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India, the second-most populated country and one of the fastest-growing economies in the world, is grappling with numerous public health issues. Some of them are undernourishment among children, high rates of newborn and maternal mortality, and non-communicable diseases. Other major problems include underfunded healthcare systems, limited insurance coverage, and disparities in health and healthcare systems between richer and poorer states across the country.

The union and state governments' allocated spending for the health sector should be increased immediately to meet these problems. India spends only 1.3% of its Gross Domestic Product (GDP) on health, which is much less than the global average. The country can significantly improve its healthcare infrastructure and address public health problems by increasing allocated spending on its health sector.

Investments in health professional education, infrastructure development, and research and development can help reduce the gap in the current healthcare system and achieve universal healthcare access in India. Investing in public health initiatives, immunisation drives, and emergency preparedness can significantly improve health outcomes and reduce health disparities. Hence, it is crucial to recognise that prioritising public health investments and strengthening the healthcare system can lead to a healthier and more prosperous future for all.

We acknowledge and appreciate each author's efforts and contributions to this IMPF Newsletter issue. Each brings unique perspectives for further discussions making this issue more insightful and valuable to our readers.

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Antimicrobial Resistance: The Silent Pandemic

Antimicrobial resistance (AMR) is one of the major threats to global health, food security and development. It threatens the effective prevention and treatment of infections caused by bacteria, parasites, viruses and fungi. According to WHO about 700,000 people die each year from bacterial infections. As per WHO data, someone dies from an infection caused by resistant bacteria every 45 seconds. It has been attributed that around 1.27 million deaths are caused due to bacterial AMR. The number is equivalent to the deaths caused due to HIV/AIDS and malaria. It is estimated that AMR will cause 10 million deaths by 2050. AMR is a silent pandemic which needs urgent attention from every sector.

Factors such as over-prescription and over-the-counter availability of antibiotics, lack of awareness among patients to complete the dosages, overuse of antibiotics in livestock, fish farming and agriculture, and poor hygiene and infection control measures in society contribute to AMR. Another concern is the need for new antibiotics development, making overcoming this issue more challenging.

Fighting the AMR crisis

Antimicrobial Stewardship (AMS) is critical to fighting the AMR crisis. AMS programmes help fight AMR by providing a framework for responsible antibiotic prescribing and use, optimising individual therapy, helping reduce the spread of resistance and raising awareness and education. Successful AMS programmes require a dynamic interaction between all levels of healthcare providers and policymakers, including physicians, infectious disease specialists, infection control practitioners, nursing staff, pharmacists, microbiologists, pathologists, lab directors and healthcare administrators.

The core elements of AMS programmes include:

- Implementation of national and international guidelines and clinical pathways for the diagnosis and treatment of infectious diseases
- Limiting the use of antibiotics where not needed or not indicated
- Delivering the most appropriate antibiotic, with the correct dose established according to the

type and site of infection, patient's age, weight and clinical situation. Switching antibiotics from parenteral to oral form as soon as possible

- Timely conversion to the narrowest antibiotic spectrum according to the organism's susceptibility
- It uses the shortest practical antibiotic course and its discontinuation as soon as possible.

Role of Diagnostics (Diagnostics stewardship)

Quick and timely actions in understanding the causes of serious infections such as sepsis, pneumonia and meningitis and starting the right antibiotic therapy is a matter of life or death for the patient. Hence, it is important to rapidly identify the causative pathogen and differentiate between bacterial, viral or fungal infections, identify the AMR in microbes, and determine which antimicrobial agent should be used to cure. The unnecessary use of antibiotics could be minimised, and these ways can better control the spread of antibiotic resistance.

The microbiology laboratory, therefore, plays a crucial role in identifying the infectious agent quickly, as well as any potential resistance to antibiotics. It helps clinicians prescribe the most appropriate treatment with the shortest delay.

The impact of AMR goes well beyond health as it can have severe implications for poverty reduction and inequality, animal welfare, environment, food safety and security. According to The World Bank, 28 million people could be pushed into extreme poverty by 2050, with the global economy's overall cost of USD1 trillion annually due to AMR.

Since AMR is a major concern, there is a need for global coordination, especially in developing relevant guidelines for managing infectious diseases, using diagnostics and novel antimicrobials and implementing antibiotics policy and surveillance. In addition, awareness and education among all stakeholders (healthcare workers, the general public and politicians) about the dangers associated with the inappropriate use of antimicrobials should be made mandatory.

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Healthcare of Textile Workers: A Public Health Concern

Central and state governments run mandatory health insurance schemes, viz., Central Government Health Scheme (CGHS) and Employees State Insurance Scheme (ESIS), available for working people in the government and private sectors. ESIS is one of the oldest health insurance schemes, which provides social security benefits to low-paid workers. However, health insurance schemes are significantly less prevalent among migrant textile workers.

The survey on health insurance schemes among migrant textile workers showed that only half know about health insurance. It showed that only 15% of workers are enrolled under the ESIC scheme, where they get free medical services, medicine for themselves and their dependents, and other health benefits. Workers enrolled under the scheme did not get full benefits due to a lack of awareness about the procedure. Even if they still know about the scheme, they cannot access it due to long queues, and being far from the workplace, they do not get paid leave. However, most workers reported that the industry reimbursed them in cash if any accident happened at the workplace, which they believe is a part of the health insurance scheme.

In 85% of cases, there are neither health service facilities nor free medical check-ups supported by the industry. There are private clinics near their homes that most workers visit; the out-of-pocket expenses (OOPE) are very high. Prolonged working hours, unpaid leave, insufficient social security benefits, and inadequate health services are significant barriers and challenges for textile workers. Whether pre-pandemic or post-pandemic, the status of most migrant textile workers is still vulnerable and unprotected. They work in dangerous occupations, and work-related fatalities, injuries and illnesses are disproportionately high.

Most workers work 12 hours daily, at weekends, and even on public holidays. They are exposed to airborne pollutants, chemical solvents, cotton, and synthetic dust for prolonged periods. They work in poor occupational settings such as confined spaces, wet conditions, loud noise, and humid environments in hazardous working environments. They are more vulnerable to health hazards such as COPD (Chronic obstructive pulmonary disease), hearing loss, skin morbidities, and musculoskeletal disorders.



Conditions of the workers, primarily engaged in 3D (dirty, dangerous and degrading) jobs with inadequate safety kits, which mainly affect their health, are more miserable and vulnerable. Many industries lack proper safety infrastructure, putting workers at risk. Textile workers face a higher risk of suffering from psychological problems, such as stress and depression, due to the taxing nature of their jobs. They have limited occupational health and safety knowledge and lack resources to prevent, protect, and control occupational health hazards. It further exposes them to physical, emotional, and financial harm.

With the Factory Act and the updated labour code, various provisions exist for work hours, occupational health and safety, and medical services. Despite laws and regulations, the health and safety of manufacturing workers have not improved significantly. Most provisions are written on paper, and many industries follow their terms and conditions.

Government should take steps to implement health insurance provisions at the grassroots level. Workers must be provided with specific health insurance facilities such as ESIS, accident compensation schemes and group life insurance from the day they join work. Due to limited budgets, many small-scale industries cannot provide certain services to their workers. Government should strive to make the provisions easily accessible and affordable to all to ensure that no one is left behind. Public health services should arrange regular medical check-ups and psychological counselling in workplaces every three months and prepare a self-assessment report on workers' health concerns.

Bharati Maurya

International Institute for Population Sciences (IIPS)

Accessible and Affordable Healthcare: Case for PPP in Medical Devices Sector

India's medical devices sector has remained relatively underserved, with about 80% of its requirements met through imports.[1] Considering the growing burden of non-communicable diseases, the role of medical devices in screening, diagnosing, treating, and managing medical conditions remains critical.

The medical devices sector faces a set of challenges due to systemic issues. The government has identified these challenges in the National Health Policy 2017, and the Draft National Medical Devices Policy 2022 is a response to the same. The Public Private Partnership (PPP) model can be considered among the many options available.

Scaling up accessibility

According to a report by NITI Aayog, while most of the population still lives in rural areas, 60% of health facilities are concentrated in a few metropolitan cities.[2] The ability of healthcare institutions to enhance access to medical devices is critical to ensuring universal healthcare coverage. The PPP model can address this situation by encouraging and incentivising private hospital chains to expand their footprint to tier-2 and -3 cities and beyond. The focus should be on value and outcome-based pricing rather than the more popular and flawed L1 model based purely on cost.

Cost of manufacturing

Production costs in India are higher by 12-15% compared to other countries. This is due to the shortcomings in infrastructure and domestic supply chain and logistics, as well as the high cost of finance and low focus on research and development (R&D). Collaboration with the government -- in the form of financial incentives and infrastructure, along with the financial and technological expertise of the private sector -- can help address this pain point. In addition, PPPs can improve access and create a sustainable and long-term model beneficial for the manufacturers.

Domestic innovation ecosystem to boost exports

The nature of medical devices, particularly

hi-tech equipment, makes innovation a long-drawn and capital-intensive process. The long gestation period for development and regulatory approvals directly impacts their availability and launch. Hence, the domestic innovation ecosystem needs to catch up to global peers, which breeds overdependence on imports. Initiatives like tax incentives and the formation of dedicated manufacturing parks can go a long way in inviting global manufacturers to set up facilities in India. They can foster an innovative ecosystem while reducing import dependence. The country's leading academic institutes and other R&D hubs can also partner with international companies to co-create and scale up unique solutions contextualised for the Indian market. The Indore-based Raja Ramanna Center for Advanced Technology (RRCAT)'s recent collaboration with BD India for commercialising its indigenously developed electron beam technology to sterilise medical devices locally is an example of PPP's colossal potential. R&D centres and academic institutes should set up knowledge transfer centres to bring domestic manufacturers up to global standards.

Bridging the skill-talent gap

The growing technological complexity of equipment requires qualified and highly trained personnel for designing, producing, and operating medical devices. However, with patient safety and related concerns at stake, legal and regulatory intricacies complicate the process. PPPs can help by combining the government's learning infrastructure and pan-India reach, through the Skills India initiative, with the expertise and specialisation of private sector players.

Adopting a patient-centric approach, combined with efficiencies and improvements within the ecosystem, is the key to success. PPPs in the medical devices sector can help advance the overall infrastructure and make it more resilient and robust, eventually leading to better access and patient outcomes in the years ahead.

Atul Grover

Managing Director, Becton Dickinson India

[1] [2] NITI Aayog: Investment Opportunities in India's Healthcare Sector, 2021

Discourse on Nutrition: Enhancing Parliamentarians' Engagement

Malnutrition continues to be a critical issue in India, affecting children and adults. Nutrition is often a subject of interest in questions posed by parliamentarians. In February 2023, UNICEF and the Centre for Child and the Law published a research study on **“Parliamentary discourse on nutrition: What motivates lawmakers to ask questions”**. (UNICEF 2023) The study reviewed two decades of parliament questions (from 2000 to 2021) and responses to identify key themes, trends and patterns observed in the discourse on nutrition. It attempted to determine what provoked the questions raised by the parliamentarians.

Out of 52,698 questions raised in the Parliament during the period, 2005 questions (4%) were raised on nutrition and associated themes. Considering the underlying themes of major nutrition programmes, nearly 891 questions (44%) were addressed to the Ministry of Women and Child Development. While 532 questions (27%) were directed at the Ministry of Health and Family Welfare, 230 questions (11%) were to the Ministry of Consumer Affairs, Food and Public Distribution.

Four broad categories of questions emerged: a) prevalence of malnutrition; b) nutrition programmes and interventions; c) implementation of policies and plans of action; and d) institutional bodies, including composition, roles and responsibilities, and reports submitted by them. Most questions (74%)

focused on implementing policies and programmes at the national level, whereas only 10 per cent were on implementation in specific states.

Among all the sources, reports published by UNICEF have been referred to the highest number of times, constituting 38% of the total number of questions that had mentioned a reference (81/221).

Engagement at the parliamentary level

To ensure enhanced and effective engagement on nutrition at the parliamentary level and to strengthen policymaking, the following measures are suggested:

- Questions should be framed in a manner such that there is scope to determine the causes of failure of programmes, identify ways in which such failures can be prevented, discuss and deliberate measures that can be adopted, develop strict tools for monitoring and evaluation and ensure that there is measurable and tangible progress. Summaries of budget analysis and evaluation reports of schemes, along with specific takeaways and actionable recommendations, should be circulated before the commencement of sessions.
- Main nutrition-related reports identified to inform parliamentary questions could be further analysed by the nutrition community and presented as policy briefs to the parliamentarians to facilitate the formulation of more targeted/specific questions.
- Nutrition community should conduct special briefing sessions for parliamentarians when key nutrition events are organised to translate conclusions and recommendations into impactful questions.



- Nutrition community could design ways to orient parliamentarians on nutrition in general and how it relates directly or indirectly to the SDGs and national missions, policies and programmes. Orientation on where to find critical data and information for each constituency could also help in effective engagement.
- Innovative ideas may be considered to ensure the continuity of discourse on nutrition. One such idea is to organise a 'nutrition parliament' with elected members or their nominees to deliberate on issues concerning nutrition. This deliberation can be organised at the community level, and the findings and outcomes of such discussions

can be synthesised into crucial points of discussion at the parliamentary level.

All these help to identify specific areas to strengthen policymaking and accountability at the parliamentary level. They must pave the way for enhanced levels of engagement with and participation of policymakers to prioritise the core issues concerning nutrition in the country, curate strategies to diversity the quantum, quality and types of evidence being used, and promote corrective action besides advocacy and discourse on nutrition.

Arjan de Wagt

Chief Nutrition, UNICEF India Country Office

Value-based Care for Better Patient Outcomes and Quality of Life

India's healthcare system primarily relies on a 'fee-for-service' model. Payment for patient care is based on the number of services provided, e.g., consultation, diagnostic test and surgery, which can create a conflict of interest, as the focus may tilt towards quantity rather than the quality of care in some cases.

Value-based care is gradually gaining prominence globally and in India, where payment is linked to the treatment outcome, and providers are rewarded for the quality of care delivered. Its key aspects include providing a continuum of care, optimising the patient experience, standardising the cost and outcome, and delivering treatment through a collaborative approach with quantifiable outcomes.

Indian healthcare faces a dual predicament: patients require greater access to affordable and quality healthcare, and smaller medical facilities are underutilised. The high cost, particularly for specialised care and surgeries, is a barrier for a significant population.

Enhancing access

Emerging new-age, tech-driven platforms promise to almost halve costs by mitigating factors like the remoteness of large hospitals,

fragmentation of affordable healthcare infrastructure in smaller towns, and underutilisation of surgeons, specialist doctors, and operation theatres. They make access to relevant doctors and surgeons more convenient, enable transparency in the healthcare ecosystem, and provide 'digital first door access' to end-to-end healthcare services from multiple physical ambulatory and day-care providers. Additionally, they standardise the patient's treatment journey from the initial outpatient visit, diagnostics, admission, surgery or specialised care and discharge process to follow-ups with the doctor.

Managing costs

In India, 30% of the population can only afford affordable health coverage through private insurance and qualify for government assistance programmes. The 'missing middle' can manage primary healthcare but struggle to afford expensive specialised care or surgical procedures. Emerging new-age healthcare models are key in making such medical expenses manageable for patients through partnerships with insurance companies and health finance providers. They focus on pre-approved insurance claims to avoid the cumbersome process of patient reimbursement and enhance the patient

experience by assigning a dedicated care coordinator and providing pickup and drop facilities.

While accessibility and affordability are pertinent for patients, smaller-sized, tier 2 or 3 hospitals face economies-of-scale challenges in acquiring state-of-the-art med-tech equipment. This supply-demand imbalance is increasingly being addressed by adopting asset-light models, which allow hospitals to share resources, optimise spending, and build steady cash flows. These shared-economy models are advantageous for both doctors and patients, where the former can enhance career opportunities by being part of a more extensive supply chain, and patients can access affordable and quality care.

Reskilling and upskilling

India needs more allopathic doctors with a doctor-to-population ratio of 1:1445, below WHO's standard of 1:1000. The need is more acute

for surgeons and critical-care specialists. It strains the existing pool of specialised doctors and healthcare workers and necessitates a ramp-up of training and education programmes for healthcare practitioners. Data analytics, Big Data, Artificial Intelligence (AI), e-health and telemedicine actively contribute to the continuous education of doctors and healthcare workers. They provide doctors access to the most recent research and evidence-based practices and help them better assess and personalise patient treatment, leading to more effective and efficient care.

The emerging outcomes-focused value-based care models benefit everyone involved in the healthcare system. As patient expectations continue to evolve, payment structures tied to the quality of care and clinical outcomes may become a popular and viable option.

Dr Vaibhav Kapoor
Co-Founder, Pristyn Care

Growth in the Number of Medical Colleges; is India on the Right Track?

Modern medical education in India has a history of at least two centuries. Colonial governments initially tried to train the natives in Western medicine by the beginning of the 19th century. The first medical college was founded in Kolkata in 1835. Currently, 661 medical colleges in the country enrol nearly 100,000 MBBS students annually.

In earlier years, opening new medical colleges mainly responded to the growing demand for physicians to match the country's needs. Around the time of Independence, India's physician-population ratio was roughly 1:63,000, with a total of about 48,000 physicians. The average physician-patient ratio is 1:1076, close to the WHO recommendation of 1:1000. However, there are wide variations across different states and between rural and urban settings. For example, states like Bihar and Uttar Pradesh have the lowest physician-population ratios of 1:38,000 and 1:21,000, respectively, while Kerala has a ratio of 1:400.

There is an obvious need for more physicians



in some states and many parts of the country. The decision-makers often address this gap by increasing the number of medical colleges or medical seats. Often these decisions are influenced by political pressures that primarily arise from the demand in the community, which can be due to the perception that medical colleges are the solution for improving the standards of healthcare in a place. There could also be pressure from medical education aspirants due to the widespread perception that the medical profession is very lucrative. Consequently, the decisions to start new

medical colleges are often taken without systematically evaluating the scenarios or scientific projection of future needs.

India currently produces about 60,000 MBBS graduates annually. One of the estimates shows that the country will need an additional 30,000 medical seats annually in the next ten years to meet the target of a 1:1000 physician–population ratio. In this context, it is important to forecast and plan for the periods even beyond a decade because the country may not need the same number of new physicians in the following decades. There are also no systems to ensure that the additional physicians are filling the gaps in the states and geographies that require more physicians to reach the WHO-recommended ratio. For example, while Tamil Nadu has the country's highest number (71) of medical colleges, its physician–population ratio rank is 15; similarly, with the second position in the number (67) of medical colleges, Karnataka is 20th in the physician–population ratio. Kerala has 34 medical colleges that admit 4255 students annually. In contrast, the state has already

reached twice the WHO norm of 1:1000. It is clear that the addition of medical colleges or medical seats in the country, unless planned systematically, will not result in an even distribution of physicians. Therefore, it is also important that multiple factors, including the trends in population growth, life expectancy, percentage of old age population, number of Indian students who receive medical graduation from abroad, and emigration among native physicians, must be considered while decisions about new medical colleges or additional seats are taken.

Systematic and consistent approaches are not followed across the country for decisions on new medical colleges or additional medical seats. The government needs mechanisms to track new physicians' professional paths. Hence, India urgently needs to map the medical colleges and medical seats, undertake a systematic analysis of the distribution of physicians, and scientifically project the country's future need for physicians.

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