Care for Common Ophthalmic and ENT problems.
9. Basic Oral health care.
10. Elderly and Palliative health care services.
11. Emergency Medical Services.
12. Screening of Mental health ailmentsand Basic management

Box 3: Expanded Range of Services.

measurement systems and information sharing with all stakeholders (Box 3).

Since Govt. recognizes that poor service delivery at HWC will, adversely impact the gate-keeping role and push patients unnecessarily into costlier secondary and tertiary care facilities the public health system will use diagnostic and technological innovation to bring services as close to people and communities as possible. This would stop pushing patients to the private sector with adverse implications for out of pocket expenditure and impoverishment. The key inputs to be provided at HWCs:

1. Primary health care team to deliver the expanded range of services:

a. At all H&WC's a team of at least three service providers (1 Mid-level provider, two- preferably 3 Multi-Purpose Workers (2 female & 1 male) & team of ASHAs at the norm of 1 per 1000 will be stationed. In urban areas, the team would consist of the MPW- F (for 10,000 population) and ASHAs (one per 2500).

b. At the strengthened PHC –In 24*7 PHCs having inpatient care, an additional nurse apart from IPHS standards would be posted where cervical cancer screening is being undertaken/planned. In PHCs that are not envisaged to provide inpatient care, the existing nurses would receive modular training in certificate course for primary care

2. logistics: To resolve more and refer less at the local levels, and to enable dispensation of medicines for chronic illnesses as close to communities as possible continued availability of essential medicines and diagnostics to support the expanded range of services will be ensured.

3. infrastructure: It is being proposed to make available sufficient space for outpatient care, pharmacies for dispensing medicines, catering diagnostic services, display of communication material of health messages and to use audio visual aids on site and space for wellness activities like the practice of Yoga and physical exercises.

4. Digitization: HWC teams will be equipped with tablets/smart Phones to facilitate the functions of population enumeration and empanelment, recording of services delivered to enable quality follow up, referral/continuity of care and create an updated individual, family and population health profile. They will also help the local team to generate periodical reports required for monitoring at higher levels.

5. Use of Telemedicine: IT Platforms – A long term dream is to promote at all levels, teleconsultation to improve referral advice, seek clarifications, and undertake virtual training including case management support by specialists located in regional super specialty hospitals.

6. Capacity Building: An accredited training package in a set of primary healthcare and public health competencies for all mid-Level health providers and for other service providers to deliver the expanded range of services at HWC, combining theory and practicum with on the job training is being developed and all of them will be trained in due course .

7. Health Promotion: Capacity building among community level functionaries for behavior change communication to address lifestyle related risk factors and undertaking collective action for reducing risk exposure, improved care seeking and effective utilization of services under polio eradication and routine immunization will be expanded to cover all other interventions of UHC. Development of health promotion materials and engagement of community level workforce like Village Health Sanitation and Nutrition Committee (VHSNCs), Mahila Arogya Samiti (MAS), Self-Help Groups (SHGs) and NCC/ACC health ambassadors in schools will be further strengthened.

8. Community Mobilization: Built on the accountability initiatives under NHM so that there is no denial of use of health care, universality and equity, community actions on social mobilization and mitigating environmental determinants, through intersectoral convergence efforts will be pursued.

9. Linkages with Mobile Medical Units: In remote and underserved areas where there is difficulty in establishing HWCs, medicines and other support could be provided to frontline workers, with the help of Mobile Medical Unit's.

Referral Services: Availability of referral care services either in Public sector or private sector varies with each illness, its care pathways and availability of specialists. For the acute illness, it is the Medical Officer in the PHC as a primary care provider and refer to appropriate level either for diagnostic facilities or for the interventions beyond what can be done at that level to the specialists in first referral units (FRUs - include Community Health Centers/ Taluka/ Sub-district or district hospitals) either physically transferring the patient or through telephonic consultation. Over next decade, states will progress to establish First Referral Units at the CHC level, and hospitals having the full complement of specialists required

diagnostic and management facilities to the expanded range of services at every district headquarters. As of now referral services are available in private sector for secondary care in most of the districts towns and the super specialty hospitals at regional levels.

The National Health Protection Scheme (Ayushman Bharat-The NHPS) is a government-sponsored health insurance program, riding piggyback on similar schemes that are in practice in some of the southern states. It may be the extension of the existing Rashtriya Swasthya Bima Yojana (RSBY) with the sum assured now a raised to Rs five lakhs as against RSBY's Rs 30,000. The coverage has enabled expansion to include tertiary care making provision for purchasing it from the private sector where the such services are not available in public sector. As many as 1,393 benefit packages are offered under the Ayushman Bharat. "In the first 100 days, 685, 000 patients were provided hospital treatment. 51,00,000 lakh claims settled by the scheme. This averages 5,000 claims per day for the first 100 days15, the scheme provides INR 500,000 per family annually, benefiting more than 107 million poor families for secondary and tertiary care hospitalization. A network of 16,000 government and private hospitals are involved in this "game changer" initiative.

The Centre finances 60 per cent (90% for north eastern and hill states) of the costs incurred on the target beneficiaries in the states. The state governments fund 40 per cent of the scheme cost and bear the responsibility implementation. The Health and Family Welfare Ministry (Govt. of India) is held accountable by the Parliament and the Comptroller and Auditor General (CAG) for outcomes and results for the money released to states. The National Health Agency (NHA), charged with the responsibility of implementing the Ayushman Bharat is building an institutional framework right down to the district levels to closely monitor. The NHA has, already come up with comprehensive and detailed guidelines for the contracting and outsourcing of the job to commercial companies that function as third-party administrators (TPAs). Mechanisms to detect fraudulent claims are also in place. The mechanism involves State Health Societies to enhance the implementation and institutional capacity for monitoring and administering several aspects of the program at decentralized levels and also keep a close watch on the utilization of the funds released and the performance in terms of depth and quality at the district level in accordance with the guidelines. Some of the national public health experts do see a disadvantage in this approach as it standardizes and brings in uniformity in a country that is highly diverse, unequal and disparate. It might stifle innovation and local thinking in designing, implementation strategies for accommodating local conditions, preferences, and cost-effective solutions they accuse. Standardization may help Govt. to monitor the scheme, but it is costly. The TPAs are commercial companies, highly influential with political connections and therefore the local health administration might find it difficult to control them over data and their manipulations can harm the building of a balanced health system [20].

Service Delivery Framework

The services envisaged at the HWC level , which were hitherto entrusted with preventive services and minor ailment in subcenter clinic once a week or on demand will now include early identification, basic management, counselling, ensuring treatment adherence, follow up care by running a regular outpatient 6 hours each day. They will also ensure continuity of care by appropriate referrals, optimal home and community follow up, and health promotion and prevention for the expanded range of services. The HWC would also undertake public health functions in the community leveraging the frontline workers and community platforms. Thus, the HWC team will assist people in navigation of the health system and mobilizing the support for timely access to specialist services when required. All facilities will follow care provision as per clinical pathways and standard treatment guidelines. This arrangement is expected to decongest the secondary and tertiary care facilities to improve the quality of services provided there.

Challenges in Operational Strategy Guidelines

Comprehensive Primary Health Care with interventions that account for high proportions of morbidity and mortality closer to the community is expected to reduce out of pocket expenditures. They are ambitious in their scope and scale and aspire to achieve the goals through guidance on physical and financial requirements, service packages, IT requirements, monitorable targets and payment packages including team-based incentives [21]. The delivery of Comprehensive Primary Health Care is not without challenges. The NHM has laid the path for effective implementation, but the entire world will watch if the states leverage this learning for effective implementation of HWC.

Operationalization of any policy depends upon the budgetary provision. Historically budgets have been hovering around 1.1% to 0,9% of GDP, with the Union Government's contribution to public health expenditure around 15% and that of the State's 85%. Total Health Expenditure (THE) for India is estimated at Rs. 4,83,259 crores (3.89% of GDP and Rs.3,826 per capita) for the year 2014-15. THE includes expenditures incurred by Government and Private Sources including External/Donor funds. Current Health Expenditure (CHE) is Rs. 4,51,286 crores (93.4% of THE) and capital expenditures is Rs. 31,973 crores (6.6% of THE).

Government Health Expenditure (GHE) including capital expenditure was Rs. 1, 39,949 crores (29 % of THE, 1.13% GDP and Rs. 1,108 per capita) about 3.94% of GGE (General Government Expenditure) in 2014-15. Of the GHE, Union Government share is 37% and State Government share is 63%.

Union Government Expenditure on National Health Mission was Rs. 20,199 crores, Defense Medical Services Rs. 6,695 crores, Railway Health Services is Rs. 2,111 crores, Central Government Health Scheme (CGHS) was Rs. 2,300 crores and Ex Servicemen Contributory Health Scheme (ECHS) was Rs. 2,243 crores [22,23]. Out of Pocket Expenditure (OOPE) on health by households was Rs. 3,02,425 crores (62.6% of THE, 2.4% of GDP, Rs. 2,394 per capita) for the same year. Private Health Insurance expenditure was just Rs. 17,755 crores (3.7% of THE) for the year 2014-15 [22,23].

It is heartening to note that the Indian government has raised its 2019 healthcare spending by 13.6% YoY to US$8.9b from US$7.45b in 2018 [5], but most of it goes for implementing National Health Protection scheme, the health systems' gain for infrastructure will still be a challenge to meet.

The other key issue is the low community ownership of Govt. public health programs, that impacts the efficiency, accountability and effectiveness in outcomes. Vertical health and family welfare programs such as Immunization (UIP), AIDS are limiting the synergizing effects for other interventions at implementation levels. There is a strong need to synchronize services such as sanitation, hygiene, nutrition and drinking water with health services. In urban India the challenge is more of providing healthy environment for living and working. The health services can be easily organized but Air pollution, Safe water scarcity, Sewage system and Commuting pain Index are the issues that need to be addressed. Above all, population explosion remains a challenge, in northern and central states.

Let us now look at the systemic challenges for these two pillars. These inferences are based on author's over 50 years of experience in Indian Health system serving at almost all levels of a provincial health system (22 yrs.) with a development agency (UNICEF-17 yrs.) that supports MOH&FW, GOI for maternal and child health across the country and another 12 years of freelance public health consultancies in India and other developing countries for program planning, monitoring implementation, coverage evaluation and program assessment work and capacity building at national and state levels direct observations and institutional memories.

1. Public Health Sector : a) Comprehensive primary health care as envisaged in NHP 2017 appears to be too optimistic in expecting the infrastructure development and capacity building given the budgetary limitation one has seen over last 50 years. While the number of Health Subcenters and PHCs have increased in number, their locations cannot be doing justice for unreached population. Majority of these institutions do not have their own buildings and run from small rented places, there by privacy of the patients is compromised. At least one thirds of doctors and nursing staff do not stay in their designated places and therefore are not available round the clock for providing services. The upgradation of 150,000 Subcenters and PHC's appears to be daunting task given resource crunch and logistics management. Capacity building of the staff at these level for the new tasks added will be another big challenge. The experience of building capacity for the management of Malaria, diarrhea, Pneumonia, TB and Integrated management of neonatal and childhood illnesses (IMNCI in 1994-2005) over the last 3 decades indicates the potential to build such technical skills, but the logistics of making available diagnostics, drugs, equipment and referral mechanism is not going to be sorted out easily. The weakest link is lack of first level paramedical supervisory staff who can provide on job support to improve the skill. One has seen deterioration in the strength of this dying cadre with no efforts for new induction (as was done in mid-1970's for a short period under minimum needs program) Hardly one half of the sanctioned supervisory staff and male health assistants

are in position, most of them are promoted from the cadre of health workers in their 50's with limited physical health, very little energy and enthusiasm for field visit and guiding the field staff. The country must do something innovative on this front. The universities can be asked to offer degree courses in Health Sciences (just like home science) or Public Health and brought in the health system so that supportive supervision improves. This task is expected to be done by medical officers of health, but neither they have time from their clinical and other administrative responsibilities or inclined and equipped to do supportive supervision. Management of Common Communicable Diseases and Outpatient care for acute simple illnesses and minor ailments, Screening, Prevention, Control and Management of Non-Communicable diseases, Care for Common Ophthalmic and ENT problems, Basic Oral health care, Elderly and Palliative health care services, Emergency Medical Services and Screening and Basic management of Mental health ailments are totally new areas at this level of institutions and capacity building will be a herculean task though not impossible.

b) Upgrading, the capacity of Public Health facilities for secondary, tertiary and super specialty care in the next decade is yet another ambitious plan as one has seen the progress over last 5 decades. Govt. may sanction institutions but getting requisite skilled personnel for these institutions will be a big challenge as seen in the efforts of developing first referral units (FRU's) in last decade and half. GOI is starting institutions like All India Institute of Medical Sciences in almost all states but their pace is too slow to meet the referral demand again due mainly to the difficulty in human resources. Over decade's efforts has not brought even one such AIIMS anywhere closer to their role model institute of AIIMS New Delhi. The fact that such institutes are being brought up in cities with already existing facilities reduces their value add. The state Governments are also permitting Medical Colleges both in Govt and private sector so much so that some of them do not have adequate infrastructure and staff but churning out half-baked doctors. The Medical Council of India has become a silent spectator and is not able to maintain the quality of training.

2. The Private Health Care System: The private sector in health is very popular and has many positives like ease of access after office hours, less crowding and better behavior of the service providers. However, it is universally criticized for its weak ethics, patient safety or patient's wellness. The other public allegations include Over-diagnosis, denial of treatment, overmedication, unnecessary surgeries and the use of unethical means with the aim of making profits to the extent that there is a virtual breakdown of trust between private providers and patients. The government's failure to come up with laws, regulations, protocols, systems and procedures that will incentivize good behavior and make unethical conduct unprofitable is becoming questionable as exemplified by shutdown of Max hospital in 2018 by the Delhi government for close to a month without much justification [19]. In such a messy ecosystem, entrusting Ayushman Bharat's management to NHA, an autonomous body to design, implement and monitor has raised queries by some experts. Though NHA is

governed by a Board chaired by the Union Minister of Health, and union Health Secretary a member, there appears to be no link with the Ministry. For example, Union Health Secretary is to be confined to only answering parliamentary questions on the NHA. The RSBY failed because it worked without the active engagement of the Union Ministry of Health, clearly indicating that no lessons are learnt. Such an institutional design has the potential to cause severe distortions-Four major concerns are:

Pricing: Since pricing is the heart of the success or failure of the scheme's financial sustainability, Governments must have kept a tight control by undertaking to arrive at pricing strategies themselves in consultation with academic institutions and actuaries. Unfortunately, the pricing of services, is to be outsourced to a commercial firm.

Given the fact that public sector in India has very weak privacy and data protection laws and poor ability to enforce the existing laws, the proposal to outsource monitoring, empanelment, settling of claims, grievance redressal – all vital functions of a government body —to commercial companies raises a big concern.

The hybrid model (with no precedence) of the contractual agreement to hand over large portions of district hospitals to private investors for establishing the supply of specified services like cardiac, cancers, respiratory etc. is apprehended. It may also destroy the public hospital system in India and deepen the control of the private sector and fail to create competitive environment and lower the Government's efforts to create the facilities and ultimately adversely impact the cost of care.

The Governments offer of the concessions in terms of land, funding up to 40 per cent of the project cost, concessional tariffs for water and electricity etc. to attract private investment in supply deficit areas, in Tier 2 and 3 cities, may again pose problems. If these incentives are restricted to support non-profit and small and medium hospitals to grow it is fine. On the other hand, if it is given to big corporates, may deepen their footprint and keep questioning the government's contradictory policies. The fact that Govt. levies 18 to 30 per cent, GST (Goods and Services Tax) on hospital services and taxes inputs, making them services costlier. At the other end, consolidation of corporate tertiary hospitals, is taking place at a furious pace that It is a matter of time before six to eight hospital chains aggregate and provide tertiary and secondary services dictating the prices. The Union Government's right hand does not seem to know what the left hand is doing [19].

What can be Expected by 2030

Having reviewed the health system's strengths, weaknesses, opportunities and threats we now turn to look at what results can be expected by 2030. This is done on two parameters, first on expected outputs, outcomes and impact and secondly on agreed domain-wise commitments of achievements by national Government in NHP 2017. As the table 1 indicates, Outputs like HWC data base and Health cards and family folders stabilization in next 12 years appear to be too optimistic to

achieve given the experiences under different vertical program initiatives in the past 50 years. Similarly, increased access to services of the existing services may be feasible but the expanded services like individual care in HWCs and PHC to the last individuals is difficult to achieve basically due to a) ability to empower the existing field health functionaries for the newly added interventions like NCD, VBDs, and counseling for enabling families for selfcare b) New staffing policies in last 2 decade which recruits skilled persons on temporary basis with security of job and pay packages of much lower level than open market, that does not attract the best in the open market c) Near collapse in supportive supervision of field functionaries as there is no long term solution being thought or considered as a policy issue d) State Governments inability to recruit staff such as male health workers, epidemiologists basically due to low pay packages and lack of training plans. Outcomes of Improved population coverage and reduction in out of pocket expenditure and catastrophic health expenditure and decongestion of secondary and tertiary health facilities are feasible to achieve. But the outcome of Risk mitigation appears to be failing due to the limitation of existing health promotion strategies and ability of communication teams at various levels to empower the community. The country is witnessing this type of challenge under high profile immunization program known as Mission Indradhanush and strengthening routine immunization (The author led this assessment in Sept-2018-January2019 and the report is yet to be published) , where in through GAVI health system support project (HSS-1, & HSS2) since 2012, where communication and social mobilization strategies for reaching near 100% coverage of routine immunization in general and in urban and tribal population are yet to see the light of the day. The impact in terms of Improved availability, access and utilization may contribute to equitable health outcomes. But measuring such outcomes through periodic population-based surveys for key indicators is going to be difficult given the size of the country, number of districts (being the units of program implementation and monitoring) and operational and financial challenges. Better responsiveness based on dignity and respect for individuals and communities especially for the marginalized is also going to be difficult to reach in 12 years' time. Intersectoral collaboration, community system strengthening, encouraging peoples participation, information sharing and willing to take feedback and allow community monitoring that lead to increased trust building, and comfort in seeking care and addressing social and environmental determinants appear to be the biggest challenges the country will face given the socio- political differences.

In terms of the domains of SDGs to be achieved, as shown in table 2, the mortality rates are achievable by the country as whole and in urban India. Some rural districts and desegregated urban poor pockets may lag. There are large inequities in U5 mortality across states and districts and between social and economic groups. The good news is that there is some evidence of reduction of social and economic inequalities over the past two-three decades. Bad news is that of continued presence of several risk factors like low levels maternal education, early childbearing and inadequate birth spacing that will impede the child mortality reduction in some pockets if such pockets are not identified and special efforts are made. Given the fact

Table 1: Expected Health &Welfare Center Processes Results by 2030

Sl. No	Essential Outputs/Outcomes/Impact of Health &Welfare Centers	Expected Results by 2030
1. i.	**Outputs:** The HWC data Base: Population enumeration and empanelment implies the creation and maintenance of database of all families and individuals in an area served by a HWC. This is planned such that every individual is empaneled to a HWC. This also involves active communication to make residents aware of this facility.	1.Existing IT platform experiences in Immunization, RMNCH +A & ANMOL suggest that if the initial data entry is outsourced this is achievable. The communication component can be handled by Filed functionaries
ii.	Health Cards and Family health Folders: These are made for all service users to ensure access to all health care entitlements and enable continuum of care. The health cards are given to the families and individuals. The family health folders are kept at the HWC or nearby PHC in paper and/or digital format. This ensures that every family knows their entitlement to healthcare through both HWC and the Pradhan Mantri Jan Arogya Yojana or equivalent health schemes of state & central government.	2.The efforts of Family Health Cards / Folders have not been achieved in previous efforts under Immunization /MCT under RMNCH+A {(RMNCH+A approach was launched in 2013 and it essentially looked to Mother & Child Tracking System (MCTS)}. The opportunity of the national Health protection scheme may hardly facilitate this process.
iii.	Increased access to Services: HWCs would provide access to an expanded range of services indicated in Box 2. The availability of services would evolve in different states gradually, depending on three factors- the availability of suitably skilled human resources at the HWC, the capacity at district/sub-district level to support the HWC in the delivery of that service, and the ability of the state to ensure uninterrupted supply of medicines and diagnostics at the level of HWC. States will also have the flexibility to expand the range of service to address local health problems as defined by disease prevalence.	3.There are successful examples of organizing sickness care services under IMNCI and NBC since late 1990's and it is possible to build suitable human skills. The ability of the states to support uninterrupted supply of diagnostics, medicines and other supplies varies from state to state. Empowered Action Group (EAG) states like UP, MP, Bihar Assam may not be able to meet this goal.
2 i.	**Outcomes** Improved population coverage: Active empanelment and HWC database will improve the population coverage. The HWC database would enable HWC staff to monitor and identify the left-out population and improve coverage of national health programs.	i. Yes would increase the population coverage but population in remote rural, tribal areas and some urban slums and transient will continue to be under-reached.
ii	Reduced out of pocket expenditure and catastrophic health expenditure: Improved access to expanded services closer to the community, assured availability of medicines and diagnostic services and linkages for care coordination with Medical Officers/specialists across levels of care will reduce financial hardships faced by community.	ii. Yes there will be reduction in out of pocket expenses on health care for most of primary care services, but referral linkages may not be fully established with quality services in the timeline
iii.	Risk factor mitigation: Health promotion efforts by primary health care team would support in addressing the risk factors for diseases.	iii. The interpersonal communication skill development among field staff to the extent of addressing risk factors appears to be too optimistic
iv	Decongestion of secondary and tertiary health facilities: A strong network of HWCs at the sub district level would facilitate resolving more cases at primary level and reduce overcrowding at secondary and tertiary facilities for follow up cases as well as serve a gate keeping function to higher level facilities.	iv. This will depend upon the secondary and tertiary care facilities in each district hospital. Given the present situation as of 2018, this is unlikely to happen in at least 10% of the remote districts in the country.
3. i.	**Impact** Improved population health outcomes: Improved availability, access and utilization will in turn contribute to equitable health outcomes measured through periodic population-based surveys for key indicators Increased responsiveness: Provision of care by primary care team will be based	i. Improved utilization of public health services is subject to commitment of the staff, that depends upon the district authorities to keep them motivated, skill development and monitoring accountability and ability to provide on job support that is lacking
ii.	on principles of family led care including dignity and respect for individuals and communities with focus on marginalized, information sharing, encouraging participation, including intersectoral collaboration that will lead to increased trust building, comfort in access to care and enable addressing social and environmental determinants.	ii. Health services provision may be addressed adequately but the inter-sectoral coordination especially for marginalized population like urban poor, transient, rural remote may fail. Addressing the urban environmental determinants appear to be bleak in next 12 years.

that MMR was 130 /100,000LB, IMR of 34/1000LB in 2016 (and estimated U5MR of 50) and the recent trends in annual reduction rate of MMR & IMR India can hope to achieve these goals. Promoting mental health, minimizing substance–use, ensuring access to general sexual and reproductive health services and UHC are feasible to achieve. But the targets of Ending epidemics, Halving deaths due to accidents, substantial reduction of harmful effects of water, air and noise pollution and Increasing health resources appear to be dream come true.

Summary

Ailments of Health Care in India: The main challenge is the fact that the health care system in the country suffers from inadequate funding. Structural problems like, the lack of integration between Disease control, Family Welfare Programs, Immunization, clinical services and other social sector programs. Differential priority for interventions has led to poor accountability for Results (PHC/UHC) over the years. Prevalent

Table 2: Expected Results by Domains of SDGs.

Sl. No	Targets by Domains	Expected Results by 2030		
	Geographical Desegregation>>>>	Rural India	Urban India	Total India
1	Mortality Reduction Targets: I. Reduction of MMR (<70), II. CMR (<25), III. NMR (<12) IV. Reduce by one third premature mortality from NCDs V. Halve the number of global deaths from road traffic accidents VI. Substantially reduce the number of deaths from hazardous chemicals and air, water and soil pollution and contamination. Deaths from CDs (VBDs etc.?)	N N N Y Y y	Y Y Y MB N N	Y MB MB Y Y N
	Ending the epidemics: of AIDS, tuberculosis, AIDS Malaria (VBDs)and neglected tropical diseases TB & TB and combat hepatitis, water-borne Hepatitis diseases and other communicable diseases. WBDs	Y Y Y N	Y Y N Y	Y Y MB N
	NCD: 1. Promote mental health & 1. Halve injuries from road traffic accidents 2. Substantially reduce illnesses from all below 3. hazardous chemicals, 4. air, water and soil pollution and contamination.	Y Y MB Y Y	Y N N N N	Y N N N MB
	Substance abuse: Strengthen prevention & treatment of narcotic drug abuse & harmful use of alcohol.	Y N	N N	N N
	General Sexual & Reproductive Health-Care Services: Ensure universal access to G/S/&RCH Services	N	Y	MB
	UHC: Achieve universal health coverage	MB	Y	MB
	Research and development: Support the research and development of vaccines, health equipment, tools & medicines	N	Y	Y
	Increase Health Resources: Substantially increase health financing & Health workforce	N	N	N
	Strengthen the capacity: Of all Countries for Tobacco control, early warning, risk	MB	Y	Y

Input based management as against desired result-based management is another challenge. Poor investment in health infrastructure and human resource over last two decades has led to Poor Accessibility & Accountability of health services for poor, compounded by weak regulatory-systems for drugs and medical practice.

Under-utilization of Technological and digital advancement in Governments both at center and States and poor capacity in Public health management, Poor Public, Private Partnership in complementing health services are other issues not taken note of. Underutilization of traditional systems of Medicines, that are being actively involved recently under NHM was another missed opportunity. The active participation of communities in preventive and promotive health care, that was uneven for want of adequate investment & harnessing Community System Strengthening (CSS) and Socio-cultural barriers of Health & sickness Behavior of the Population add to the misery.

Essential elements of a Health System to work efficiently

Effective Program Managers for, MCH, FP, TB, NCD, VBDs, HIV/AIDS etc. and Superintendents for all level hospitals at national, state & district and sub-district levels. Public Health oriented personnel to manage PHCs and CHCs, leaving the doctors to take care of clinical work.

Tools for program managers to manage resources to achieve outcomes

Effective Standard Operating Procedures for clinics, hospitals and community-based services to be delivered consistently according to quality standards.

Ayushman Bharat's successful implementation to reach the last person unreached so far to get secondary and tertiary level care especially from private sector with no financial burden

Effective health professionals that have the training, tools and job aides to deliver these services while also enjoying their work.

Aggressive implementation of the defined program interventions

Accessibility and Accountability based on defined responsibilities

Effective supportive supervision and on the job handholding to deliver quality services and demonstrate outcomes

Periodical data collation, analysis (local and upper level) and use of information for mid-course correction of implementation

Implementation of Marginal Budgeting for Bottleneck analysis and action

Steps to be taken to achieve SDGs

Indian health services need to move from input-based

management to result based management by Improving the efficiency of the country's health system by introducing Individual Performance Goals and monitoring the work done by country and state governments, private sector, foundations etc. is essential for ensuring Results. It is people in each of these institutions that make them work and determine their success. Optimal professional performance is essential and to deliver this kind of performance, everyone in the institution must have clear performance goals and account for their achievement. Government should ensure if every agency, organization, project, or health facility have clear performance goals for 2019–20 and for every quarter of the year? and subsequently every year until 2030. It should monitor if everyone in the organization, project, or health facility have clear performance goals that are aligned with the overall institutional goals? Does everyone have clear lines of accountability and reporting? How will individual performance be monitored? The Role of Government, Private business and Civil Societies in the Implementation be clearly listed out and made known and finally insist on aggressive implementation and results monitoring of SDGs at all level.

Conclusion

Low public outlay so far has made it impossible for the public sector to respond to the growing health needs of the population. If policy makers have the will to provide adequate resources Indian health system has the skills & resources to provide UHC and achieve SDG with the support of departments responsible for providing healthy living conditions. Financial resources can no more be a constraint nor fragmented as seen in Swachh Bharat Cess to raise resources for sanitation and additional funds for special organizational set up or to purchase services from private sector under Ayushman Bharat.

Government has realized that a robust public health system acts as first defense by preventing outbreaks and if they occur controlling the spread as soon as possible and limit the damage of endemic diseases. I am sure Govt. will go for a transformational initiative in health financing, public private mix in service delivery & strengthening Primary Health Care to take to people's doorsteps. The health system will prioritize interventions for preventions of untimely deaths, diseases, disability limitation & rehabilitation not just RMNCH+A as was done until recently. Approaches to health care will take comprehensive view and pay attention to broader determinants of health such as sanitation, safe water, air & noise pollution, roads and transport.

The country has realized that accountability is the need of the time. It will be enforced through clear chain of command and by inculcating the discipline seen in medical tourism for

its high quality, low cost advanced care, in public sector. India has emerged as the global pharmacy for inexpensive drugs and vaccines and is determined to make them available in every village and urban community in the next decade. Last but most important is India will make all out efforts to involve people in deciding health priorities, own interventions and monitor progress to lower inequities.

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