Review Article

Proposal for an Affordable and Sustainable Universal Health Cover Model for India : LAN, WAN and SAN

Umesh Gupta[1]

A unique model of Universal Health Cover in India is proposed for funding by government and service delivery by private generalist doctors. This model contrasts with the current government schemes of funding only in-patient services by the private sector and ignoring primary health care as an overall cost-reduction strategy. The current government schemes rely on public facilities to deliver out-patient services, even while 70% of such services are availed from private practitioners. The proposed model would have been highly effective in the current Covid-19 crisis and will enable a much more robust response to future pandemics and other disasters.

Local Area Health Networks (LAN) are proposed, based on residential pin codes, comprising of private generalists, public facilities, and diagnostic centers. The beneficiaries of the model would be able to obtain services from within the Local Area Health Networks and refer to designated hospitals only for in-patient services. Virtual Local Area Health Networks (VLAN) are areas without the health services and these areas van be attached to LAN. Legislative assemblies define the boundaries of Wide Area Health Networks (WLAN) that link up LAN and VLAN for integrated professional management of healthcare. A group of LANs can lead to a tertiary care provider to create Systems Area Health Networks (SAN) for super-specialties.

Payments are proposed to be made on a Prospective Payment System based on Diagnosis Related Groups and accounting for geographical variations, with incentives for clinical quality.

The cost of the proposed model for 100% Universal Health Cover is estimated to be about Rs. 11,369 crores for out-patient services and Rs. 28,896 crores for in-patient services. The estimates are based on a detailed analysis of data from the 75th Round of NSS Report and case-mix costing has been applied.

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With the latest Government scheme of health cover, 50% of Indians will still be without any health insurance coverage and will pay out-of-pocket for their health needs. Even these extremely vulnerable population will still have to pay for out-patient services. The policymakers have relied on public facilities for such needs, ignoring the fact that public facilities are availed by less than 30% of the patients in both rural and urban populations. In-patient services are far more expensive and benefit only a few. Out-patient services achieve meaningful positive health outcomes and prevent hospitalizations, thereby creating a sustainable Universal Health System.

A unique Indian model of Universal Health Cover is proposed based on an analysis of the health insurance

Editor's Comment :

- The current government health schemes provide for in-patient services only and that too for only the extreme vulnerable
- The government policies ignore the fact that population health is achieved by adequate out-patient health services that prevents hospitalization
- The policymakers rely on the public facilities to provide the out-patient services
- However, 70% of out-patient and 45% in-patient services are availed from the private sector
- A unique model of Universal Health Care in India is proposed for out-patient services delivered by private generalists and funded by the government
- Both, the out-patient and in-patient services, can be organized into Local Area Networks (LAN) based on residential pin codes and legislative assembly seats respectively
- These can be governed by creating Wide Area Networks (WAN) based on Legislative Assemblies
- Such an organized national health service would have been invaluable and highly effective in the current pandemic

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and services utilization. This model also draws upon the benefits of other socialist health systems of the

UK, Canada, Australia, and Europe. All mature health systems have defined the "clinical product" for "purchase" by using the Diagnosis Related Groups (DRG) system[1]. The DRG system has also been supported by WHO as the way forward for healthcare financing[2]. A Prospective Payment System (PPS) based on Diagnosis Related Groups (DRG) is also suggested.

The Current State of Healthcare :

Health Insurance Coverage in India[3] (Fig 1) -
Despite 70% of out-patient services and 45-55% in-patient services availed from the private sector, only in-patient treatments are covered by any of the current Government schemes as well as by private insurers. About 35.71 crore Indians (27.5%) are now covered by some governmental schemes for in-patient treatment in private facilities[4]. The covered population is aimed to expand to about 50 crore Indians with an increased enrollment for the Ayushman Bharat Pradhan Mantri Jan Arogya Yojna (AB-PMJAY) scheme.

Government Schemes :

1. AB-PMJAY Scheme – Aims to cover approximately 50 crore beneficiaries of which approximately 4 crores have enrolled with e-cards. There is a limit for in-patient treatment up to Rs. 5 lakhs at government-approved rates in the private hospitals. Most private hospitals have resisted the scheme as the rates are arbitrary and unsustainably low.

2. Central Government Health Scheme (CGHS) – covers 34 lakh beneficiaries of central government employees and dependents.

3. Employees State Insurance Scheme (ESIS) – covers 2.3 crores employees,and their families, in private or public employment. This is an employee contributory scheme and the reimbursement rates are similar to CGHS rates.

4. Ex-servicemen Contributory Health Scheme (ECHS) - provides cover for retired personnel of the armed forces and their dependents.

5. Rashtriya Swasthya BimaYojna (RSBY) – provides cover for 36 lakhs beneficiaries. Only in-patient treatment up to INR 30,000 at government-approved rates is covered.

6. State Health Insurance Schemes – Rajiv Arogyashree, Vajpayee Arogyashree, Chief Ministers Comprehensive Health Insurance, etc. for Below Poverty Line (BPL) populations. These are to be subsumed into the AB-PMJIAY scheme.

Non-government insurance: approximately 11.5 crore Indians (8.8%) have a non-government sponsored insurance cover. This includes:

1. Group Insurance Schemes – providing cover to 7.29 (6.1%) crore beneficiaries

2. Individual Insurance – with 4.21 crore (3.23%) beneficiaries

Uninsured : about 82 crore Indians (63.7%) still do not have any form of insurance and pay out of pocket. With the expansion of the AB-PMJAY scheme, this will decrease to 67 core Indians (51.5%) still without any form of insurance cover.

Service providers : The private sector provides almost 70% of the health services in both urban and rural India. The strong public health systems in countries like the UK, Australia, and Canada deliver primary care through private practitioners only. The primary healthcare in these countries is publicly funded but privately delivered[5]. Experience from Liverpool and the UK NHS Trust system shows that better public health outcomes are achieved through integration with primary care, which is delivered by private practitioners[6].

The Volume of Services :
The proportion of persons reported as ailing (PPRA) within the last 15 days was 6.8% in rural and 9.1% in urban areas[7]. Of note is that only 30% of patients avail public health facilities in both areas. The average cost of out-patient treatment per episode in rural areas was Rs. 325 in public and Rs. 566 in private clinics. The corresponding cost in urban areas was Rs. 344 and Rs. 714 respectively. Medicines comprise 70-82% of these costs, 11% for diagnostic tests and 7-19% as
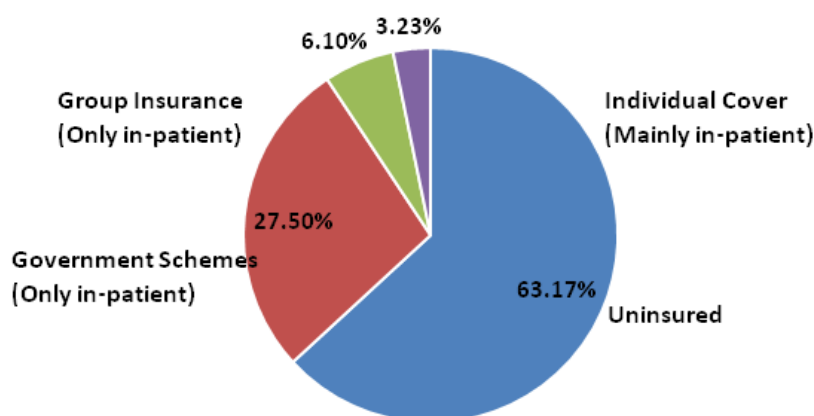

Fig. 1: Health Insurance Cover in India

doctor's fees[7].

Of the 749,272 hospital beds in public facilities, 65% are in urban areas[4]. The Majority of the 1,021,000 bedsin private facilities are in urban areas[8]. As per the 75th NSO data, within the last 365 days, 26 persons per 1000 population in rural and 34 persons per 1000 in urban areas availed in-patient treatment. About 46% in rural and 35% in urban areas was delivered in public hospitals where the cost of treatment was Rs. 4,290 and Rs. 4,837 per episode[7]. However, these figures are only for drugs not available and minimal user charges (if any). Most of the costs in public facilities are funded by the government and are not charged to patients.Hence,cost differences cannot be interpreted as cost-effectiveness differences.

Most people avail of services from private practitioners and facilities due to ease of access, the reputation of the practitioner and/or the ambiance of the setting. A rapidly increasing and unwanted trend in urban areas is of patients seeking specialists for even the most banal of ailments in the expectation of rapid relief or perceived competence or the internet.

Proposed Model of UHC in India :

This model proposes for publicly funded out-patient and in-patient services to be delivered by private generalists and hospitals, organized into defined referral pathways (LAN, WAN, and SAN) based on residential pin codes and legislative assembly seats. Beneficiary categorization, disincentives, and strategies for misuse prevention are also suggested as below.

Local Area Health Networks (LAN) (Fig 2): Based on the 19,097 pin codes in India, each LAN will have an average of 68,000 people. The LAN will comprise of registered private clinics, diagnostic centers, public dispensaries,and secondary care hospitals within that pin code. Public patients can avail services only from the LAN of their residential pin code. Similarly, generalist doctors can register only one clinic for public services.

Generalists are expected to be gate keepers for referrals to specialists and in-patient services. Patients in the affordable category will continue to visit the out-patient and in-patient doctor of their choice by utilizing their private insurance or pay out-of-pocket.Computer

Fig. 2: Local Area Health Network (LAN)

software can enable a fair distribution of referrals to the hospitals that can provide the clinical services needed, either within a LAN, WAN or a SAN.

Virtual Local Area Health Networks (VLAN) – Pin codes that do not have doctors or diagnostic centers can be designated as VLAN and these areas can be tagged to a LAN. The advantage of designating an area as a VLAN is that special schemes and policies can be designed for these areas for attracting health service providers. LAN providers could be permitted to operate another facility in a VLAN, apart from their facility in a LAN.

Wide Area Health Networks (WAN) – will link up all LAN within a legislative assembly area for management and governance of the system, complaints resolution, and quality monitoring. The elected MLAs can also be involved in the management of WAN by creating a public governance Board for each WAN.

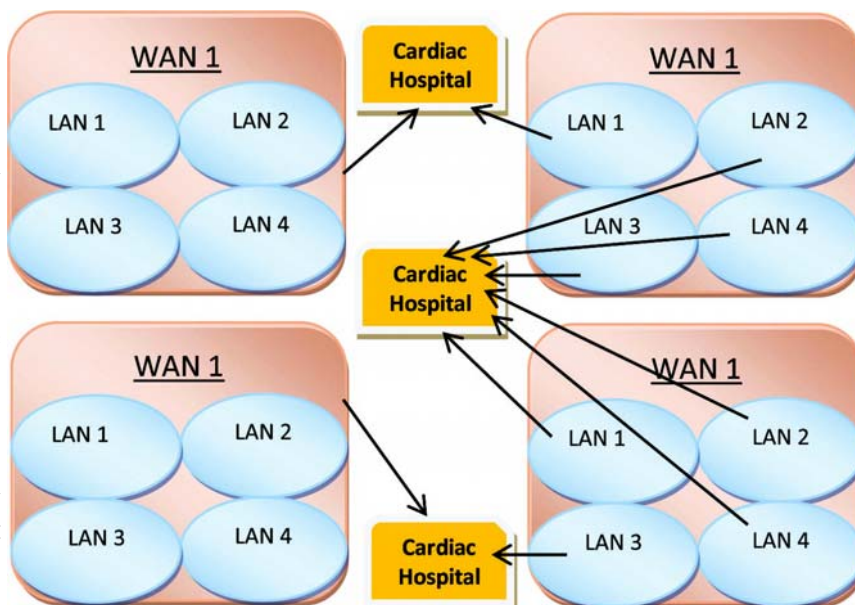***System Area Health Networks (SAN) (Fig 3) –***

Fig 3 — LAN, WAN & a Cardiac SAN

tertiary care facilities such as interventional cardiology, neurosciences, nephrology, and cancer services are fewer and concentrated in big cities. Some tertiary care facilities are specialized in a single super-specialty. Hence, System Area Health Networks (SAN) can be created for each of the specialized services and LAN linked to the SAN. Computer software would drive the fair distribution of referrals, stamping out the current referral practices.

Beneficiaries (Fig 4) – Universal Health Cover by definition includes all citizens and permanent residents of India. However, healthcare recipients can be categorized as Public or Private Patients at the time of service delivery. Private patients are those who have the means to fund their healthcare and can be identified based on earnings and ownership of luxury items such as a car. Public patients (UHC beneficiaries) can be further categorized as "Vulnerable" and "non-vulnerable". The vulnerable group is the same as the recipients of the current AB-PMJIAY government scheme. Disincentives for availing UHC benefits could include:

1. No choice of the service provider. Beneficiaries would be treated by a designated service provider within their Local or Wide Area Network (LAN or WAN).

2. No choice for the timing of surgery. Such services would be based on clinical triaging criteria only. This may result in clinically acceptable longer waiting times for benign and no risk surgeries. Healthcare IT Systems will ensure the impartiality and fairness of the system.

3. No choice for the service setting. Beneficiaries would be eligible only for general ward beds for in-patient treatments at a hospital along a designated referral pathway.

4. Medicare surcharge to be paid by those who do not obtain private insurance Cover despite being in the "affordable" category.
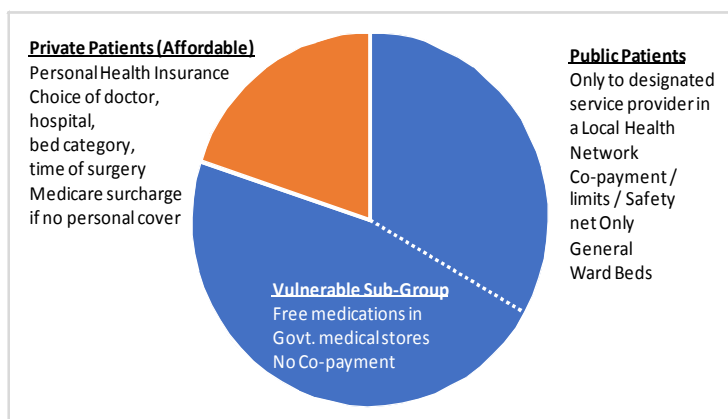
Strategies for prevention of over-utilization :

User charges have been reported to negatively impact the very population that was being protected[9]. A meta-analysis of 255 studies explored the effectiveness of various strategies for controlling pharmaceutical expenditure in populations[10]. The study supports influencing prescribers as the most effective strategy. The following strategies can be proposed:

1. Clinical Pathways or Protocols developed by the respective professional bodies for the commonest diseases. This will ensure that tests and medications are appropriately utilized and not over-utilized.

2. Co-payment of 20% for services to be paid by the "non-vulnerable" public patients. The vulnerable would be exempt from the co-pay.

3. Medications (Out-patient) without charges only from government medical stores and dispensaries.

4. Cap on the number of out-patient visits and the list of tests based on clinical effectiveness.

5. Generalists as gatekeepers to specialists and in-patient services have been an effective strategy in Canada, UK, and Australia.

6. Safety Net mechanism is an alternative model of the Universal Health Cover. People avail of the services that they need and are reimbursed fully for ongoing care after a pre-determined expenditure has been incurred. This prevents catastrophic expenditure.

Services to be funded – only those services and products that lead to a productive quality of life should be included in the UHC system.

Out-patient services by private facilities, including visits to doctors and diagnostics, is a vital component of the proposed Universal Health Cover system. Without adequate out-patient care, treatments of minor conditions will escalate to major conditions and will drive up the demand for much more expensive in-patient treatment. The out-patient services would be free for the vulnerable population group (40%) identified in the PM-ABJIYA scheme and the rest (40%) would pay for their own medications as well as a 20% co-pay for the tests and doctor's fees.

Response to Pandemics – the proposed model organizes the entire healthcare services into manageable units based on pin codes and legislative assemblies. It also brings the private service providers into the ambit of policies of the Government. Hence, healthcare service delivery responses to future pandemics and other disasters can be better coordinated by the government.

Private Patients (Affordable)
Personal Health Insurance
Choice of doctor, hospital,
bed category,
time of surgery
Medicare surcharge
if no personal cover

Public Patients
Only to designated service provider in a Local Health Network
Co-payment / limits / Safety net Only
General Ward Beds

Vulnerable Sub-Group
Free medications in Govt. medical stores
No Co-payment

Fig 4 — Categorization of UHC Beneficiaries

The Health Departments would be able to track index patients and outbreaks by pin codes, thereby, coordinating the supplies and logistics in a much better-informed process.

Governance and Payment System : A Council of Health Ministers is proposed based on the successful GST Council. This Council will be the empowered body to make national policies requiring minimum standards across the country. An amalgamation of the multitude of current agencies would provide for a more efficient system and cost savings to fund the Universal Health System.

Medicare India, Independent Health Pricing Authority, Local Area Health Networks, NABH, NABL, and other autonomous Government Agencies would implement the Universal Health Cover as well as improve governance. The Independent Health Authority is envisaged to set the index price for health services with public and private provider representation. The Authority will need to include experts from finance and actuarial sciences. Similar Authorities at the state level would apply modification factors on the national index price based on local costs. Medicare India is envisaged to maintain the register of service providers and service recipients with the allotment of respective identifier numbers. An important function would be to detect misuse and impose penalties.

There is a real urgent need to change the payment system in India from a Retrospective System to Prospective System based on defined "clinical products". DRG system has been successful in defining a clinical product and is based on the recognition that diseases can be arranged into groups that require similar resources to treat. Hence, the cost of treatment for diseases within a group will be the same. The DRG system was developed in the 1970s at Yale University and subsequently adopted by Medicare USA, Canada, UK, and Australia. It is also supported by WHO for implementation across the world and is being actively implemented in all European countries[2]. The purchase cost for any DRG can be arrived at by multiplying its weighted index and the index pricing (affixed by IHPA). Factors for geographical differences as well as incentives for education and clinical outcomes can be applied. A Prospective Payment System (PPS) based on Diagnostic Related Groups (DRG) will be the backbone for rationalizing costs and creating the sustainability of the system.

Healthcare IT will be an enabler of implementation, prevention, and detection of misuse. There are many DRG Grouper software available that automatically generate and report DRG based on the entry of ICD-10 codes. Use of e-cards, learnings from RSBY and other schemes as well as the deployment of a cloud-based electronic medical record (EMR) in private clinics and public facilities will lead to the implementation of a prospective payment system as well as the collection of vital health data for improving policy formulation (Fig 5).

Projected Additional Financial Requirement :

The data for arriving at assumptions on costs and frequency of healthcare have been based on the 75th Round of NSS Report[7]. Following rationales and assumptions have been applied :

1. Categories of the population: Private Patients 20%, Public (Non-vulnerable) 32%, and Public (Vulnerable) 48% of the population.

2. A Co-payment of 20% of the charges is accounted from the "Non-vulnerable" group.

3. Public and private facility usage patterns for both out-patient and in-patient services in both rural and urban areas have been used[7].

4. Only the cost of services in private facilities has been calculated as the services in public facilities are already being provided free of cost and are being funded by the Government through existing budgets.

5. Cost of Out-patient cover in private facilities– Rs. 11,369 crores
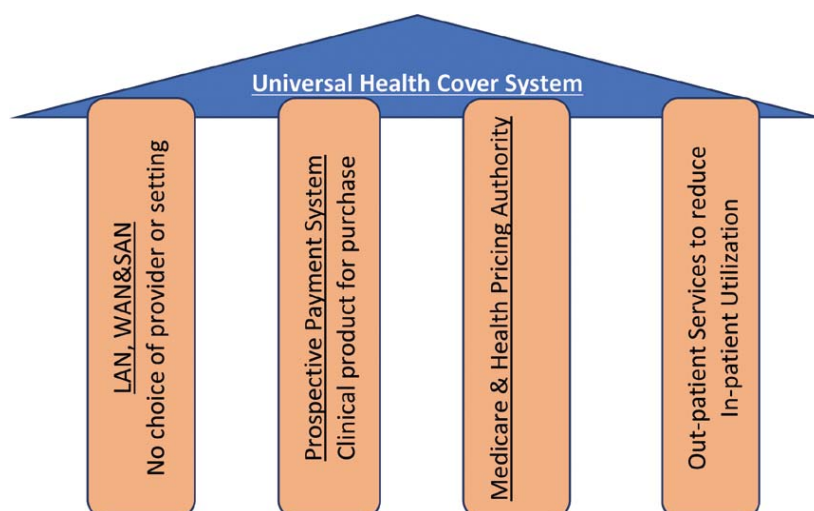
(a) The number of persons ailing within 15 days

Fig 5 — Proposed Model of UHC in India

(based on PPRA) in India is 9 crores of which 5.6 crores are in rural and 3.4 crores in urban India[7].

(b) Of both groups, 45% have acute conditions, and 55% have non-communicable diseases[11,12]. One visit for Acute diseases and 0.17 visit for chronic diseases within the same 15-day period have been used for calculations.

(c) Data has been extrapolated for 365 days.

6. Cost of In-patient coverin private facilities– Rs. 28,896 crores

(a) The number of hospitalizations per year in rural India is 1.73 crores of which 54% avail private facilities. Of these, 56 lakhs are from the vulnerable group and 37.42 lakhs from the non-vulnerable group who pay a co-payment.

(b) Of the 1 crore beneficiaries in urban areas, 40 lakhs are the vulnerable and 26.6 lakh are the non-vulnerable availing private facilities (65%).

(c) Case-mix accounting has been done by calculating the numbers of each category for each disease system and the cost of private treatment for that disease system.

7. Total cost for Universal Health Cover (Medicare India) – Rs. 40,265 crores

(a) Out-patient Doctors fees – Rs. 7,200 crores

(b) Out-patient Diagnostic tests fees – Rs. 4,169 crores

(c) Private hospitals – Rs. 28,896 crores

CONCLUSION

In conclusion, Universal Health Cover is possible in India but success will require major healthcare reform in:

1. Inclusion of Out-patient services by private practitioners as a strategy for sustainability as well as for achieving public health care targets

2. Service delivery through both public facilities and private practitioners, organized into Local Area Networks based on residential pin codes

3. Clinical and Corporate Governance of the Local Area Networks through Wide Area Networks based on Legislative Assemblies

4. Creation of a Council of Health Ministers on the lines of the GST Council, Medicare India, and an IndependentHealth Pricing Authority

5. Changing healthcare reimbursements to a Prospective Payment System based on the DRG system

6. Computer software to drive the equitable distribution of referrals to specialists and hospitals.

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Conflict of Interest : None

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