



# 15 top priorities for transforming Indian healthcare: the 2024 agenda

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There is a need to set up mechanisms for financing “Healthy India”, accelerating health systems strengthening, augmenting capacities for national surveillance and pandemic management, creating a skilled future health workforce, strengthening primary care, enhancing public health measures and communication strategies, better usage of telemedicine and remote patient management, encouraging greater private sector participation and support and lastly, embedding digital health.



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The Covid-19 pandemic has challenged us to think about the national priority areas that should be identified and given immediate focus to pave the way for the transformation of the healthcare industry. This is the correct time for the government and the private players to work in synergy towards translating the top priorities into a plan and target to achieve the 2024 agenda.







# Table of contents

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<b>A. Indian healthcare sector- the time for the next big leap</b>	<b>06</b>
<b>B. 15 top priorities for transforming Indian healthcare: the 2024 agenda</b>	<b>08</b>
1. Expanding financing for 'Healthy India'	10
2. 'Healthy India', as a mass movement	11
3. Healthcare Sector Promotion Programme	12
4. Health coverage for all	13
5. Strengthen primary care	14
6. Redefine and revive healthcare PPPs in India	15
7. Driving the Ayushman Bharat Digital Mission till the last mile	16
8. 'National Health App' for aggregating healthcare services across the value chain	17
9. 'National Task Force' for healthcare workforce development	18
10. Building a 'National Medical Network'	20
11. 'National Health Quality Index' and transparency system	21
12. Medical hubs/Medicities across India	22
13. Step up national surveillance system	22
14. Telemedicine, Virtual care and Metaverse	24
15. Decarbonising healthcare	26
<b>List of abbreviation</b>	<b>30</b>
<b>About KPMG in India</b>	<b>32</b>
<b>Acknowledgements</b>	<b>34</b>



# Section A:

## Indian healthcare sector - the time for the next big leap



## Indian healthcare sector- the time for the next big leap

The Covid-19 pandemic has become one of the biggest health emergencies faced by the global community, affecting not only health systems across nations but also economic structures. India also had to navigate through the pandemic and a myriad of other challenges by undertaking strategies to balance both the health and economic stability of the country.

The pandemic has altered Indian healthcare and is approaching transformation beyond recognition. Both the government and the private players made several changes in the overall healthcare sector to ensure the readiness and resilience of healthcare systems and prepare the country against the Covid-19 pandemic. Several technological, regulatory and operational changes have been made to transform the way the public health system works, patients are treated and private providers operate.

Disposable incomes and lifestyle changes, coupled with increasing population, have led the disease patterns to change significantly from communicable to sedentary lifestyle-related diseases. This needs a paradigm shift in terms of our healthcare policies as well as in establishing a synergy between public and private healthcare sectors while providing increased impetus to health tech start-ups.

Significant progress has been made through several initiatives, including the flagship Ayushman Bharat, which covers the cost of secondary and tertiary-level hospitalisation for 100 million underprivileged families, and will

be expanded to 400 million more at a small premium. The launch of the Ayushman Bharat Digital Mission (ABDM) has been a big move towards the digitisation of the healthcare sector. Furthermore, the Government of India released nearly USD2 billion (INR15,000 crore) under the Emergency Response and Health System Preparedness Package (ECRP-I)<sup>1</sup> to all states in April 2021, and ECRP-II package, amounting to USD3.1 billion (INR23,123 crore) on 8th July<sup>2</sup>.

Certain national priority areas should be identified to pave the way for the transformation of the healthcare industry. The healthcare industry in the times ahead will be shaped by many forces. However, the critical forces governing Indian healthcare in the next decade include expanding healthcare financing; promoting 'Healthy India' as a mass movement; launching a healthcare sector promotion programme; focusing on Universal Health Coverage (UHC); strengthening primary care system; redefining and reviving public-private partnerships; increase transparency by developing 'National Health Quality Index'; building a 'National Medical Network' and 'National Taskforce' for aggregating healthcare services; impetus on digital healthcare initiatives such as driving ABDM till the last mile; strengthening telemedicine, virtual care, metaverse and making provision for 'National Health App'; and focusing on preparedness against future health emergencies by stepping up the national surveillance system.



1. India Covid-19 Emergency Response & Health System Preparedness Package: (ECRP-I), PIB, April 2021
2. Cabinet approves "India COVID 19 Emergency Response and Health Systems Preparedness Package: Phase II" at a cost of Rs 23,123 crore, PIB, July 2021



# Section B:

## 15 top priorities for transforming Indian healthcare: the 2024 agenda



## 15 top priorities for transforming Indian healthcare: the 2024 agenda



Expanding financing for 'Healthy India'

01



'Healthy India' as a mass movement

02



Healthcare Sector Promotion Programme

03



Health coverage for all

04



Strengthen primary care

05



Redefine and revive healthcare PPPs in India

06



Driving Ayushman Bharat Digital Mission till last mile

07



'National Health App' for aggregating healthcare services across the value chain

08



'National Task Force' for healthcare workforce development

09



Building a 'National Medical Network'

10



'National Health Quality Index' and transparency system

11



Medical hubs/ Medicities across India

12



Step up national surveillance system

13



Telemedicine, Virtual care and Metaverse

14



Decarbonising Healthcare

15



# 1. Expanding financing for 'Healthy India'



The Covid-19 pandemic crisis is a reminder of the importance of investing in the healthcare sector for a country like India. A robust healthcare system drives GDP growth in the presence of adequate investments and a conducive environment by not only acting as a productivity and employment generator but also as a magnet to attract foreign exchange earnings and provide opportunities for innovation and entrepreneurship.

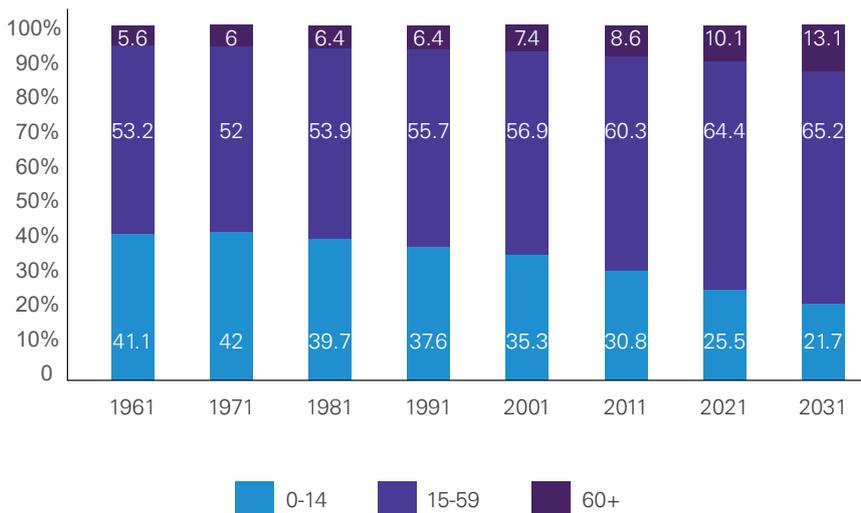
## i. Preparing for dual diseases with increasing population



In the coming years, India is expected to overtake China as the most populous country and its bulge in the working-age population is going to last till 2055. However, the share of senior citizens in India will increase from 8.6 percent in 2011 to 13.1 percent by 2031. In 2050, India is expected to have 300 million senior citizens<sup>3</sup>. With this, the burden of disease, especially from non-communicable

diseases (NCDs) will further put a strain on the healthcare system, considering nearly 5.8 million people already die from NCDs (heart and lung diseases, stroke, cancer, and diabetes) every year<sup>4</sup>. India currently has around 60 million diabetics, a number that is expected to reach 90 million by 2025. The rising NCD burden is estimated to cost India USD4.58 trillion before 2030<sup>5</sup>.

Percentage distribution of population by broad age groups (In %)



**~62%**  
NCDs contribute ~62% of all the deaths in India

**Twice the odds**



of an Indian dying of an NCD disease than a communicable disease (as per WHO)

**USD4.58 trillion**



Expected loss to India due to NCDs and mental disorders between 2012-2030

Source: Ministry of Statistics and Programme Implementation

3. Ministry of Statistics and Programme Implementation report, 2021  
4. Non-communicable Diseases, National Health Profile

5. Investment opportunities in India's healthcare sector, Niti Aayog, 2021

To cater to a burgeoning number of people requiring healthcare services for communicable and non-communicable diseases, it is expected that India would need a strong medical workforce of 7.4 million by 2022, with at least 550 new medical colleges to come at par with the global average of doctors in 2030<sup>6</sup>. Unless acted upon immediately, India will run out of time to harness

the potential of its youth to drive economic growth, as well as adequately plan for a large geriatric population to be housed by 2050. This is likely to create significant fiscal challenges for the government to deliver adequate physical infrastructure, invest in education and healthcare, and create a sustainable social environment.

## ii. Fostering innovative financing models



It is estimated that it will cost USD3.9 trillion a year to achieve the Sustainable Development Goals (SDGs)<sup>7</sup> in developing countries alone. Current levels of both public and private funding cover only USD1.4 trillion, leaving an estimated USD2.5 trillion annual gap. Filling this gap will require tapping new and greater sources of capital from the public and private sectors, including more than USD200 trillion in the capital markets, and effectively deploying these funds towards development efforts<sup>8</sup>. Innovative finance relies on partnerships to pool resources from a range of public and private sources to solve problems faster, more effectively, and at a larger scale than would be possible alone. The growing interest in innovative finance is being

fueled by two key trends: innovative financing for development and impact investing.

For the healthcare sector, innovative and blended finance has the potential to play an instrumental role in the way we solve society's greatest health challenges. The healthcare sector has plentiful, immediate prospects to leverage innovative financing to bridge the financing needs for building a resilient health system. India is yet to fully explore and leverage innovative financing models. A systematic effort led by the government along with private and other potential financing sources will be critical in creating and adopting innovative financing models in the coming times.



6. Economics of Non-Communicable Diseases in India, World Economic Forum, November 2014

7. The Sustainable Development Goals Report, Intergovernmental organization report, 2020

8. World Investment Report – International Production Beyond the Pandemic, UNCTAD, 2020



## 2. 'Healthy India' as a mass movement

With healthcare primarily viewed as a curative concept, there is a need to create a movement towards preventive and promotive healthcare. India needs to move beyond traditional public health information, education and communication efforts to reach the masses for developing systemic individual, behavioural and societal change towards self-care, wellness, alternative care and establishing overall awareness of healthcare needs.

### i. Mass movements to drive the agenda for 'Healthy India'



India needs to embark on mass movements or Jan Andolan as witnessed recently with 'Swachh Bharat Mission', 'Poshan Pakhwada', 'Beti Bachao, Beti Padhao', 'Eat Right Campaign', 'TB Harega, Desh Jitega' and other such movements with a focused strategy to engage the community and various stakeholders to drive the agenda with programmatic management.

In 2019, the Hon'ble Prime Minister launched the 'Fit India' movement to make fitness an integral part of our daily lives. The mission of the

movement is to bring about behavioural changes and move towards a more physically active lifestyle. Towards achieving this mission, Fit India proposes striving toward creating awareness and reaching every school, college/university, panchayat/village, etc. There is a need to augment the Fit India movement with a multi-sectorial effort and bring the Ministry of Health and Family Welfare (MOHFW), Ministry of AYUSH, Ministry of Youth Affairs & Sports, and state governments, private sector and the community at the centre of the movement.

### ii. Promoting self-care as a way of life



It is critical to establish an environment that encourages the adoption of practices aligned with promotive healthcare and encourages individuals to not just work towards physical health but also mental, emotional and social wellbeing. Further, creating awareness regarding self-care across India's diverse demographic profile will enable individuals across urban, semi-urban and rural areas to timely detection of diseases, access solutions for minor illnesses and adopt preventive health solutions. Encouraging self-care within individuals is also expected to yield positive outcomes in terms of increased productivity, as overlooking everyday healthcare often leads to a gradual, consistent decline in productivity.

To initiate a psychological and behavioural shift towards the adoption of self-care by the masses, it is important to devise a strategy for awareness creation involving multiple stakeholders to turn this into a mass movement. Further, gram panchayats and non-governmental organisations (NGOs) must be involved in the wide dissemination of information, education and communication (IEC) material in rural areas. Additionally, the private sector's reach, resources and operational efficiencies must be leveraged through public-private partnerships for nationwide awareness creation to turn this into a mass movement.





### 3. Healthcare Sector Promotion Programme



#### i. Taskforce for 'Healthcare Sector Promotion Programme'



Dedicated and comprehensive efforts are required to drive the healthcare sector promotion agenda with objectives of increasing private sector participation, infrastructure development, investment & promotion engagement at national and international platforms, supporting structured

financing at low cost, enabling ease of regulatory approval and interface between investors and the government. The healthcare sector has huge potential for medical tourism and attracting foreign investment.

#### ii. Performance Linked Incentives (PLI) scheme for healthcare sector



It is important to incentivise healthcare providers not only with capital investment for setting up healthcare facilities across rural and urban areas but also for several patients treated with successful outcomes<sup>9</sup>. The incentivisation could be in the form of subsidies on electricity, taxation

and cash. The government's support as witnessed in promoting sectors like pharmaceuticals, medical devices, agriculture, manufacturing, etc., calls for similar promotion and schemes for the development of the healthcare sector.

#### iii. Healthcare Infrastructure Development Fund



The government has set up dedicated funds/schemes for supporting infrastructure development across various sectors like Micro, Small and Medium Enterprises (MSMEs), start-ups, electronic development, medical devices parks and others. However, there are limited low-cost capital options for the private sector to leverage for the development of healthcare

infrastructure. There is a dire need to set up a healthcare fund promoted by the Central and state governments to provide capital at low cost, support with dedicated viability gap funding, subsidies on medical equipment and financial benefits linked to the development of projects across Tier-II and Tier-III cities.

#### iv. Ease of doing business in the healthcare sector



Health sector regulatory compliances vary from state to state in India and there is an emerging need to simplify the regulatory framework with a single-window approval system, minimise compliance requirements and maximise self-governance by the adoption of standard practices and benchmarking. Further, there is a need to

institutionalise an apex body that can ensure a uniform regulatory framework for healthcare across the country. Catering to the emerging healthcare landscape in India like digital health, artificial intelligence, machine learning, software as a medical device and other such areas is key to simplifying the governance systems.

9. Production Linked Incentive (PLI) scheme for the Pharmaceutical Sector, PIB, November 2021

## 4. Health coverage for all



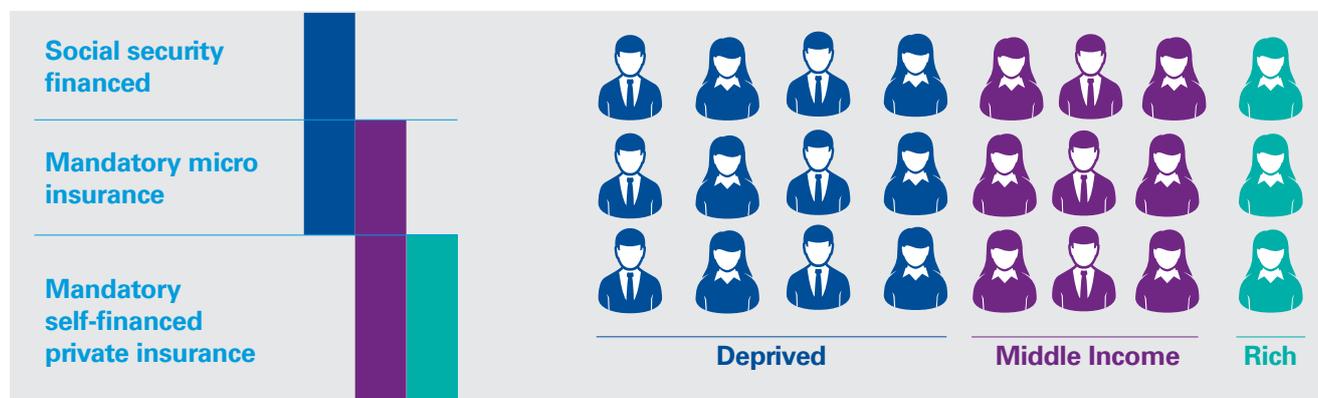
Extensive efforts have been made by the government toward achieving universal healthcare coverage. However, one of the critical aspects of the goal is that certain parts of the population remain uncovered. Now, with this the economically weaker sections of the society are covered with Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) and the higher income group already capable of bearing their medical expenditures, India's health coverage strategy needs to focus on a significant part of the population – the middle class.

### i. Time to roll out mandatory health coverage for all in India



At least 30 percent of India's population, or 40 crore individuals, are devoid of any health protection through insurance<sup>10</sup>. They are not covered under Government-subsidised health insurance schemes (PMJAY and state extension), covered by social health insurance schemes, and have not paid for the private voluntary health insurance (PVHI) scheme. They are referred to as the 'missing middle'.

More recently, the Government has outlined its intent to expand the AB-PMJAY health cover to over 400 million more people<sup>11</sup> who are currently not covered under any government or private health insurance scheme. This will enable India to move toward rolling out the world's first comprehensive health insurance scheme.



### ii. Mandatory linking of health unique identification number (UID) with health insurance/assurance scheme of each individual



India needs a system to link healthcare coverage (Government healthcare coverage, electronic health system, or self-financed) of every individual to health UID with a facility to top up and avail other value-added benefits as per an individual need. The interlinkages of health insurance/assurance schemes driven through the Aadhaar

number and the mobile number of an individual will help create national portability and a national health security number that shall enable identifying every individual with the health coverage during the times of any medical emergency across the country.

10. Health Insurance for India's Missing Middle, NITI Aayog, October 2021

11. Ayushman cover likely for 40 crore more at small premium, The Times of India, April 26, 2022

## 5. Strengthen primary care



Primary healthcare is essential for an early aversion of diseases, reducing out-of-pocket expenditure and easing the burden on secondary and tertiary health systems. The focus on preventive care and wellness must not only be limited to Ayushman Bharat – Health and Wellness Centres (AB-HWCs) but also extend to the private sector and develop a network of Health and Wellness Centres (HWCs) to promote the health and wellness agenda in the country. The following interventions can further strengthen the primary care infrastructure in India:

### i. Strengthening the primary care system through the private sector



Achieving the ambitious goal of operationalising nearly targeted up-gradation of a large number of AB-HWCs within the stipulated time would require collaborative efforts between the private sector and the government through various types of public-private partnership (PPP) models. There is a need for exploration and adoption of a multi-pronged approach, including partnerships with a large network of general practitioners, diagnostic and imaging centres, polyclinics, nursing homes and other such small healthcare organisations to

enable high-quality primary healthcare services across rural and urban areas. It is vital to develop a network of private primary care clinics/GP clinics as part of AB-HWCs to ensure comprehensive primary healthcare (CPHC) that is universal, free and closer to the community. Various state governments have evaluated PPP models with NGOs and private providers in the recent past, and further need a focused approach to strengthening the primary care network in the country.

### ii. Digital primary care clinics



Leveraging digital health at Sub Health Centre/ Primary Health Centre (SHC/ PHC) level and General Practitioner (GP) clinic will enable the establishment of a digital clinic equipped with 'lab in a box', telemedicine / virtual care solution,

referral management system, Personal Health Record/Electronic Health Record (PHR/ EHR), medicine ATM facilities and will be embedded into a network of hub & spoke virtual care ecosystem to bridge the availability of doctors and resources.



## 6. Redefine and revive healthcare PPPs in India



A well-defined and conducive PPP framework, along with a robust enabling ecosystem will facilitate the government in accomplishing, to a considerable extent, what Hon'ble Prime Minister Shri. Narendra Modi has said, "The Government has no business to do business" thus promoting private sector investments and participation in nation-building. The Indian healthcare sector has failed to leverage public-private partnerships (PPP) models to bridge the healthcare infrastructure gaps and develop sustainable healthcare PPP models leveraging the private sector underlined by structured financing.

### i. National healthcare PPP strategy



It is time to relook, redefine and revive PPPs in the Indian healthcare sector by developing a comprehensive 'National Healthcare PPP Strategy' that articulates the government's intent, propose potential models, outline structured financing instruments, measures to safeguard PPP projects, and national body to promote and enable PPP projects in healthcare. The strategy would highlight the government's commitment to developing, sustaining and safeguarding PPP projects, thus helping gain the confidence of the private sector.

Setting up a 'National Health PPP Agency' entrusted to develop an innovative partnership, engage with the private sector, support state governments, evaluate PPP proposals and monitor the impact of the collaboration, achievement of the milestones, and timely alignment in all the domains to identify disparity, and devise ways to bring efficiencies that can help ensure the success of the partnerships. Robust continuous independent monitoring and evaluation intelligence are key for such partnerships — not just for the project they are about, but also to strengthen the case for future use of partnership models as part of UHC.

### ii. 'Profit with Purpose' - rethinking 'private' as partners and understanding the business objectives



At this juncture, the government must engage with private healthcare players and the investment community, and explore new entrants to take up the opportunities for much-needed augmentation of healthcare infrastructure. A lot of consideration and resourcing goes into the design and technical aspects of policy reforms and programme implementation but more fundamental building blocks between partners such as trust, dialogue,

considerations and relationships are often forgotten. The biggest constraint is the limitation of acceptance of business objectives of the private sector to operate a profitable business. It demands a larger understanding and acceptance at the government's end for the private sector as a 'profit with purpose' and building a framework to build permissible profit for sustainable partnerships in the healthcare sector.

### iii. Revive strategic purchasing



There is enormous scope to leverage 'strategic purchasing' as an integral approach to fast-track the achievement of larger health goals. The government can enter strategic purchasing contracts with the private sector to build primary care services, district hospitals, clinical management services and augmenting of healthcare workforce skilling.

## 7. Driving the Ayushman Bharat Digital Mission till the last mile



Ayushman Bharat Digital Mission (ABDM) aims to drive the development of a backbone necessary to support the integrated digital health infrastructure of the country. ABDM will drive the digitisation of healthcare in India for both the public and private sectors. It will bridge the existing gap amongst different stakeholders of the healthcare ecosystem through digital highways and bring all stakeholders on to a more efficient system. There is need for a comprehensive implementation strategy mainly targeting some of the key building blocks.

### i. Health UID, beyond UID number



Public health research and care provision in the country can be significantly revolutionised with the proper use of health IDs. However, there are hurdles in the way of successful health UID adoption and implementation such as, how the UID will be integrated with multiple IT systems currently used in public health and private health sector. The current UID linked with PHR will act as a mere database with limited meaningful health records and will lack the features that will

encourage citizens and providers to avail of the Health UID. Health UID issued as virtual health cards could act like an ATM card preloaded with healthcare benefits like entitlement to health schemes, health coverage for any medical emergency, primary care benefits, certain free 'Jan-Aushadhi' pharmacy coupons, health check-ups and other such benefits that can be availed at any public or private health facilities.

### ii. Incentivise providers for digitisation



India has embarked on a digital health journey with the launch of ABDM. However, there is limited clarity on how thousands of providers including hospitals, labs, GP clinics, etc. across private and public health will be supported in undertaking digitisation and integration. The success of ABDM will depend on the ability to onboard a vast number of public and private health providers to adopt digital health solutions and standards to build a

digital health ecosystem. Unless a well thought-out roadmap is articulated for ABDM to provide technical and financial incentivisation to small and larger providers, the mission is unlikely to achieve great success. The capital and operational expenses could be factored in as a subsidy and/or indirect tax incentives for the providers leveraging the transformation journey.





## 8. 'National Health App' for aggregating healthcare services across the value chain

The Indian health system, plagued by fragmentation across rural and urban areas, often limits the accessibility to healthcare services for citizens. Thus, there is an immediate need to have a one-stop gateway in the form of a 'National Health App' for citizens of India to understand and manage their health requirements in an automated way. A National Health application will connect all required services offered by public and private health providers in India with a single window to navigate healthcare needs required by every citizen. The 'National Health App' will complement the existing applications and integrate them to improve access to quality healthcare services and enhance citizen experiences.





## 9. 'National Task Force' for healthcare workforce development



Shortages in healthcare workers have been a common feature of health systems, and Covid-19 has thrown workforce shortages into unprecedented depths, pressing for immediate interventions across the value chain. Simply training and skilling more workers is no longer sufficient, nor is it sustainable. Instead, India needs to strategise and develop a roadmap for upskilling the existing workforce and expanding the healthcare workforce by fixing the medical and paramedical education infrastructure shortage. Some of the interventions that could be considered are:

### i. National Taskforce for healthcare workforce development



There is a need to put up a comprehensive strategy and holistic roadmap for aggregating the efforts of developing a healthcare workforce in conjunction with the public and private sectors. Such a task force should consist of public and private stakeholders and would work across MoHFW, NITI Aayog, National Health Authority (NHA),

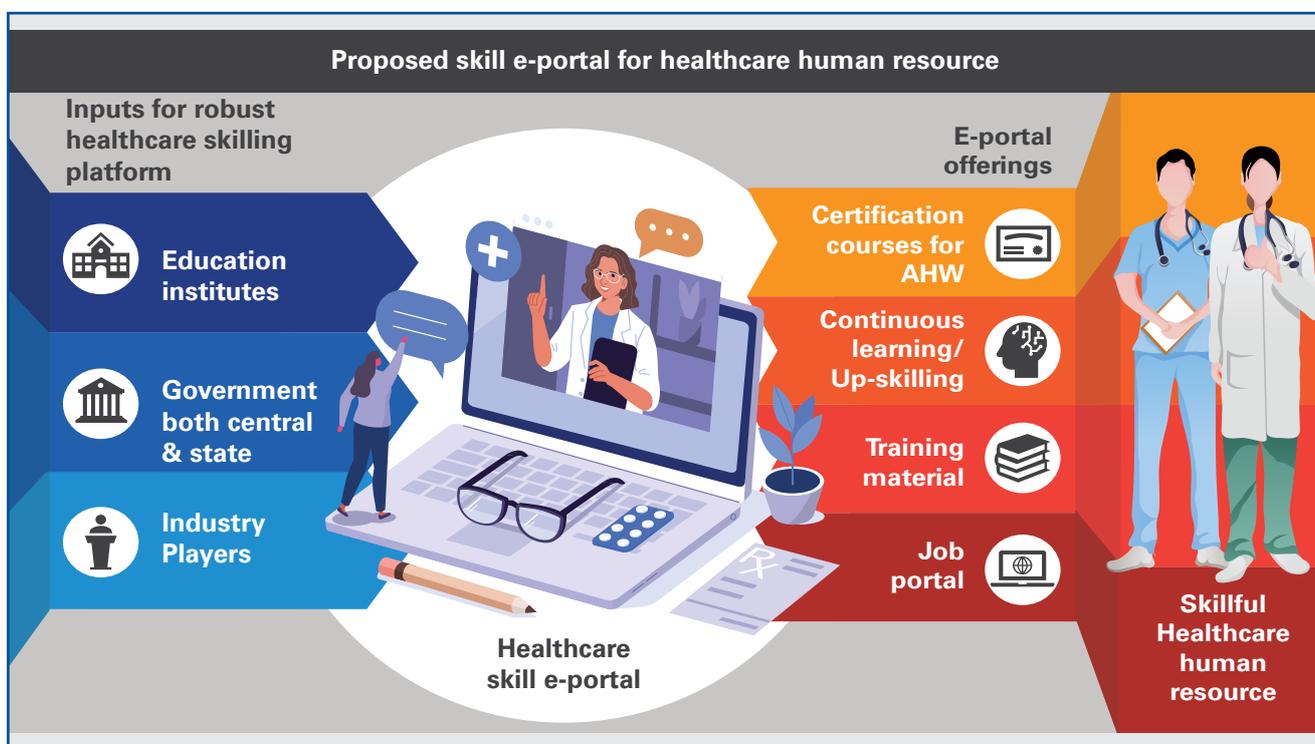
National Medical Commission (NMC), Indian Nursing Council (INC), National Skill Development Corporation (NSDC) and private sector to outline the required strategic interventions, foster partnerships, alignment of resources and developing models of healthcare education infrastructure and skilling.



## ii. National healthcare professionals skilling platform

At present, India doesn't have any mandatory continuous learning credits system for an annual/ periodic renewal of registration of healthcare professionals, unlike many other countries. A policy and system for continuous learning and skilling of healthcare professionals is required in India, which provides mandatory and voluntarily learning credit systems. India needs a National Healthcare Professionals Registry and Skilling Platform which shall aggregate public and private sector and

academic institutes to provide healthcare skilling courses, contents and certifications along with MoHFW, state governments, NSDC and the private sector. Such a skilling platform will act as a skilling resources marketplace, a platform that aggregates skilling partners and providers and bridges the demand and supply gap. It shall function as a learning management and skilling platform with a host of free and paid skilling resources and content.



## iii. Healthcare skilling centres with private sector across districts

India faces dual challenges of shortage of healthcare workforce and needs upskilling of the existing healthcare workforce. Thus, there is a need to set up healthcare skilling centres at the district and city level on PPP mode with the private sector to provide short-term courses, drive up-skilling of existing healthcare workforces and

training of community healthcare volunteers. A network of such healthcare skilling centres leveraging the resources and participation of the Central government, state government, private sector, NSDC and Healthcare Sector Skill Council aligned with the mission mode programme to increase the healthcare workforce in the country.



## 10. Building a 'National Medical Network'



There is a need for developing a National Medical Network that will allow healthcare professionals to solve difficult cases and review effective treatments, adding to the collective knowledge of the community.

The government of India is implementing an integrated network of hospitals, labs, insurers, pharmaceuticals and health tech startups under the regulatory framework of government policies. The National Medical College Network (NMCN) aims to interlink the medical colleges across the country with the purpose of e-Education. However, a considerable amount of effort has to be undertaken to expand the network and forge partnerships with a large network of general practitioners, diagnostic and imaging centres, polyclinics, nursing homes and other such small healthcare organisations to enable high-quality healthcare services across urban and rural areas.

### i. Develop a research-driven culture



A National Medical Network will facilitate a broad network of healthcare professionals providing avenues of collaboration. With the eventual advent of digital technologies like the Internet of Things, India should aim to combine islands of expertise into a cohesive and comprehensive structure for

utilising untapped potential in the Indian healthcare sector. Focus on research with assistance from premier healthcare institutes like the All-India Institute of Medical Science (AIIMS) will help in cultivating subject matter networks.

### ii. Increase penetration of healthcare facilities to improve accessibility



The network also can be envisaged as a tool to increase penetration of healthcare facilities in a bid to enhance universal healthcare goals and reach the last person. It can be used as an aggregation platform to bring the medical fraternity and seekers of healthcare services together, bridge information asymmetry and provide a medium of communication, recalibrate expectations from both sides, identify pain points in consumer

experience and explore possible business and research opportunities. Members of the medical fraternity like doctors can be incentivised through direct access to ready-to-use state-of-the-art healthcare research, access to high-quality social medical capital and lifelong learning through continuous learning programmes and targeted skill upgradation.

### iii. Proliferation of the network to other nations



The National Medical Network can act as a collaborative platform to brainstorm and set agendas of national prominence in health and also for quick pivoting in light of untoward occurrences or matters of national/ global importance like public health emergencies such as the Covid-19 pandemic. Resulting synergy will reduce duplication of efforts and streamline energies towards mitigation and adaptation.

A National Medical Network has the potential to be a pioneering initiative to inspire the proliferation of similar national networks in other nation-states. This can be a precursor to the establishment of global and alumni networks, with the capacity to be a strong multilateral organisation and leverage substantial influence for common policy advocacy and agenda-setting at international health institutions.

## 11. 'National Health Quality Index' and transparency system



India needs to establish a national benchmarking framework as a National Quality Index by periodic reporting of health indicators cutting across clinical care, disease management, operations, turn-around time, financial, governance, patient experience and other such indicators that entail a transparent health system across the public and private sector. To assess the healthcare provider maturity, the accrediting bodies must adopt the below mentioned three strategies to drive quality and transparency in India:

### i. 'National Health Quality Index' for healthcare providers



All across the world, healthcare professionals have grown to understand the value of comparative data but struggle to obtain the right measures of the data. Hence, it is imperative to set up a National Quality Index, which digitally reports key health indicators of the National Accreditation Board for Hospitals & Healthcare Providers (NABH). This will help in benchmarking health providers and driving transparency.

Further, the National Quality Index should also allow the patients to rate the services of the

healthcare provider in terms of experience factors, process measures, outcome measures, patient safety measures and cost measures which will create a rating for the providers. This will enable to shift from regulating the sector to a rating-based gradation of healthcare providers underlined by quality indicators and patient feedback as witnessed in the food delivery services, e-commerce services and various other service-providing industries.

### ii. Re-align existing NABH, Indian Public Health Standards (IPHS) and other health standards by embedding digital health



The current objectives of the existing standards set by accrediting bodies need to be re-aligned to accommodate the digital health standards and recommendations as outlined in ABDM. These new-age objectives can form the first step of improvement in setting up the digital infrastructure and help in data-driven informed decision making

for the governments. Embedding digital health standards and solutions in the existing standards will equip the health facilities to integrate into the larger emerging digital health ecosystem and foster the exchange of health data across the value chain.

### iii. Need to develop new accreditation standards for digital health providers



In the emerging digital health value chain, quality accreditation for digital health players/platforms is still not defined in India. The current health standards like NABH, IPHS, and others have limited relevance to the emerging digital health platforms (like e-ICUs, teleconsultation / virtual care services, records management systems, mobile-based diagnostics and others) and providers that have promising prospects

of becoming mainstream healthcare delivery in the coming future. Thus, certification and accreditations of digital health providers/platforms are important to indicate service maturity, digital health standards and guidelines adherence, privacy and security measures, data exchange with third-party, cyber security measures and customer experience.

## 12. Medical hubs/Medicities across India



### i. Medical hubs/Medicities across India



Dedicated medical hubs / medicities are required to be set up across India in mission mode with a focused approach in socio-economic zones (SEZs) and medical devices hubs. The Central and state governments should devise a scheme to establish

medicities / medical hubs across multiple locations in every state and provide financing support to attract private health sector for the development of complementing healthcare facilities.

### ii. Model health district mission



India needs a focused, systematic and phased approach to augment health system infrastructure across 730 plus districts. In a mission mode approach, 100 to 150 districts per year should be taken up to develop 'model health districts' as witnessed with the Smart Cities Mission. Further, the model proposes to serve other key objectives of increasing financing, augmenting health infrastructure and medical technology, improving operations, enhancing referral network,

enhancing community engagement, augmenting community health surveillance, improving healthcare workforce capacities, leveraging digital health innovations and mitigating shortage of human resources. Under such model health districts, model district hospitals with augmented interlinkages with PHCs and CHCs shall be developed with focused interventions to connect the existing infrastructure, integrate operations and improve the quality of service.

## 13. Step up national surveillance system



Supporting the 'Vision 2035 - Public Health Surveillance in India' as proposed by NITI Aayog, the Government of India should aggressively work towards convergence of disease surveillance and epidemic/pandemic response management activities in a single integrated framework. The following select interventions could further step up the surveillance system in the country:

### i. Need for institutional strengthening



A comprehensive institutional strengthening of key public health institutes/organisations such as ICMR, NCDC and private sector labs/institutes should be undertaken to build capacity, augment human resources, leverage digital technology and advanced data analytics, establish a one-health

platform, and expand facilities and infrastructure. Further, there is a need to inter-link these institutes and develop a network of data exchange for timely and seamless integration of disease surveillance and research data across key institutes.

## ii. National Surveillance and Pandemic Management System



A single integrated national surveillance and pandemic management system encompassing various verticals of public health and health emergencies can be developed. This warrants the development of a single integrated national surveillance and pandemic management system. Some of the modules include citizen interface,

surveillance and disease reporting system, rapid response team interface, connected network of laboratory facilities and health facilities, supply management system, point-of-entry (PoE) surveillance system, clinical management system, data analytics and other critical aspects of disease surveillance and pandemic management.

## iii. National Public Health Observatory and network of HEOCs



At present, MoHFW is in the process of establishing a National Public Health Observatory (NPHO) and a network of Health Emergency Operation Centres (HEOCs) across India in a phased manner for coordinated and cohesive public health management. Every state and city must set up HEOCs to equip for health system

monitoring and emergency response system. Increasingly, there is a need to create a 'culture of data' in public health for intelligent use of data in planning and addressing complex health system challenges. The network of such NPHOs and HEOCs will form the backbone of a robust monitoring system for Indian public health.

## iv. Population health management and registry



India, over time, has developed a patient registry for cancer, rare diseases, diabetes, stroke, and other diseases. However, integrated population health information leveraging registry for different diseases is currently not very structured and robust in India. Population health information system (PHIS) can leverage data from HUIDs and other sources including clinical sources, claims reports, etc. PHIS could be developed with real-time

dashboards to merge geography, demographics and clinical characteristics of patients vulnerable to health crises to better understand disease incidence, drive service delivery decisions and identify 'hot spots' among vulnerable communities. This dynamic ecosystem would heavily rely on de-identified individual-level patient information that originates from healthcare facilities, laboratories and other sources.



## 14. Telemedicine, Virtual care and Metaverse



The Indian healthcare system, though robust, lacks an inclusive approach to cater to the needs of the citizens based in remote or rural areas. The Covid-19 pandemic has highlighted a lacuna and the huge opportunity to bridge this gap using emerging technologies to provide on-demand virtual and adequate care to the masses.

### i. Telemedicine and Virtual care



There has been a significant uptake in adoption of telemedicine across India, with 3 times increase in the number of people using online health consultations between March 2020 and November 2020<sup>12</sup>. Non-metros witnessed a 7 times growth in online consultations compared to 2019, while physical health appointments went down by 32 percent<sup>13</sup>.

The National Telemedicine Service of MoHFW, eSanjeevani, has completed 90 lakh

teleconsultations in the country and is catering to 70,000 patients daily<sup>14</sup>. An open-source platform for OPD e-Sanjeevani, private sector participation, and focused implementation will play a big role in continuing telemedicine services and virtual care adoption phenomena in India. To increase the adoption of telemedicine, the Government of India issued Telemedicine Practice guidelines on March 25, 2020<sup>15</sup> which provide a robust framework for the practice of telemedicine.



12. Online health consultations up three times during Covid-19: Practo-TSI report; The Hindu Business Line; December 21, 2021

13. Telemedicine Society of India and Practo launch 'Rise of Telemedicine – 2020' report; Telemedicine Society of India; March 2021

14. Health Ministry's eSanjeevani completes 90 Lakh consultations; PIB; August 9, 2021

15. Telemedicine Practice Guidelines; MoHFW; March 25, 2020



## ii. Metaverse in healthcare

The use of the metaverse in healthcare can be revolutionary by being instrumental in bringing the patient and healthcare provider closer to each other in times of need. This technology can help remotely located patients get the right care, right diagnosis, receive medical treatment, or assistance in medical procedures from the experts sitting in different

geographies in real-time and during the golden hours.

Metaverse has the potential to open novel channels for delivering treatment, potentially lowering treatment delivery costs and significantly improving patient outcomes. Some key aspects where metaverse can improve the future of the healthcare system include:



### Remote assist:

Metaverse can empower technicians to solve problems more efficiently using virtual and augmented reality by collaborating from different locations, with one goal of providing treatment to the patient.



### Gesture controlled diagnosis:

Metaverse can also empower doctors to scan through the patients' medical records during mid-surgery by using hand gestures without moving out of the sterile zone, making the treatment better and risk-free.



### 3D visualisation:

Metaverse can make neuro navigation more effective by visualising 3D medical images in real 3D using augmented realities instead of getting different views on flat screens.



### Interactive learning for trainees and medical practitioners:

Learning in healthcare is very crucial and needs the person to be present physically to understand and grasp the subject matter. The introduction of modern technologies like virtual reality, movement-based interaction and mixed reality is a game-changer to the current healthcare learning system. Usage of the metaverse and virtual reality can help trainees learn from experts while sitting at home and performing assignments and learning.



## 15. Decarbonising healthcare

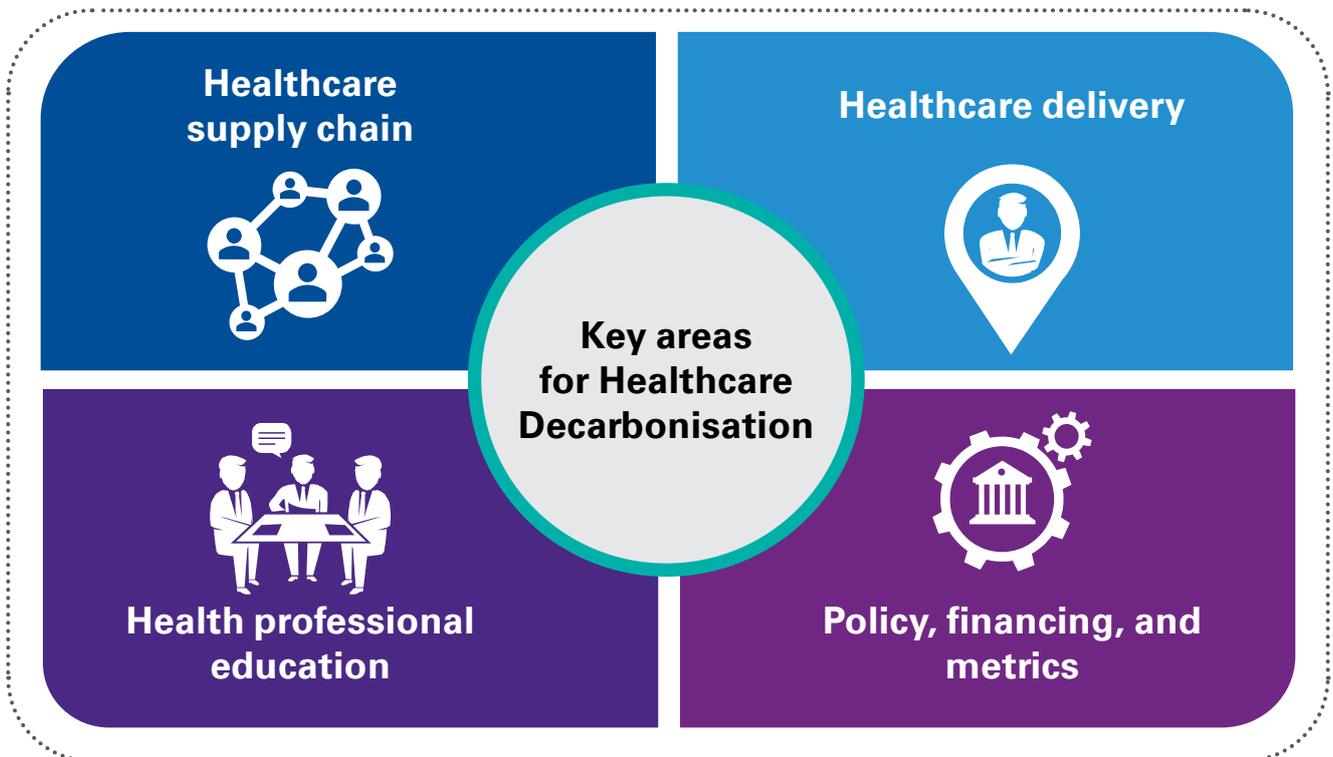


### The impact of climate change on health and healthcare service delivery

According to the World Health Organisation (WHO), climate change is expected to cause approximately 250,000 additional deaths per year between 2030 to 2050<sup>16</sup>. While climate change drastically impacts human health, it also compounds the burden of disease on already overwhelmed health systems and aggravates the existing challenges to healthcare service accessibility. This severely jeopardises the realisation of UHC targets. Thus, to seamlessly achieve global health targets, it is extremely critical to act on climate change and transition towards net-zero emissions.

### Health systems also contribute to the crisis through greenhouse gas emissions.

According to a recent analysis, the healthcare industry contributes to 4.4 percent of global carbon emissions. While India's healthcare sector contributes to only 1.5 percent of the nation's total carbon emission, with 39 Mt CO<sub>2</sub> emission, the nation has the seventh-largest absolute health sector climate footprint in the world. Given the magnitude of emissions, the Indian healthcare sector must commit to decarbonisation by focusing on four key areas - the healthcare supply chain, healthcare delivery, health professional education, policy, financing and metrics.



16. Climate change and health, The World Health Organization, October 2021

17. Health Care's Climate Footprint, Health Care Without Harm, Arup, September 2019

## Healthcare supply chain



With 81 percent of healthcare emissions in India attributed to the healthcare supply chain<sup>18</sup>, it is extremely critical for health ministries, hospitals and health systems to set criteria for low-carbon or zero-emissions procurement. Further, there is a need to leverage innovation for creating more sustainable products, packaging and distribution to reduce emissions.

## Healthcare delivery



Emissions emanating directly from healthcare facilities contribute to 8 percent of India's healthcare emissions<sup>19</sup>. Hence, it is important to build a clear case in favour of decarbonisation, not only in terms of environmental benefits but also in economic gains through leveraging renewable energy and advanced sustainable tools and equipment.

## Health professional education



To achieve the target of net-zero emissions, it is integral to educate the healthcare workforce regarding the usage of newly installed, sustainable infrastructure along with creating awareness about a culture of sustainable practices amongst healthcare professionals.

## Policy, financing, and metrics



While there is awareness regarding reducing emissions among medical professionals and administrators, a policy level thrust is required to initiate a collective shift towards the decarbonisation of healthcare in India. Policies and incentives that support sustainable innovation and delivery of environment-friendly healthcare services will push the decarbonisation agenda. Further, to periodically evaluate the impact of sustainable innovation adopted, it is important to devise a set of sustainability metrics with clear expectations for reporting.

18. Health Care's Climate Footprint, Health Care Without Harm, Arup, September 2019

19. Health Care's Climate Footprint, Health Care Without Harm, Arup, September 2019



# List of abbreviations

<b>AB-PMJAY</b>	Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana
<b>AB-HWCs</b>	Ayushman Bharat - Health and Wellness Centres
<b>ABDM</b>	Ayushman Bharat Digital Mission
<b>ATM</b>	Automated Teller Machine
<b>CHCs</b>	Community Health Centres
<b>CPHC</b>	Comprehensive Primary Healthcare
<b>DH</b>	District Hospital
<b>DIB</b>	Development Impact Bond
<b>ECRP</b>	Emergency Response and Health System Preparedness Package
<b>EHR</b>	Electronic Health Records
<b>e-ICU</b>	Electronic Intensive Care Unit
<b>GP</b>	General Practitioner
<b>GDP</b>	Gross Domestic Product
<b>HEOC</b>	Health Emergency Operation Centres
<b>HMIS</b>	Hospital Management Information System
<b>HPR</b>	Healthcare Professionals Registry
<b>HUID</b>	Health Unique Identification
<b>HWCs</b>	Health and Wellness Centres
<b>ICMR</b>	Indian Council of Medical Research
<b>IEC</b>	Information, Education and Communication
<b>IISC</b>	India International Skill Centre
<b>INC</b>	Indian Nursing Council
<b>IPHS</b>	Indian Public Health Standards
<b>IT</b>	Information Technology
<b>KITE</b>	Kerala Infrastructure and Technology for Education
<b>KPI</b>	Key Performance Indicator
<b>MeitY</b>	Ministry of Electronics and Information Technology
<b>MoHFW</b>	Ministry of Health and Family Welfare
<b>MoC</b>	Memorandum of Cooperation
<b>MoU</b>	Memorandum of Understanding
<b>MSME</b>	Micro, Small and Medium Enterprises



<b>MT</b>	Metric Tonnes
<b>NABH</b>	National Accreditation Board for Hospitals and Healthcare Providers
<b>NBSTSA</b>	National Board of Surgical Technology and Surgical Assisting
<b>NCDs</b>	Non-Communicable Diseases
<b>NCDC</b>	National Center for diseases control
<b>NeGD</b>	National e-Governance Division
<b>NHA</b>	National Health Authority
<b>NHM</b>	Nation Health Mission
<b>NHP</b>	National Health Policy
<b>NHSP</b>	National Health Skilling Platform
<b>NICs</b>	National Insurance Contributions
<b>NMCN</b>	National Medical College Network
<b>NPHO</b>	National Public Health Observatory
<b>NSDC</b>	National Skill Development Corporation
<b>NTI</b>	Nuclear Threat Initiative
<b>OOP</b>	Out-of-pocket
<b>OPD</b>	Outpatient department
<b>PHCs</b>	Primary Health Centres
<b>PHR</b>	Personal Health Records
<b>PHIS</b>	Population Health Information System
<b>PPP</b>	Public-Private Partnership
<b>RMS</b>	Remote Monitoring Systems
<b>SBM</b>	Swachh Bharat Mission
<b>SDGs</b>	Sustainable Development Goals
<b>SEZ</b>	Special Economic Zone
<b>SHCs</b>	Sub Health Centres
<b>UID</b>	Unique Identification Number
<b>UHC</b>	Universal Health Coverage
<b>UMANG</b>	Unified Mobile Application for New-age Governance
<b>USAID</b>	U.S. Agency for International Development



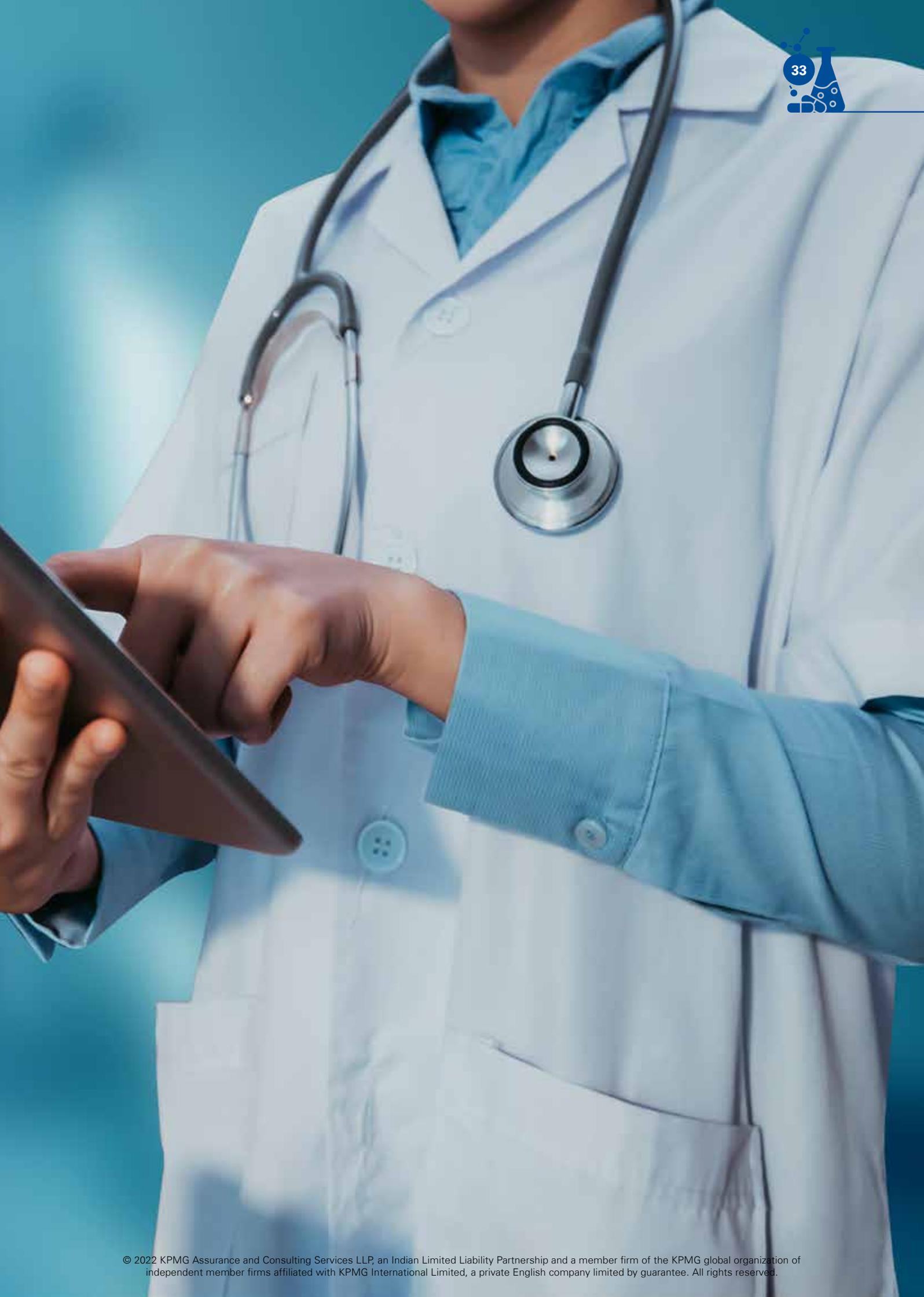
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