

# Knowledge Paper

## Health Insurance In 2042

### Challenges and Opportunities



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Prepared By

**Knowledge Partner**



**NATIONAL  
INSURANCE  
ACADEMY**

## National Insurance Academy, Pune



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**Let Us Plan for Ambitious Targets for 2042**

# **Knowledge Paper**

# **Health Insurance In 2042**

# **Challenges and Opportunities**

This Knowledge paper is prepared while keeping In mind Niti Aayog Report “Health insurance for India’s Missing Middle” which was released in October 2021.

This report is giving a new direction to Health Insurance, to be provided to 40 Crores middle class citizens in the years to come.

This knowledge paper was released in Mega Conference "Health Insurance 2042- Let Us Plan For Ambitious Targets for 2042 " in Vigyan Bhawan, New Delhi on 10 May, 2022

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## FOREWORD

Health Care Industry is one of the fastest-growing industries globally, the recent health uncertainties (climate change & pandemics) have caused the healthcare sector to grow faster which is projected to reach around US\$ 25 trillion by 2040 (World Economic Forum, 2021). India has also contributed nearly US\$8 billion which accounts for nearly 2.5% of the country's economy. The public expenditure on health care presently stands at 2.1% of GDP in 2021-22 as against 1.8% in 2020-21. Though health awareness has improved over the pandemic period, still health insurance penetration is quite lower in terms of adequate coverage and the variety of products available to meet the increasing risk exposures. The protection gap is nearly 63% and if we consider the cost of people not taking treatments, the protection gap would go up to 70%.

Future of the Health Insurance market looks very promising and rapidly evolving digital healthcare technologies would strongly drive demand for more customized personalized care, new innovative therapies, and medicines which would provide new opportunities for all the key stakeholders in the healthcare ecosystem. In order to capitalize upon the immensely growing potential, a well-coordinated and integrated digital ecosystem needs to be strengthened and regulated well to ensure that quality care is provided to the needy people with easy accessibility and timely care at an affordable price. More importantly, all the stakeholders – government, insurers, reinsurers, organizations, health care service providers, and individuals, should come forward in building a healthy society to achieve the universal health care mission of the government in the years to come.

Realizing the importance of the topic, National Insurance Academy is happy to present this knowledge paper at this Health Insurance Seminar being organized by the Insurance Foundation of India on 10<sup>th</sup> May 2022. I congratulate Mr. S.K. Sethi for organizing this important seminar and compliment Dr. Steward Doss and other authors for preparing this knowledge paper. I am sure that the research papers and articles presented in this seminar would immensely benefit all the stakeholders in the health care and insurance industry.



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# Health Insurance In 2042 – Challenges and Opportunities

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# **Health Insurance In 2042 – Challenges and Opportunities**

## **Dr. Steward Doss**

### **Introduction :**

Health Care has been one of the largest and fastest-growing markets globally and it is consuming nearly 10% of GDP in all developed markets. The global health care market is currently \$8.3 trillion and is growing at 5% annually (OECD, 2020).

Further, the Covid-19 Pandemic, continue to impact the people's lives, as the infected cases are rising to over 300 million with the mortality of 6 million (as of March 15, 2022), had created a huge imbalance in the social, economic, and health equity across many countries. This has caused the multifold increase in health care spending and the cost of health care significantly to a higher level globally. The average per capita health care spending has almost increased to 3 times to \$11000 now as compared to \$4000 before the Covid-19 pandemic (OCED, 2021). The World Health Organization (WHO) and other groups had appealed to the top 20 economies to fund for \$23.4 billion to support poor countries to have adequate vaccination, tests, and drugs, to contain the spread. All these health uncertainties (climate change & pandemics) will push the health care sector to grow faster in the coming years and is projected to reach around US\$ 25 trillion by 2040 (World Economic Forum, 2021).

However, on the positive side, the pandemic has accelerated the health care sector to respond quickly to provide the essential health support to the people with the existing health infrastructure, deliver 24 hours emergency and critical care services, the massive scale of vaccinations, quick tests, and medicines, etc. The pandemic had also created insurance awareness, the importance of health fitness, integration of life sciences and health care, quick adoption of new-age technologies, improved research and new care delivery models, etc. During this pandemic, nearly 45% of the adults had medical teleconsultation, and 60% accessed health information online (OCED, 2021).

The future of the health care industry would shift the delivery of the services at the customer's doorstep with hybrid models using connected devices driving wellness and managed health care models globally. Such continued clinical research and innovation would bring health care transformation in all the allied areas of health care, yielding timely accessibility at an affordable price with improved quality care to everyone in the world.

The total amount of health care spending in India for the year 2021-22 is estimated to be about 4.72 lakh crore at 2.1% of the country's GDP. For the current financial year (2021-22), the government has allocated Rs.83000 crores on Health and Wellness in the union budget

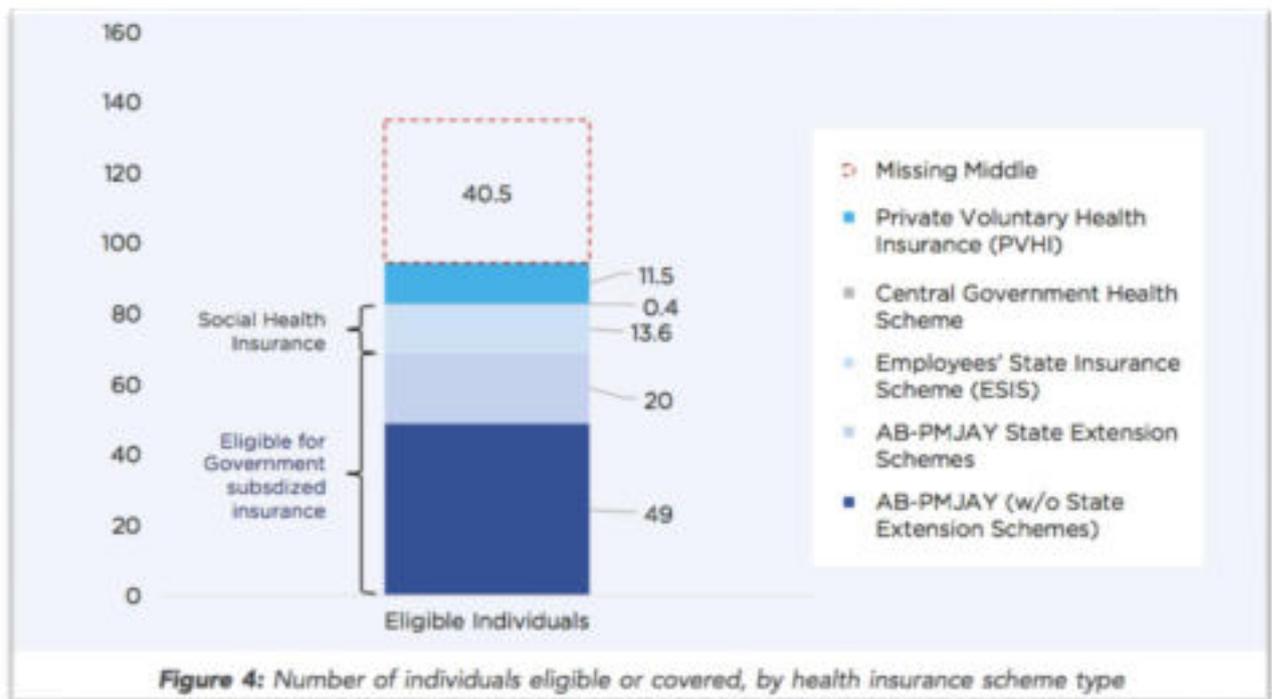
for the financial year 2022-23. The government plans to spend Rs 64,180 crore on the Ayushman Bharat health mission strengthening the health care infrastructure – primary, secondary and tertiary care, in the country in the next 5 years, which would help create new capacities & institutions for early detection as well as cure new and emerging diseases (Economic Times, January 2022). The Government has already initiated National Health Digital Mission with the purpose to build an electronic health information repository and also Unified Health Interface, which would help in integrating the health care eco-system digitally with all the key stakeholders.

The Government's expenditure on public health care has increased from ₹2.73 lakh crore in 2019-20 (pre-Covid-19) to ₹4.72 lakh crore in 2021-22, an increase of nearly 73% (Economic Survey of India, 2021-22). Government spending including the states constitutes around 25% of the total health care cost in the country. While the insurance contributes around 12% and the remaining 63% of the total cost is incurred by the individuals by way of out-of-pocket expenses.

The health insurance market in India has been growing steadily around a CAGR of 24% every year; particularly during this pandemic time, the segment grew at 34%, collecting a total premium of Rs.73300 Crores<sup>1</sup> during the financial year 2021-22. The major reasons for the continued increase in the health insurance business are the improved awareness due to this pandemic which has made almost every individual in the country health-conscious and improved their overall physical and mental wellness. During this pandemic, a large number of customers have also realized the importance of adequate health protection for their families with wider coverage of diseases including pre-existing, critical illnesses and also pandemic specific covers, etc. Another major reason for the growth is the increased coverage of people under government-sponsored health insurance schemes. Particularly, Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), which was introduced in 2018, has become one of the largest government-subsidized health insurance schemes in the world, covering nearly 50 crore individuals (40% of the population) in the country.

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<sup>1</sup> Total health insurance premium collected by all the insurance companies during 2021-2022 – Source: General Insurance Council.



(Source: Niti-Ayog report on Health Insurance, 2021)

Secondly, nearly 20% of the population is covered by the social insurance scheme, including various State Insurance schemes, Employee State Insurance Scheme (ESIS), and other private insurance schemes. The Employee State Insurance Scheme covers nearly 13.6 Crore employees, followed by various state insurance schemes which cover nearly 12.4 crore individuals mostly economically weaker section (BPL & unorganized sector) of the population. Further, some Government departments have separate schemes for their employees. These are generally not insurance schemes. They directly provide healthcare services through self-owned and operated dispensaries and hospitals. For example, Central departments such as Railways and Defense have separate schemes for their employees, veterans, and pensioners covering both inpatient and outpatient services.

The third type of health insurance coverage is Private Health Insurance, which covers nearly 11.5 crore individuals and employees from the organized sector. All these schemes have taken the total coverage of health insurance to nearly 70% of the population, protecting the health care needs of 70 crore individuals in the country.

Despite the rapid growth of health insurance as well as a large coverage of individuals through government insurance schemes, still, 30% of the population do not have any kind of health insurance protection. The main reasons for the significant number of our population not coming forward to take health insurance are lack of awareness, do not have affordability, easy access to buy, non-availability of customized products, exclusion of pre-existing diseases, no OPD cover, expensive premium rates, and lack of trust, etc. Further, nearly 63% of health care spending is by way of personal spending (out-of-pocket expense). One of the

reasons for the higher increase in health care spending is the increasing cost of health care, medicine, medical inflation, etc.

**Demand for customized products:**

Over the year, the structure and features of health insurance products have changed drastically and the demand for disease-specific products has gone up. During the pandemic period, the awareness about health insurance and the need for adequate protection has gone up significantly. As a result, the demand for a plethora of risks that were not covered by existing health insurance products, i.e. coverage of infectious diseases including corona-specific illness, vector born diseases, etc., has increased. Realizing the needs of common people, the Indian Insurance Regulator – IRDAI, had introduced corona-specific covers like Corona Rakshak, Corona Cavach, and also standard health insurance product – Arogya Sanjeevani, etc. Insurers have also introduced disease-specific covers like diabetes, heart care, cancer covers, etc., in recent times. With advances in medical science and improvement of life expectancy and availability of specialized treatments, customers would demand highly personalized health insurance coverage in the years to come. Demand for disease management covers, like diabetics, cardiac or heart care, cancer management, etc., would go up significantly.

**Demand for Outpatient linked products:**

The OPD benefits available under health insurance today are capped at Rs. 5,000 that need to enhance to a reasonable amount factoring into the utilization cost of the household's average OPD expense rate, medical inflation and increasing health care cost, etc. Such products would be in high demand by both middle as well as lower-income households. Hence, the premium would be more or less equal to, the total claims cost or sum insured for OPD care, it may not be affordable for low-income customer segments which effectively makes it ideal for a pre-paid subscription model with the government subsidy. The advantage of providing OPD benefits, alongside IPD care would increase the efficiency and value of the healthcare provided through bundling of fragmented and simplified services (physician fee, cost of diagnostics, medicine and drug cost, etc.) help in improving the health of the entire society at affordable cost and timely care to a large number of low- and middle-income customers, almost 70% of the population.

**Wellness Insurance:**

improved health awareness due to the pandemic has motivated customers to practice healthy lifestyles backed by efficient wellness and preventive healthcare measures. Further with the usage of the Internet of Things (IoT), connected devices, fit bits, health applications (Health APPs), etc., a large amount of customers' health data is being collected, and the same is being analyzed with their lifestyle and behavioral profile. With the help of these analyses through AI & ML, biopharma companies and health care providers can drill down and analyze their patient's risk profile and their present health conditions at a more micro level and would be able to customize their treatments at the individual customer genetic and risk profile level. These developments can drastically change the entire value chain of the biopharma and health service providers, from their R&D, drug production, to drug prescription and administration or being used by the individual patients.

The increasing advancement in technologies and AI & ML, ability to cure and prevent chronic diseases at an early stage, improved health care awareness and positive health care experiences, and improved availability of better health to middle and lower-class people in the emerging economies, may change the health care spending trends in the next 20 years. The Deloitte study in 2019 indicates that 80% of health care spending went towards care and treatment during the current period, while it is expected that majority of spending would move towards improving health and well-being in 2040 (Deloitte, 2020). The future health care market would strongly be driven by new business models, scientific and technological breakthroughs by way of gene therapy, gene editing, nano-scale medicine, stem-cell medicine, people would demand highly personalized treatment and the new age technologies like AI & ML would bring a drastic change in the health care treatment and delivery system.

**Technology-driven personalized health care:**

With the adoption of digital technologies, AI & ML and Blockchain, RPA, etc., the health care industry is transforming health care services into customizing and delivering customer personalized health care. Companies are heavily investing in AI & Deep learning algorithms, computer vision and facial recognition, and blockchain technologies today which are enabling them to generate huge amounts of customer personal health and behavioral data, tracking their physical activities and fitness through IoT-enabled connected devices. This enables them to transform the health care services significantly. This would reach the next level of cognitive intelligence, intelligent automation, use of robotics and nanotechnology and genetic editing and stem cell advancement, and provide customized therapies to the customer's health care requirements.

### **Artificial Intelligence in Health Care:**

Today, AI has become a household name in every industry, and it would revolutionize the health care industry in multiple ways. Currently, AI is being used to read X-Rays, MRIs, understand the laboratory results & medical terminologies, and prepare an automated intelligent medical report. Soon, medically trained AI algorithms could aid physicians and health care technicians in providing the necessary medical insights, help in diagnosis, selection of appropriate treatments, therapies, surgeries, etc. AI-enabled medical devices would be developed which can automatically read, monitor, analyze and generate insights, from all the basic health parameters like blood pressure, sugar level, heart rate, BMI, sleeping pattern, smoking and consumption of drugs, alcohol consumption, etc., just with the help of facial algorithm or computer vision.

UK-based Benevolent AI combines advanced AI/ML with medical science is used to understand, classify and extrapolate biomedical data, complex disease biology to provide new therapeutic interventions. Alphabet Inc's DeepMind Technologies developed software that solves the 'protein folding problem which can pave a way for better disease management and new drug discoveries. UK-based Health Science technology firm (ZOE) uses customer lifestyle behavior data and digestive health to develop precision nutrition programs that improve gut health and reduce inflammatory diseases.

A growing number of pharma companies, technology firms, and digital health startup companies are now developing innovative digital medicine products to enable patients to take greater control of their health. This would in turn advise the patients to go for necessary medical and laboratory or health check-ups, which would reduce the diagnostic load of the physicians and enable error-free faster diagnostics and provide personalized treatments. This would also enable the insurers to do risk-based underwriting and individual risk profile-based pricing, incentivizing the good customers with discounts, free medical checkup coupons, offering high sum insured policies, etc.

### **Cognitive Intelligence in Health Care:**

The extensive use of AI & Machine Learning with a vast amount of training data would enable the health care industries to use auto-enabled medical treatments and perform surgeries efficiently with robotic assistance with almost zero errors.

AI-enabled computer system to perform most operations independently with one or two MD's/Surgeons monitor it through a centralized intelligent system. Computer vision with Virtual / Augmented Reality (VR/AR) devices would become more sophisticated and drive intelligent automation in health care delivery. It would also enable standardizing the medical Procedures and self-monitoring the automated procedures with an intelligent dashboard with live performance indicators. Future medical devices would have such intelligent features embedded in their system which would revolutionize the hospital or treatment experience for

the patients. This would also enable doctors or physicians to focus on their research and be equipped with advanced knowledge and specialized skills.

Consumer-aided AI algorithms would get developed to increase the customer engagements or enable the patients to interact with the complex healthcare system or service providers network or specialist doctors for getting more personalized treatments easily. This would enable insurers to offer value-added services to their customers improving their medical understanding and offering multiple treatment options with different insurance packages and premium differences. AI-based bots would enable customers to select appropriate treatment or therapy with cost-effective advice.

Technological advancement would transform the way health care is delivered – shortly, most of today's chronic disease conditions may not require hospitalization. For example, cardiac ailments like Acute Myocardial Infarction can be managed with help of IoT or connected sensors and continuous home monitoring with a video chat with the bots/a specialist if required.

The rapid progression of AI in Insurance would enable insurers to innovate and deliver almost instantly. Most of the simple policies like motor insurance, health insurance, travel, and householder's insurance have already been automated with the help of AI, ML, DL, and RPA. The percentage of even complex risks like property insurance, critical illness, long-term care insurance, etc., would be processed by cognitive intelligence. As the future cognitive models are expected to process the complex risks easily with the help of intelligent robotics, product innovations would happen on a real-time basis and any new risks can easily be underwritten over online with the availability of customers' behavioral, personal, health, and financial information. This would enable the insurers to develop a micro-level risk profile and the entire insurance value chain from underwriting to claims settlement would move on the automation mode on a real-time basis.

### **3D Printed/Engineered organs and edited Genes**

Advances in biotechnology, regenerative medicine, and molecular biology would enable create 3D printed or artificially engineered organs and tissues in the near future. Similarly, developments in gene therapy and genetic engineering would help in diagnosing critical diseases like cancer, renal diseases, heart diseases, and metabolic disorders, etc., early in their development stage, regenerate or repair the damaged cells & organs and may probably stop or reverse the critical diseases and also lead for anti-aging and longer life span. The research in DNA sequencing is progressing at a much faster level and the specific cells causing cancers and life-threatening diseases have already been done. In the next 20 years, millions of patients' DNA sequencing would have been carried out globally. This progression would revolutionize the entire health care industry into a highly personalized treatment and care management.

The increasing phase of advanced research in the development of 3D printed organs or biological implants and innovative medical devices would help develop fully grown and 3D printed organic tissues integrated into traditional medical devices. These hybrid implants or medical devices and biological therapies would soon become the reality and market acceptance.

### **Rising Concern of Environmental, Social, and Governance (ESG):**

Climate change has been perceived to be one of the greatest threats to public health. Global warming, not only causes increasing frequency & severity of natural disasters, but it also contributes to ecological imbalance, wildfire, sea-level rise, extreme heat, severe weather changes. These disorders trigger various health disasters like severe respiratory disease, heart disease, heatstroke, vector-borne diseases, etc., affecting our microbiome, immune system, and mental well-being.

A study by Lancet on Climate Change Impact on People Health and Wellbeing (2020) reports that Extreme climate conditions causes both direct and indirect effects on physical and mental health. It exacerbates the existing comorbidity conditions: 54% increase in Heat related deaths among the people over 65 years old, 3.01 million premature deaths from heart and lung disease, and significant increase in vector bone and infectious diseases.

As per the WHO report (2021), pollution contributes to 4.2 million premature deaths worldwide each year. Ambient Air Pollution is expected to contribute to 6 to 9 million deaths in 2060 (OECD, 2021). Health care cost relating to climate change and pollution is estimated to be around \$820 billion a year.

### **IMPORTANCE OF MENTAL HEALTH**

A series of pandemic and catastrophic events triggered depressions and anxiety globally as the studies from mental health highlight that nearly 25% of the global population is suffering from some kind of mental disorders i.e., depressions, anxiety, alcohol, and drug addiction, etc. studies from OECD countries indicate that 20% of the working population are affected by some kind of mental disorders<sup>2</sup>. A recent study from the US indicates that the percentage of people, suffering from mental illness as the result of this Covid-19 pandemic, has gone up to 53% in 2021 from 32% in 2019. The consequences of mental health can have a devastating impact on the family, work, and health life of the people, as negative behavioral health results in schizophrenia, suicide, metabolism & neurological disorders, social stigma, crime, and drug addicts, etc. Further, it can cause a significant socio-economic disorder in the developing countries, like India, Sri Lanka, Bangladesh, etc., as the recent study estimates that it is expected to cost the economy more than \$6 trillion annually, and the medical cost of

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<sup>2</sup> OECD Health Policy Studies, 2014

the mental health could be up to 4% of global GDP exceeding the medical cost of cancer, diabetes, and respiratory disease combined<sup>3</sup>.

More than 10% of young people suffer from various kinds of mental disorders in India. Most of them do not receive adequate, appropriate, timely care due to various reasons i.e., social stigma, lack of awareness, non-availability of proper care, expensive treatment costs, etc. More importantly, the mental health protection gap in the country is as high as 83%<sup>4</sup>. The WHO reports that mental health problems cause a burden equivalent to 2443 disability-adjusted life years (DALYs) per 100,000 people, and a suicide rate of 21.1 per 100,000. The organization believes that the country will incur a loss of around \$1.03 trillion between 2020-2030.

More importantly, as a result of technological addiction, uncertainty over health issues, and economic depression, mental health would become one of the significant health issues globally in the next 10 to 20 years. However, scientific, and technological breakthroughs, gene therapy would help in improving the quality of care, accessibility, social stigma, and the overall life of the individuals in the coming years. For example, Qatar Biobank and genome program are sequencing the human genome of the entire population in the country, hoping to identify major depressive disorder biomarkers. Globally, various health studies are trying to find the relationship between the gut microbiome and the brain, which can help in treating depression, anxiety, and other mental illness, in the near future.

Further, exposure therapies using virtual reality for patients with anxiety disorders or post-traumatic stress disorder have become increasingly prominent and yield greater results.

As mental health is very crucial for the social well being of the people in the country, all the key stakeholders - the health care providers, insurers, employees, government, and other policymakers, should come forward to address these issues immediately while insurers need to collaborate with health service providers and health tech companies to provide the required support to reduce the financial impact and improve well being of the customers.

Insurers have wider access to their policyholder's and customers' data including health, social, economic, and environmental data. Insurers can make use of the large data collected through AI, IoT, and Social media sources to design customized mental health covers and price them appropriately at the micro-segment level. Insurers can collaborate with health service providers, diagnostic centers, physicians to understand the financial impact of the mental health consequences, provide proactive care and prevention as a value addition to their customers to improve their physical, social, and mental health.

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<sup>3</sup> A study from Hewett, and Paul E. Greenberg, *Journal of Clinical Psychiatry*, February 2015.

<sup>4</sup> Rachane Parikh and Bhushan Girase, *Mapping the future of mental health care in India*, January 2021.

Pharma companies and Health care providers can use these new-age technologies such as self-guided treatments, gamified treatment through virtual assistants, virtual & augmented realities, computational psychiatry, and AI-supported by advanced predictive modeling and analytics, which can provide better quality personalized care to the patients. Some of these technologies used in mental health are summarized below.

**Tess – The virtual assistant**, is a mental health chatbot that delivers emotional well-being coping strategies to its users. Studies have found that Tess provided reduced anxiety by 18% and depression by 28% to the users.

**Neuro-Flow** – provides a suite of tools to enable remote monitoring and behavioral health integration across the entire spectrum of mental health care including psychology, primary care, stress management, etc.

**Unmind** – is a workplace mental health platform empowering organizations and employees to measurably improve their mental well-being through scientifically tested assessments, tools, training, and signposting.

**Neurological Interventions** offer improved new surgical, ingestible, and non-invasive interventional tools to monitor the brain and body functions. **WVU Medicine** recently carried out a clinical trial using deep brain stimulation (DBS) for patients suffering from treatment-resistant opioid use disorder. DBS or brain pacemaker surgery involves the implantation of tiny electrodes into specific brain areas to regulate the structures involved in addiction and behavioral self-control.

**ABILIFY MYCITE** is a prescription medicine of an aripiprazole tablet, which contains an ingestible event marker sensor, is used in adults for the treatment of schizophrenia, major depressive, and bipolar disorders.

**Physical, Augmented, and Virtual Reality (AR/VR)** offers psychological intervention using hyper-realistic virtual environments and real-world robotics for companionship, experiential treatment sessions, and enhanced cognitive experiences. Calm Place, from Mimerse AB, is a relaxation virtual reality experience that is being used in hospitals in the US to decrease stress and anxiety.

Work-life balance is the major concern for the employees as the workplace has become highly competitive and leads to more work pressures and challenges. Hence, it is very essential that the employer realizes the importance of employee mental health and provide conducive work environments which respect the individual's ethics & work value and reward his unique capability and talents. The employer should introduce customized health and workplace services that improve the employee's behavioral and mental health holistically.

Government and policymakers need to realize the importance of mental health, collaborate with health care partners, insurers, and other professionals in the mental health ecosystem to

ensure the people suffering from mental health get the required support, proper care, and adequate insurance coverage. They should prioritize new investments in mental health solutions, create specialty mental health care facilities, and have easy accessibility to the patients in the country. They should resolve the legal and regulatory grey areas in the mental health eco-system, protect customers' health and behavioral data, and encourage the use of new-age technologies and therapies – stem cell treatments and gene therapies, etc.

### **The demand for reinsurance increases in the Asian market:**

The Asian market, compared to the rest of the world, is one of the most dynamic and fastest-growing markets, said Swiss Re CEO reinsurance Mr. Moses Ojeisekhoba during his address at the 17th Singapore International Reinsurance Conference held in Singapore on 15<sup>th</sup> November 2021. He said that today, the Asian market contributes around 22% of global insurance premiums and we forecast that it would grow faster and reach around 35% by 2040. He added that there is also a lot of innovation taking place across Asia in distribution, in the way products are constructed and sold, and it will continue to grow in the coming years as the consumers in the Asian market, leading with growing younger population, adopt innovative products, channels at much faster than anywhere else in the world. And the industry itself also will have to make adjustments to ensure that it keeps up with consumers – whether those consumers are individuals or businesses or governments. At the end of the day, that innovation and that drive is something that must remain across Asia for it to meet the ambitious growth targets as exposure also continues to grow across this continent.

### **Opportunities driven by growing risk:**

The future of the global (re)insurance industry is expected to grow at a much faster rate in Asia, strongly driven by a rapidly changing risk landscape that includes socioeconomic and behavioral changes on top of climate change. In addition to people having more assets that need to be protected, and secondly, the people tend to locate themselves close to dangerous areas such as near seafronts or forests, which would increase the overall risk to a significantly higher level in the next 20 years. Though, this provides a huge opportunity for the reinsurance industry but requires huge capital and capacity to provide increased risk protection for vulnerable people and the society at large in Asia.

### **Increasing Protection Gap:**

The insurance penetration is still quite low at 4.2% while the global average is 6.5%. More importantly, the insurance protection gap is widening in developing countries, particularly India, due to climate change, rising catastrophic risk exposures, pandemics, air pollution, etc. The insurance protection is currently 90% in the catastrophic insurance segment, and the same is around 92% in life insurance and 70% in health insurance.

With the three main reasons for underinsurance often related to access, understanding, and price, technology provides an opportunity for the industry to reach more people. Technology allows insurers/reinsurers to deconstruct the product and sell it in a completely different way. Access – almost everybody anywhere in the world can now be connected through a mobile network across Asia, it can deliver the product in an entirely different way.

## **CONCLUSION:**

As the result of emerging risks like climate change, pandemic risks (Covid-19), and changing lifestyle, the health risk exposure including mental health stress would continue to grow exponentially in the years to come. Though the quality of health care is advancing with the usage of blockchain, AI & ML, IoT, etc., the cost of health care would continue to be skyrocketing in developing countries like India. Further, the health risk protection gap is also expected to rise significantly as the insurance penetration is still quite low at 1% and nearly 40 crore individuals do not have any kind of health insurance protection, due to lack of affordability, awareness. Information asymmetry and quality of health care as well as the infrastructure lagging as compared to developed market.

Growing usage of the large volume of customers personal and health data, would improve the evidence based research and help the service providers for early detection, customize the treatment and provide personalized care. It will also enable the customers to manage their health and wellness effectively and co-partner with the providers. As the health care is evolving, we require a good legal and regulatory body to be established to control on the rising health care cost, medical abuse, and ensure the accessibility of quality care at affordable cost to the needy people, particularly to the economically weaker section, low income people working in unorganized sectors and also the middle income people who do not have any kind of health protection. Secondly, in the light of increasing exposures due to climate change, pandemics, ecological imbalance, health inequities and communicable diseases, etc, the public health care system need to be strengthened which requires new partnerships and collaborations with other technological and ancillary health service providers to improve the integration of health and social welfare.

However, increasing exposures and rapidly evolving digital health care technologies would strongly drive demand for more customized personalized care, new innovative therapies, and medicines which would provide new opportunities for all the key stakeholders in the health care ecosystem. In order to capitalize upon the immensely growing potential, a well coordinated and integrated digital ecosystem need to be strengthened and regulated well to ensure that quality care is provided to the needy people with easy accessibility and timely care at an affordable price. More importantly, all the stakeholders – government, insurers, reinsurers, organizations, health care service providers, and individuals, should come forward in building a healthy society to achieve the universal health care mission of the government in the years to come.

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## Wellness – A Strong Driver for Health Insurance Market in 2042

**Bhaskar Nerurkar**

**87.58** meters! 23 years old Niraj Chopra threw Javelin 87.58 M on 9<sup>th</sup> August 2021 to secure an Olympic gold for India. Track & Field event which was hitherto monopoly of Caucasian race was won by an Indian! This is not the first time that an athlete from subcontinent have bemused the Olympians, but this was made glaringly noticeable in today's social media era. For past few years Indians are achieving greater deeds in athletic events and this medal may be the pinnacle of efforts so far. A deluge of Niraj Chopra workout videos on social media points to the **increasing interest in fitness** by the current generation. Many work-out methodology and celebrity videos are being floated suggesting heightened level of interest in good health and fitness overall. A country with almost 78.4% population below age 45 has taken up fitness as a talking point at least on social media. Population over 45 has swelled from 18.3% to 21% over a decade indicating longer longevity and increased duration for NCD management.

**The Pandemic** which forced most of the global population indoors also opened lot of debates on staying fit with indoor exercises. Major focus on sedentary lifestyle was brought in during the multiple extended lockdowns. **Healthy lifestyle and fitness regime** was ever so badly needed by most of the urban populace. Are we more aware of our fitness level and well-being now? Are we more than ever concern about that growing weight or declining stamina? The pandemic exposed one basic truth, the **healthier people had better chance of survival through infections**. Those with underlying conditions had prolonged hospital stay or some unfortunates could not make it. This has further increased focus on healthy living and fitness.

One more aspect which came to the fore is of **preventive care**. For a common Indian citizen all vaccination almost stop after age of 5 and very few take flu shot or other preventive vaccination post their schooling age. A highly successful government campaign on fight against polio brought importance of vaccination for general improvement of quality of life for population. Major Corporates are organizing annual seasonal vaccination camps for their employees which result in improvement of their productivity by reducing the medical absenteeism. The importance of preventive care towards increasing of economic growth is recognized by all major stakeholders. The **pandemic further emphasized on importance of preventive care**.

**The Covid-19 vaccination** data given below:

Covid-19 Deaths per Million in vaccinated population			
Age Group	Not Vaccinated	Single Dose	Fully Vaccinated
60+	65.4	1.3	0.8
45-59	20.6	0.4	0.2
18-44	2.8	0.2	0.09

The data suggests for senior population the chances of survival increased almost by 500 times by single dose of vaccination. Even for the younger population the data suggests fully vaccinated individuals are very unlikely to suffer fatality compared to unvaccinated individuals. This clearly shows **efficacy of vaccination** and the difference it can make in life-and-death situation. The pandemic and related figures are easily accessible in social media due to heightened awareness. The effectiveness of various vaccination programs is well documented in medical literature.

Both these events have brought issues related to fitness and wellness right at the center of peoples focus.

### **The need and urgency for Wellness**

India has seen a frantic growth in GDP over last two decades averaging more than 6.6% per decade. This has pushed the larger part of population to higher income strata. The erstwhile agrarian economy is becoming predominantly manufacturing and servicing industry-based economy. The rural hard-working Indians are turning towards urban jobs seeking prosperity and making lifestyle sedentary. The **non-communicable diseases** (NCD) as a result of **sedentary lifestyle** are on rise. India has estimated 70 million diabetics as of 2019 and the figure will grow to 100 million by 2030 with another 200 million pre-diabetics struggling to stay fit. As estimated by World Economic Forum India will incur \$4.6 trillion loss due to NCDs and mental health issues between 2012-30. For a country progressing fast towards overall prosperity and being counted amongst one of the major economy this may become a major roadblock. One worrying trend observed amongst Indian is that the NCDs set in quite early at around the age of 45 as against developed countries age limit of 55. Indians are more prone to Diabetes and Hypertension related ailments due to food habits and improved standard of living. The country is well-poised on all other counts to become a major superpower in coming decades provided we prevent our productive population from major onslaughts of NCDs at younger age and inculcate healthy lifestyle.

### **Difference in Fitness, Wellness and Preventive Care**

Although most of us discuss Fitness and Wellness in same breath, these two are technically different concepts. Fitness specifically refers to physical ability to perform a task whereas Wellness is all encompassing well-being. Fitness is more about toning muscles and improving stamina which may be first step towards wellness which is about a healthy lifestyle. Fitness is about exerting your body to achieve specific levels tasks and wellness is about complete harmony on Physical, Emotional, Spiritual and Environmental aspect for an individual. Preventive care is more associated with physical well-being to pre-warn or avoid any health incidence. For a populace in general wellness is much accepted as an idea.

## **Wellness in Indian Context**

In the United States of America wellness moment began in 1950s. In 1948 World health Organization (WHO) defined Health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. National Wellness Institute (NWI) which initially started as Institute of Lifestyle Improvement under the auspices of the university of Wisconsin changed its name in 1985 to NWI and is working as a non-profit organization. According to the National Wellness Institute, “**Wellness is an active process through which people become aware of, and make choices toward, a more successful existence.**”

In India, wellness is a concept which has been in vogue since ancient times. Traditional medicinal and health practices like Ayurveda and Yoga have propounded the concept of mental and physical wellness. Yoga as a core philosophy prescribes Yam (abstinences), Niyam (observances), Aasan (postures) and Pranayam (breathing) as four pillars of lifestyle. Most of the ancient wellness concepts have largely focused on the basic needs of an individual within the necessity hierarchy, namely **health, nutrition and relaxation**. In recent times, wellness as a concept has taken up a multi-dimensional definition, encompassing the individual’s desire for social acceptance, exclusivity and collective welfare. Mainly influenced by changes in society and in the lifestyles of individuals, this change has also been accelerated by extraneous factors like globalization and a greater awareness of the need for wellness among individuals. The NABH (National Accreditation Board for Hospitals & Healthcare Providers) defines **Wellness as “a state of a healthy balance of the mind and body that results in overall well-being.”**

The wellness industry in India has evolved rapidly from its nascent unstructured beginning in the early 1990s to a comprehensive ecosystem today. The advance in technology has further opened the field for health app and wearables tracking physical activities, dietary habits and overall body vitals.

**Wellness players**, thus have responded to this change, shifting their focus from traditional offerings like curative healthcare and value-oriented mass products to new generational offerings like preventive healthcare, luxury products and personalized services. The **wellness ecosystem** comprises consumers, providers, adjacent industries, facilitators and the Government-

**Consumers** - The Consumers mainly comprise a young population with rising income levels and the increasing need to look good and feel good, which has led these young consumers to seek wellness solutions to meet lifestyle challenges. Sedentary lifestyle has further accentuated the need to engage in some or other physical activity. Changing social paradigms have posed newer challenges on psychological well-being increasing mental stress.

**Providers** - The Providers offer wellness services and products to meet the hygiene, curative and enhancement needs of the consumer. Multiple models have evolved with some working as aggregators for suite of services. The pharma industry, hospitals, gym and spas everyone is pitching in with their products and services to capture share of market. The wellness provider has to be connected with all the players to provide appropriate solution.

**Allied industries** - The Allied industries, such as healthcare, media, retail, gaming, hospitality and education capitalize on the growth of the wellness sector to generate additional revenue streams, leverage existing competencies and offer a wider array of services/products to customers.

**Facilitators** - The Facilitators, include employers, insurance companies and schools, who are likely to play a key role in encouraging and inculcating pro-wellness habits among consumers going forward.

**Government** - The Government has multiple roles as a provider, facilitator, enabler, and regulator of the industry. The major focus is on have-nots currently as private players are providing products and services to higher income strata.

### **Wellness and Insurance**

1980 onwards the insurers in US shifted their focus towards preventive-care and wellness of Corporate employees. Direct data to support the correlation between such initiatives and reductions in claims cost is not available. However significant improvement in insurance claims was observed and thus began the field of wellness. The insurer are realizing and promoting the wellness accelerated the growth of wellness offerings in the service sector.

In India the insurance sector opened in 2001 and from 2008-09 onwards the retail health insurance market started expanding. Stand Alone Health Insurance (SAHI) companies brought more focus on retail health segment and past decade has seen lot of innovation in health insurance segment. On Group front their have been some wellness initiatives supported by the Group Managers/Corporates. Seasonal vaccination camp, Yoga training sessions, guidance on diets have been few initiatives run by Corporate HR departments.

The **Insurance Regulatory and Development Authority of India (IRDAI)** has ensured that health insurance plans adapt to the changing trends of the modern society by providing conducive environment. Today's health plans have become multi-dimensional in their scope.

Insurers have initiated offered incentives to policyholders for adopting a healthy lifestyle. Wellness benefits, which were previously offered by few health insurers, have been given a fillip by the recent IRDAI guidelines. These guidelines have allowed insurance companies to include wellness related benefits in their health plans to promote healthy living by rewarding through premium discounts.

The offerings can be divided into 3 parts-

- 1) **Coverage for preventive healthcare:** To motivate policyholders to track their health on a regular basis, the guidelines provide insurance companies to allow policyholders coverage for preventive healthcare costs. Under preventive healthcare, insurers can provide coverage for the costs incurred in the following –
  - Health check-ups
  - Pharmaceuticals
  - Outpatient treatments
  - Diagnostic tests

The coverage can be offered as a part of the policy benefits or insurance companies can offer discounts to policyholders on these costs. The coverage would, however, be provided if such costs are incurred at networked hospitals or empaneled hospitals of the insurance company.

- 2) **Benefits for wellness and healthy living:** Many individuals practice a healthy lifestyle and maintain their fitness levels high. The guidelines provide that Insurer can reward such policyholders through wellness benefits in health insurance plans. This reward can be in the form of gift vouchers which policyholders can redeem on Health supplements, Sports club membership, Fitness center membership, Gym membership, Yoga membership, etc.

Furthermore, if policyholders practice healthy living during the policy tenure and fulfil the conditions of a wellness regime stipulated by the insurance company, they can be rewarded at the time of policy renewals. Insurers can offer such policyholders a discount in renewal premium or a free increase in the sum insured.

- 3) **Coverage for excluded hospitalization costs:** Certain non-medical costs are not covered under health insurance claims. The guidelines provide that insurer can offer coverage against such excluded costs as a part of wellness related benefits.

In a way these guidelines provide leeway to insurer to offer different wellness programs which in turn ensure customer engagement and reduction in claims cost.

### **Technology and Wellness**

Last decade has seen growth of FinTech companies on country's financial horizon. Many experiments in financial services have produced some of the unicorns of Indian financial sector. Mobile technology has assisted this process and most of the new-age FinTech companies have excellent apps which have penetrated very high percentage of mobile users. India has more than 120 crore telecom subscribers and similar number of mobile phones. Out of these over 45 crores are smartphones and over 56 crore internet users, second only to China. The FinTech story has accentuated the importance of mobile app and every business today is promoting its own app.

Now catching on similar trend InsureTech companies are penetrating insurance market. One of the way to attract the consumer traffic towards their app is a free Health tracker. Existing

wellness providers and these InsureTech startups are collaborating to provide app-based Health and Wellness solutions. In 2015 India had 74.42 million mobile internet users which increased to 744.06 millions in 2020. By 2025 this is expected to grow to 1.13 billion and in next five years to 1.34 billion mobile internet users by 2030. This tremendous growth in mobile-internet-app based users has almost coincided with wearable health trackers boom and the combined solutions available are catching on people's imagination. Most mobile companies have also provided their own health tracking app and the entire market seems to be flooded with technology solutions for anyone serious about monitoring own health. As with every industry 3-4 top players will emerge capturing loyal customer base and health insurance will be next obvious offering for this segment of customers.

These health tracking app solutions are synchronizing across platforms and generating large amount of data on users health and habits. The data generated by mobiles, wearables and through social media postings is available for analytics to process in form of Big Data. Artificial Intelligence (AI) and Machine Learning (ML) solutions will assist insurers to create customer health profile even without a single interaction. The insurers will be able to select and underwrite appropriate risks and push across customized product offering across same platforms. The technology will also assist insurers to drive the healthy habits and wellness behavior amongst their customer base as it will have direct impact on reduction of health claims cost. The scenario is similar to what happened in US in 1980s and one can expect insurers latching on to this data revolution to pre-underwrite health insurance offers for the customers and driving healthy habit for reduction of claims cost.

## **Conclusion**

All this indicates very interesting two decades ahead of us. Wellness will take a center-stage for multiple industries to target the customer and insurer will be one of the key player amongst them. Next two decades should see a rapid innovation on wearables and health tracking app front wherein the customer behavior will be driven towards healthy living and mental well-being. A technology solution like diabetes patch monitor which captures customer sugar level every second providing feedback on type of food causing heighten blood sugar levels and pacemakers with built in chip providing signals on customer health are already available in the market. IoT-enabled shoes fitted with sensors trying to prevent the fall in elderly by correcting balance and bio-sensing wearables are being experimented for regular use. The technology powered by huge data analytics on human movements, body-vitals and other critical data is only going to expand the wellness horizon.

As the Indian economy leaps toward higher growth and prosperity, we will need highly-trained, skilled and healthy resources to take many a challenge ahead. The Government on its part through 'Ayushman Bharat' is encouraging healthy-living along with health coverage for more than 10 crore families. Health insurers will penetrate the remaining uncovered part of population to maximum extent. It is in insurer's interest to promote wellness through the digital and phygital

means which should ensure the healthier and productive manpower required for the country to centerstage on the worlds economic front. This means by 2042 we should be seeing a comprehensive solution taking care of all health-related aspects of customer through a digital ecosystem.

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# **Life and Health Insurance – The future and the Progression in the Next 20 Years**

**Vinay Kumar**

## **Introduction:**

Life and health insurance has seen a drastic change in perception and demand in the last 3 years. While we saw steady and slow changes to the Life & Health products between 2015-2020, the industry was facing challenges primarily around – awareness, adoption & efficiency. It was largely pull than push and most of the processes are chaotic, unsynced and manual focused. As simple as registering a claim would happen through various intermediary steps that increases the inefficiencies and very little data captured fails to provide any substantial overview.

During this period, big data has transitioned from being an experimental approach to a production ready, mobile has become a key device of choice, and the internet is now a fundamental medium. This allowed both technology heads and operation heads to start looking at the processes differently and execute smarter strategies. This provided opportunities to early adopters to think about insurance differently. While the industry is getting ready to start the fundamental set up of a much more efficient infrastructure, the adoption was more a stepwise kind of execution. Such thought processes helped them to modify traditional approaches and started opening up insurance to be more flexible. This could be as simple as offering the ‘choice of products’ to the users online. Early adopters of internet, mobile and web apps, are able to create a strong loyal base of users who continue to purchase or interact with insurance products. This inturn helped insurers to design a framework where they can not only interact with users but also collect critical data that helps them to improve the efficiency of their processes. There were many reasons why insurers still continued with the traditional approach and legacy systems. This was perceived as a choice of ‘luxury’ as only the big or technology driven organizations had time, resources and people to plan and execute and many others continued to focus on user acquisition and invest around distribution or man force.

But this changed with Covid-19. It acted as a catalyst and pushed every insurer to start thinking differently and focus on execution at the same time giving very short time to act. Insurers who were early adopters had the advantage of time and hence they were able to focus on continued acquisition. This can be seen in the business growths of some high technology insurers where their life and health book had a tremendous growth as compared to other insurers.

So, what's now? How is this going to play in the long run?

The pandemic had created an opportunity of ‘normalizing technology driven services’! This is the biggest upgrade in the insurance industry. Customer expectations have changed to the

betterment of the insurers, customers and the industry as a whole. While such expectations could be challenging to serve in the very early on but in the long run we are in the process of repositioning ‘insurance’ as a fundamental financial product like ‘banking’. Which means, we could expect to see more pull than push!

This is on the process changes, positioning and customer expectations. What about ‘technology’? How can insurers see ‘technology’ being the most important strategic area for insurers?

The biggest changes that we saw on the technology side is - use of Artificial Intelligence(AI) followed by ‘Low code’ platforms. ‘AI’ is now a mainstream technology. With early cycles in 2013 and seeing a critical stagnation around 2019, 2020 is the beginning of mass adoption of ‘AI’. This is triggered by various reasons from - continued experimentation to matured propositions in the industry. They went from services driven to product driven allowing more users to use without spending too much time or resource and be assured with clear minimum expectations from the product. And ‘Low Code’ platforms had a similar cycle. They are still little backwards as compared to ‘AI’ but ‘Low Code’ platforms will soon see good traction and become common product features across product lines.

### **AI in Insurance: The biggest technology USP since ‘internet’!**

AI had its own cycles of initial excitement, overblown expectations, slow improvement period and now early mass adoption. During the early 2010s ‘Big data’ as a concept excited many people including insurers. AI had started its initial demand cycle from the users who were early adopters of the ‘Big Data’ concept. As more data is now available, they could see many new interesting ways of using this data to derive observations, automate suggestions and even improve the expert decisions. But the approach to implement AI had seen various multiple approaches from the community. It can be divided into three classes - Rules Based Systems, Handcrafted Systems and Self-learning Systems. Need of training data is exponentially more with more advanced approaches. Many users have implemented AI using a ‘rule based’ approach and few using ‘handcrafted systems’.

There are very few insurers that are at par with this cycle. They started off with ‘big data’ methodologies where they invested in a technology stack that could help them collect more data, store it and derive observations that in turn helped them to increase their process efficiency. And the same insurers have later implemented handcrafted systems and few ‘Self-learning systems’ as well but the use cases for such systems are highly limited. Deep Learning as an approach had a big success to deliver a ‘self-learning’ system accurately.

Without picking a preferred approach let discuss how ‘AI’ could impact insurance going forward.

## **Insurance in next 20 years:**

Let's divide the insurance process into multiple segments- User targeting, Product recommendation, Pre-underwriting, Underwriting, Claims processing, Policy servicing, Loss and abuse monitoring, Product Design, Risk Reporting and Auditing. In this article we will primarily discuss high impact areas only.

### **1) User targeting: Mobile & Internet, Health Apps, Wearables and Metaverse!**

Let's start with 'User targeting'. Key channels involved in user targeting are - Online, Banca, Branch, Agent, TeleMarketing and Corporate Agents. Currently most of the Life & health insurers are largely dependent on agent channels to target and acquire customers. They act as the critical connection between insurers and the customers. Lead generated through Inbound and outbound activities are assigned to field agents or telemarketing agents. They in turn interact with leads and convert them into customers.

#### **1.1. Mobile and Internet: Using intelligent tools to navigate data chaos.**

Quality of the leads and the conversion rates are highly dependent on the user targeting. Because of COVID, the mobile and digital adoption has peaked as more users are consuming mobile for varied services than ever before. This opens up new options to target users and outbound channels. This also brings in 'Data Chaos'. There is so much data on a user and so many ways to target the users. Traditional 'bucket based' methods or 'dump & pray' strategy will be an expensive and time consuming approach. Insurers need to be smart in identifying the right user to target among the other options. It is a paradox- they are extremely reachable but at the same time extremely tough to get their attention. Hence, in recent times particularly post COVID, there is an enormous amount of investment around the sales technology.

Insurers need to innovate and experiment with these new channels and tools that could help them to target the user and convert them as successful leads. It helps them to personalize targeting and collect more relevant data on the users. All this new data can also help insurers to prequalify the users and provide a clear directional approach to agents for a quick and effective closure.

#### **1.2. Health Apps and Wearable: Increased attention in wellness management.**

Because of the pandemic, the demand for health applications has gone up. While the initial cycle is focused around 'Health Apps', we will soon see a huge inflow of wearables, health devices that are non-invasive, intelligent and accurate. And users have better health apps to manage and maintain the data. This thereby adds more fuel to 'Health apps' will continue to become more mainstream! Insurers should explore and start experimenting on using these apps and wearables to auto-qualify users or monitor users or just find ways to reach out to the targeted audiences. Among various processes, this is the least matured ecosystem yet hence there is a huge scope for transformational possibilities in this area.

### 1.3. Metaverse: Virtualize everything in VR

Post internet and mobile, VR would be the next major change in the way that insurers are interacting or targeting the customers. In an evolution of any new interaction medium, Gaming/Media are always the initial adopters of these channels to target and acquire customers. But with blockchain, Decentralized Finance (DeFi), is the first vertical to utilize these new interaction mediums and acquire customers. But this is limited to Defi at the moment. Traditional insurers are still yet to look at ‘Metaverse’ as a target channel. While blockchain provides the ease of transactions, Metaverse will provide easy communication, interaction and user experience. We could probably see a fully virtual Life & Health insurance organization within the metaverse soon where users can acquire policy, register claims and interact with insurers all within the metaverse. Fully loaded eco-system in metaverse could mean full swap of mobile apps into metaverse apps - health apps into metaverse apps, e-commerce apps into metaverse apps etc. We already have seen an example of such a cycle in our life times which is - Offline to Online. We could probably see this during 2030 to 2040!

### 2) Pre-underwriting: Expect more changes in near time.

Product purchase experience defines the experience of the product itself! As part of insurance purchase, pre-understand steps play an important role in defining the purchase experience to the user. Traditional life & health insurance purchase is time consuming, unpersonalized and manual focus. User expectations have changed drastically and this is propelled by the highly active Lending/Banking industry! They are able to deliver these expectations at a much faster pace than insurers. Current opportunities for insurers can be seen in areas like - medical data collection, additional data collection, pricing and underwriting automation. Pre-underwriting activities like data collection medical and non-medical data can be improved dramatically in the near time.

#### 2.1. Data Collection: Leverage Apps, Personalize QnAs and use Data APIs

Most of the pre-underwriting activities involve collecting the additional data from the user to ensure there is sufficient data to finalize the underwriting. This process is very human dependent.

- **Medical Data Collection: AI, Alternate Data and Personalization!**

It is understandable that health/medical data is one of the most important data points for Life and Health underwriting. Hence insurers and reinsurers were very slow to change this process. But few insurers have experimented with new approaches like - using non-traditional data inputs to validate additional medical requirements, using non-invasive approaches to collect medical data (if possible from the customer directly) or even as simply personalizing application QnAs to reflect the medical risk of the users as part of the application or as an independent process. During COVID, Tele MER and Video MER has emerged as an intermediary process to physical medicals but it is not a sustainable process given that most

of the time, the doctor would simply be referring to a fixed script during the Tele/Video MER process. In turn, Insurers can use AI + advanced computer vision technologies to create a fully automated process where the questions are personalized based on the perceived risk of the user and the AI can analyse the user interactions data and answers to these questions to predict the need for physical medical requirements.

In addition to this, the health ecosystems across geographies also had seen a tremendous change. Tele Consultations have now become a norm. More new health apps and wearables are emerging. Insurers can leverage these APIs as an alternative to physical medicals and use this information to underwrite the user. This opens up a new ecosystem of health data which would be available soon for insurers to use this as an alternate medical data to underwrite the customers faster and accurately.

- **Non-Medical Data Collection:**

Non-medical data requirements during underwriting can be primarily related to financial data requirements, AML data requirements or simply clarifications. Some underwriting engines allow insurers to automate this by writing simple rules, but this can be improved using more sophisticated AI underwriting engines that can predict and personalize the additional requirements. Using intelligent processes, insurers can validate these data within or using 3rd party data sources such that validation errors are raised at the time of application login instead of an expert taking time to derive such observations.

There is definitely a huge scope to improve the pre-underwriting process. And referring to some state of the art financial on-boarding processes, they have implemented multiple ways to simplify it or augment it. We can see a huge improvement in insurance buying experience very soon given that it can become a big differentiator of scale and profitability.

### **3) Underwriting: Intelligence driven and feedback oriented systems**

Underwriting defines the profitability of the business. It is very important to the Life and Health insurance industries. While there is a reason to trust manual underwriters because underwriting being so important to the business but not leveraging intelligence and AI is not suggested. With increasing volumes, scarcity of the good underwriting experts and the pressure of scaling business, underwriters have very short time to decide on a transaction. With more data on the same customer, it'll be overwhelming to underwriters. Underwriting feedback lies in the quality of the claims and overall profitability. Such a feedback process to underwriters is non-existent in many insurers or a high time consuming process before we could see all the feedback getting implemented.

#### **3.1 AI in Underwriting: Started as Rules based but soon will see using Self-Learning AI**

Using some kind of system drive process would ease this pressure on underwriters. Hence almost every insurer uses rules engines as a solution. Traditional insurance underwriting systems are rules configured by the insurers using reinsurer supplied systems, internally built

systems or third party systems. Even today, the majority of the underwriting is done by ‘rules’ or ‘underwriters’. With so much data flowing into the business, rules become ineffective to use all this data in underwriting. Insurers are looking at systems beyond simple rules like handcrafted learning systems or self-learning systems. Handcrafted learning systems using classical machine learning approaches are already adopted in few insurers. And in fact, reinsurers are also trying to provide this as an extension to the base rules engines that they supply to insurers. The industry has seen good success using this approach currently but the adoption is still limited to very few insurers. There are few challenges with such systems like high dependency on human experts for configurations, feedback consideration and overfitting/performance hit on large data input.

Another growing approach is using ‘self-learning’ systems to underwrite the insurance applications. Such systems are built using approaches like ‘deep learning’. These systems are proven to be highly efficient with more training data. They are ideal for insurers who would like to leverage multi data on the customer and the process to underwrite them efficiently. The bottleneck for such systems is availability of training data. This is not augmented by providers with simulated data. Such systems architecture could be really complex but ensures all fundamentals are used in consideration of underwriting.

For example, Arya.ai, one of the leading provider of Deep Learning PasS for insurers provide a plug and customizable underwriting AI called ‘Autonomous underwriting module (AUM)’ that uses past process data like past transactions & past claims and considers multiple data points like application, medical data, QnAs, additional requirements etc that are available during underwriting to decide on the transaction. It is demonstrated to be more accurate and efficient than classic ML based systems. It predicts the underwriting decision where it is confident that it can be used to automate the transaction. For complex cases, it creates a case assessment report for complex cases such that it augments underwriters efforts and helps them to arrive at the decision quickly.

With the growing need to use data-driven decision making and thereby to use sophisticated AI, insurers are actively looking for solutions that can help them automate, improve claims experience and improve underwriters productivity. While this may have started with Rules Rules followed with handcrafted learning systems, ‘Self Learning’ engines offer a leap jump on using sophisticated AI. With more products offered in the markets, we could see ‘self learning’ AI based underwriting systems being well adapted in coming years.

### **3.2 Preparing for Data Chaos in Underwriting:**

We presented various changes in medical data, data on customers etc in our earlier sections. We also presented a notion of ‘Data Chaos’. Insurers may experience this very soon. At some point, insurers would have too much data to consider while underwriting. The ‘underwriting risk’ would be evidently present in the data but would be lost conveniently in the overwhelming data collected on the customer. This may be realised partially currently as well. With so many categories collected on the user today, insurers went ahead and created

‘data specific’ models and scores like ‘profiles risk score’, ‘medical score’, ‘activity risk score’, ‘source risk score’ etc. Unless a scalable AI architecture is considered, such micro-risk scoring models fail to help insurers or prevent the risk. In turn, they’ll overwhelm underwriters or simple underwriting engines. Upon post mortem, a negative risk can be seen in this data but failed to identify because it got lost in the data chaos. We would see a better data aggregation methods and more sophisticated system that will get continuously optimized with such feedbacks.

#### **4) Claims Processing: Instant is preferred anything else is underwhelming**

One process where the pandemic had stress tested the insurance processes is ‘claims processing’. Insurers across the globe were overwhelmed with the volume and value of loss from claims received during the pandemic period. It tested the extent of the process and multiple times insurers had to create a patch to address it. It is not simply on the increased volumes, it is also on how well the process handled the exceptions. Many insurers are already in the process of upgrading their claims stack. They were able to implement digital flows very quickly to ensure smooth processing. The inevitable next step is to add intelligence to the processes to ensure the transactions are processed at high speeds and more efficiently.

##### **4.1. AI Driven Claims Processing: Automate and Process at an infinite pace!**

Using advanced and sophisticated AI engines can not only help to automate processing of claims but also help claims assessors in complex cases. It can be able to find that one key data point that could simply change the verdict and help them to modify the payouts more precisely. With hundreds and thousands of options and financial elements involved in the life and health claims, it is very tough for a claim assessor to process it in a very short time. But an advanced AI engine can pick up this load and augment their efforts. While some insurers have experimented and implemented rules based systems, they either work in very small volumes or only help to validate applicability of basic product guidelines. Medical admissibility which involves expert skills and financial adjudication needing to comprehend multiple data points, both these are key in claims processing.

Advanced systems using deep learning have already proven to be more accurate and highly scalable to automate claims processing and deliver instant processing experience to customers. They can also help to identify the claims leakage more appropriately because they are designed to comprehend more complex patterns.

##### **4.2. AI in Fraud and Abuse Control**

Fraud and abuse is like a living and breathing data mesh. It adapts continuously, evolves, takes feedback and upgrades at a faster pace! It needs more than a ‘scenario/trigger’ based search system. Current fraud and abuse monitoring systems are based on a ‘scenarios/trigger’ defined manually and the system uses these scenarios to search in the data. It retrieves the transaction whichever matches this search. There are two major issues with this approach - it needs to be defined/edited manually and it only covers very limited scope! During covid,

there were many new scenarios that emerged where there were almost no ‘triggers/scenario’ defined manually in the current system. And most of them were accepted as ‘normal’ transactions. We see such cases not just during Covid but also in general hence there is a constant or increasing trend in leakage or fraud losses in life and health insurance.

There are multiple attempts by insurers to use most sophisticated systems but these are limited to very few players. Reasons vary from lack of basic systems, preference to use rules based approaches or lack to product reach etc. But soon, we would see a more revised approach to ‘Fraud and abuse’ monitoring where self learning systems could take over the major technology behind the hood. Insurers should continuously experiment with new technology and approach after careful technology diligence.

In addition to the investment in technology, depth of data collected can also play an important role in the short run like onboarding data etc. Insurers would need to explore new frameworks and define new touch points and start collecting data across these touchpoints that can provide more contextual information on the transaction that could help the ‘fraud detection’ system to use it and identify suspicious transactions more accurately.

### **AI Accountability and Transparency:**

While we have been talking about how AI can be used in various ways, methods and approaches to improve insurance processes, one of the very fundamental changes we will foresee very soon is on ‘regulatory framework’ around explainable AI. It is super exciting to see the possibilities of using AI but if not used properly or implemented properly, insurers can have negative outcomes from AI usage like bias in the data, repeated system failure, stagnation in learning etc. We have seen the impact of these in the recent past from other products - lending, medical diagnosis etc. In geographies like the EU, there is a more clearer framework on what to expect from regulators. We could soon see such legal/regulatory frameworks around AI usage that will be applied for insurers as ‘insurance’ can be considered as ‘high risk’ use case vertical.

A more mature insurance organization would have a dedicated AI/ML Explainable and MLOPs framework independent of the solution provider and which would be owned by the data science and risk team together. Currently there is a more urgency to use AI, hence we would see increased adoption of AI in near future. But explainable AI will be the key fundamental and mandatory requirement to productionize AI. Trusting the engine is really important if the user is acting using the recommendation from the AI engine. In future, we may also see a more financial services specific AI explainable frameworks given that the regulatory requirements would be unique for financial services players and thereby verticalised XAI frameworks.

### **Conclusion:**

This is the beginning of an exciting time for life and health insurance. The pandemic had showcased various gaps in the current insurance stack very evidently. While insurers start

with this as the starting step to transform the process, the fundamental change in user behaviour brought by the pandemic would be the long term fuel for insurers to continue to evolve and improve. Resilient and slow moving insurers would definitely have a status quo check very soon.

Digital Flows, AI, Health Apps, Wearables and Metaverse are the prominent impact touch points for insurance in the next 20 years. The changes in ‘digital flows’ are already implemented or in the process of being implemented across many insurers. It is not a paper based or fully manual process anymore. AI adoption will be a long cycle and the most important in the next 10 years. We could see a big change in the insurance ecosystem structure during this time period. AI adoption stresses the need and importance of data. Hence we could also see major changes in data collection and investment on alternate datasets. And finally ‘Metaverse’ could have a big transformation in insurance interactions. But insurance is not the first use case for metaverse. DeFi had seen a good adoption followed by content consumption. As these verticals progress, we could see insurance also getting impacted with more adoption of ‘metaverse’ projects.

#### **About the Author:**

**Vinay Kumar** is CEO and founder of Arya.ai, an enterprise deep learning startup. Started off in 2013, Arya.ai is known as one of the most innovative deep learning startups globally enabling enterprises to build next generation AI products using Deep Learning. Today, Arya.ai powers core products in financial services, manufacturing etc and works with industry leaders like Google, Nvidia, Infogain to democratize Deep Learning in enterprises.

## **Vision 2042: Genetic Testing for preventive healthcare and Cheaper Insurance Coverage**

**Sumesh Sheth**

**“यच्चापि सर्वभूतानां बीजं तदहमर्जुन।  
न तदस्ति विना यत्स्यान्मया भूतं चराचरम्।।”**

Approximate Translation: I am the generating seed of all existences. There is no being-moving or unmoving-that can exist without me - Bhagavad Gita Chapter 10, Verse 39

What Lord Krishna was describing eons ago is what we have realised now. We now know that every living being on earth is made up of genes and genes are made up of a chemical code that is common to all.

Our knowledge has reached a level, where we are able to read this chemical code by means of genetic testing.

### **WHAT IS GENETIC TESTING**

To understand what Genetic Testing is, we need to take a quick lesson in biology.

The makeup of every living organism on this planet is decided by its genes. Genes are nothing but are made up of a chemical called as nucleic acid.

There are two types of nucleic acids DNA (deoxyribonucleic acid) which is double stranded and RNA (ribonucleic acid) which is single stranded. The genetic makeup of all living organisms is DNA, except some viruses (like the covid 19 virus, where its RNA).

The DNA molecules are like a long strand of threads. On each thread there is a sequence of 4 chemicals called as adenine, guanine, thymine, and cytosine, denoted by the letters A, G, T, and C respectively.

A single DNA strand contains millions of such chemicals arranged in a sequence like A-T-G-C-C-A- C..., a part of which is called as a gene. All genes together are called as the genetic makeup or the genome and in case of human it's called as the human genome.

This sequence is unique to a person (That is the reason we use DNA finger printing to match identity) and it decides the entire makeup of that person like colour of the eye, hair colour, general build, height, likelihood of developing some conditions. To some extent the build is also influenced by the environment of the child during the upbringing. The full sequence of human genome was completed and published in April 2003 under the human genome project.

In short, we may say that an individual is sum total of its genetic makeup and its environment.

## *Genetic Testing for preventive healthcare & Cheaper Insurance Coverage*

Thus, if we were able to read the genetic sequence of a person and to know what it means exactly, we can predict the chances of morbidity in that individual, at least where its strongly influenced by heredity.

Currently we are able to read this sequence relatively easily by taking a small sample of the body fluids from any individual, but our knowledge about what it means exactly in terms of morbidity is still evolving.

We know with certainty that some types of cancers, are genetic in origin and the genes responsible for it. For these cancers we can predict the chances of them occurring in an individual, pretty accurately by using genetic testing. We also know a few other conditions that are hereditary in origin and thus can be predicted using genetic testing.

The US National Institutes of Health's (NIH) Genetic Testing Registry (GTR) lists over 78092 tests related to over 10630 medical conditions and 18727 gene as of Nov 2021. Its estimated, that there are about 30000 genes in human genome.

Thus, our understanding of genome is still not complete even 18 years after the full publication of human genome. Also, currently cost of such test is very high and runs in tens of thousands of rupees or more in India.

Let us try to anticipate how the situation may be in the year 2042.

### **LANDMARK YEAR 2042**

The Year is a landmark year when India's population is expected to peak at 1.5 billion as per Times of India report dated Nov 3, 2021. The population is expected to gradually contract gradually after this. Further, as per this report, India is expected to overtake China as the world's most populous country by the year 2042.

Already fertility rates in India have dropped below the net replacement rate as per preliminary data published in November 2021.

As per a report by Oxford Economics, the contribution of India to global economy will increase from 3.1 % in 2020 to 6.1% by 2040. This will make India the third largest economy in terms of Nominal GDP, replacing Japan.

Thus 2042 is indeed a landmark year when we are likely to have large, prosperous economy with a stable but large population.

### **A KEY CHALLENGE TILL 2042**

One of the key challenges from now till 2042 will be one of providing affordable and quality health care to each citizen of India. The challenge will increase as the population starts contracting after the year 2042 which means the proportion of elderly person will rise rapidly as a percentage of the population. It implies that the dependency ratio will start climbing after the year 2042. The elderly population as a percentage of total population will rise. As a person ages, he/she will have increasing healthcare needs. Thus, demand for healthcare will rise rapidly. This may drive health care inflation higher. Thus, how to finance the healthcare costs will be the most important question faced by many citizens. This is an issue currently

being tackled by many European countries and Asian countries, most notably Japan. But nowhere the scale of issue is of such a staggering size as in India. We have to prepare for this landmark year 2042 and beyond to face the challenge of providing adequate, affordable, quality healthcare to the rapidly ageing population.

There are number of ways in which healthcare costs can be financed by an Individual. This could be done by using personal income and saving, taking a loan, financing by government, help from friends or family, charity and health Insurance.

Of all these methods Health Insurance is considered as the best method of financing long term health care costs. This is because it's based on the proven principle of "pooling resources of many, to share the risks faced by a few".

An accurate assessment of the morbidity risks will help us in avoiding or reducing their impact and also may lower the costs of health insurance.

Genetic testing may prove to be an important asset as a preventive health care tool as well as accurately assessing the morbidity risks by the year 2042.

### **WHAT IMPACT GENETIC TESTING MAY HAVE IN FUTURE**

It's almost certain that our understanding of human genome will improves in the future due to the continuous research in this area of science. The science of genetics got a booster shot during the pandemic, as substantial amount of funding has come into the area of advanced biological research. Specially during pandemic, we realised more starkly, that the immune response of different individuals is different to the virus attack. Scientists are aware that immune response has a strong genetic basis but our understanding of this is far from complete.

It's quite possible that by the year 2042, as genetic testing will become more accurate, we shall be able to predict the chances of morbidity an individual with high degree of accuracy.

Going further, if we are able to link our understanding of genome, with our understanding of environmental conditions on morbidity by using sophisticated tools like AI based modelling, we will have a very clear picture of likely morbidity as well as mortality in the future for any individual.

### **GENETIC TESTING AS A PREVENTIVE MEASURE**

The most important application of this technology will be as a tool that will help an individual to identify how his/her health is going to be affected in the future due to his/her own genetic makeup. This will help in taking preventive measures so that he/she can continue to remain healthy.

In future, scientists will be able to find genetic variations associated with most diseases, and the biomarkers associated with it. This will be followed by a complete understanding of the process of its development and steps necessary to prevent or control it.

One interesting technique that may become a preventive measure in future, is the, CRISPR gene editing. This is a technique to modify the genetic makeup of a living organisms,

including humans. This can be used to prevent inherited genetic diseases as well as some other diseases like cancer. But the technology is still evolving. Also, we will need to address number of ethical, moral issues as well as make it cost effective.

Thus, ultimately our understanding of genome and associated process and the ability to control it will result in saving financial costs and suffering at an individual level and making them more productive. This is also going to benefit the family resulting in better economic and mental health for everyone.

This will benefit the society and the nation as lower prevalence of morbidity will result in more productive economy and increased level of overall happiness.

### **USE OF GENETIC TESTING IN INSURANCE**

Whether Insurers can use genetic information for underwriting has been a topic of debate which intensified after the genome mapping project was initiated in 1990.

The question of Insurers accessing and using genetic data has multiple dimensions such as ethical, social, legal and political.

A key concern is 'genetic discrimination'.

A modern democratic society is based upon the principle of equality. Any attempt to identify and use differential treatment to people because of their birth is against this principle.

This led in 1997 to the UNESCO Universal Declaration which says that 'no one shall be subjected to discrimination based on genetic characteristics that is intended to infringe or has the effect of infringing human rights, fundamental freedoms and human dignity'.

The argument against using genetic testing for insurance was that every individual inherits the genome at birth and have no control over it. Thus, it's a genetic discrimination.

As a result, many countries have specific acts that bans discrimination based upon genetic testing for insurance. Most notable and comprehensive regulation was in USA, The Genetic Information Non-discrimination Act 2008 which bans testing for health insurance leaving the field open for life insurers. Some countries, ban use of genetic information in underwriting for both health and life insurance. While in most countries, including India, there is no specific regulation governing usage of genetic testing for Insurance.

Thus, as of now using genetic testing for insurance is mostly not possible as a combination of regulatory practices, prohibitive costs and incomplete knowledge.

### **WIN-WIN SCENARIO FOR THE FUTURE**

But in future we may see a major change as our understanding of genetic tests improves and it becomes a necessity of better health and something like a basic necessity. This may alleviate the public concerns about use of genetic information by the insurer.

Also, each individual is unique due to his/her genome which is unique. But most medicines available today do not take in to account this uniqueness. In near future we may have medicines customised as per one's genetic makeup. This will increase their effectiveness at

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the same time reducing the side effects. The cost for these customised medicines may also be variable depending upon the genetic makeup. Thus, if health insurer has to pay for this cost, then it may need to know the genetic makeup in the future.

Already insurers are asking for number of tests depending upon the declaration given in the proposal form. This is time and cost consuming.

If declaration is Incorrect then again it may result in adverse experience, which results in costs to all the existing policyholders in the form of higher premium rates.

By 2042, populations across the world will be ageing rapidly and as a result medical inflation will rise exponentially. The ability of governments to provide healthcare financing will be restricted as a reduced working age population will result in lower tax incomes.

This leaves health insurance as the only viable healthcare financing mode for the long term. Thus genetic testing may be permitted for health insurance underwriting, subject to proper control to reduce privacy and other concerns. Ultimately this will result in lower costs of premium as preventive measures can reduce the risks of overall morbidity.

Currently, with our limited understanding of genetic testing, this does not look feasible.

But by the year 2042, understanding of human genome will definitely be more complete and genetic testing will be commonplace and cheaper. Thus there is a distinct possibility that we will be using genetic testing as a tool to reduce morbidity as well as for Insurance underwriting.

This will result in a healthy life for every individual and also bring down the overall cost of health care financing including health insurance premiums.

### **About the Author:**

**Sumesh Sheth** - 22+ years' experience in Life Insurance Industry as a Manager in India and in Singapore, Managing Life Insurance operations in India, Teaching Insurance and related topics, Research in Insurance with multiple publications, Managing complex projects involving multiple stakeholders from conceptualisation, inception and operationalising them. Managing large verticals in Information technology and Marketing Personnel training with the largest Insurer in India. Building a life Insurance company's system and processes from a nascent stage in Singapore. Since July 2021

On deputation from LIC of India in the cadre of deputy zonal manager to NIA (National Insurance Academy), Pune, India as a faculty in Life Insurance

## **Applications of Blockchain in Healthcare**

Pratap Tambe  
Kanya Saraswathy C  
Stuart Gilchrist  
Balakumar Kanagasabapathy  
James Sullivan  
James Fisher

COVID has been an eye opener on the core challenges of healthcare globally. As organizations have managed through the pandemic, their understanding of patient's needs, and the way healthcare delivery models need to meet them has evolved. As medical science and technology evolves, as climate change happens, as pandemic probability rises in a hyper-connected world, patient needs, and healthcare delivery models will continue to evolve. Collaboration, innovation, digitization through Blockchain based decentralized healthcare delivery models will become mandatory.

### **Challenges due to changing patient's needs**

The Internet has dramatically transformed the customer service experience for most consumers outside healthcare. Patients expect the same efficiency, ease of access/use and transparency across the complete life cycle of each healthcare service (ambulatory/out-patient, in-patient and virtual). They expect each such service to be fully personalized to each patient using analytics, considering all available information about that patient. Whether the service is in-person/virtual, they expect a personal touch and prefer on-demand service and/or self-service. Patients expect all provider and payer stakeholders (insurers, laboratories, hospitals, retailers, drug designers etc.) to collaborate effectively with each other to ensure a unified, well-integrated experience which keeps the patient informed and consulted at each stage of each service. Patients also expect that healthcare services should be up to date with respect to developments in medical science and technology and should improve continuously based on feedback from patients as well as new service innovations within health care industry and outside it. Finally, patients expect cost-effective and high-quality services benchmarked with the best practices in the industry. All of these generate lot of challenges for healthcare delivery models

### **Transforming healthcare delivery models to meet the challenges**

Health insurers need to understand the needs of patients and build digital journeys to guide them in a patient centric manner to achieve their health and wellness goals. Offering impeccable service of this type across multiple markets without increasing costs requires

careful leverage of ecosystem partners and connected devices for better risk management including early risk identification and better fraud management.

In coming years, providers who capture the patient first are expected to win greater influence in guiding the users through other parts of the healthcare ecosystem. Therefore, healthcare providers offering the best access may win the patient and gain higher revenue. Such providers need the ability to seamlessly scale ambulatory/out-patient, in-patient and virtual services up and down by matching supply of providers and payers to demand and capabilities of patients to enable easy to understand and implement variable cost structures. This needs to happen in a smooth, friction-free, transparent manner without adding risk. Providers need to continuously improve the patient experience and leverage technology as described above.

In coming years, there will be more stringent regulations on management of patient information and their participation in clinical trials in parallel with a growing interest in precision medicine. This will require more rigorous management of patient records as well as the proper governance of patient participation in the drug design process for greater efficiency and compliance.

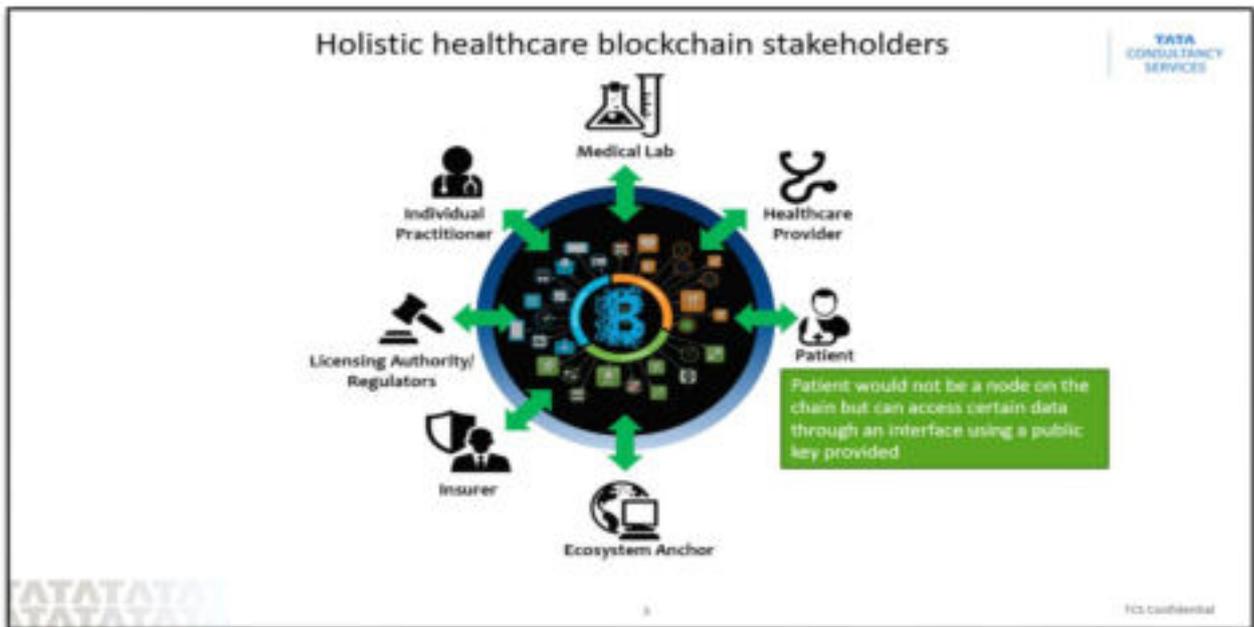
### **Evolving Holistic Healthcare Ecosystem Using Blockchain**

The need for blockchain in healthcare stems from the problems in the traditional healthcare systems particularly data breaches and system failures. There is a need for securing health data pertaining to patients and medical care givers. Parties with the access to this data may sell it or use it for purposes that the owners of the data may not want their data to be used for. Blockchain can increase the safety and security of this data by keeping the identity of the owners private while protecting the secrecy and authenticity of information. While doing this, Blockchain can enable finely customizable openness in sharing information to ensure safe and true interoperability. This can allow health information systems to work together within and across organizational boundaries to advance the effective delivery of healthcare for individuals and communities. Delays in accessing medical records of patients which increase time needed for diagnosis and treatment of patients, can be overcome using blockchain. Blockchain can enable safe, secure access to data in a matter of seconds, from any location globally. Thus, blockchain can serve as a key link in the global health data supply chain by multiple means such as (a) It can combine and/or verify data across labs, healthcare providers, drug manufacturers and medicine distributors. (b) It can enable efficient contracting to enable leverage of ecosystem partners and connected devices as part of healthcare services. (c) Blockchain based healthcare service infrastructure will be more resilient in face of climate change, since there is more redundancy of data and code in Blockchain based service infrastructures. (d) It aids suppliers in the process to verify products much faster with mechanisms of the blockchain ledgers to track supplies from the source to the end dealer or retailer and between ecosystem parties in general

The healthcare ecosystem has evolved from the traditional limited parties such as patient and doctor/ healthcare provider to include stakeholders like payers or insurers who reimburse the

healthcare providers, pharmacies and drug designers. The current healthcare landscape also includes organizations whose contributions influence patient outcomes in an indirect mode such as medical device companies, biotechnology companies and distributors selling products and services to prevent, diagnose, treat, and cure diseases. The above stakeholders who play vital and varied roles need to work as a cohesive team towards an end objective of providing personalized patient care. However, there is a lack of transparency and potentially conflict of interest between these stakeholders in terms of costs, treatment outcomes, data ownership and access to data. This results in health data not getting shared adequately impacting the outcomes that can be delivered to the patient.

Figure 1 - Holistic healthcare blockchain stakeholders



A major concern in the healthcare ecosystem is that patients are currently not able to have a complete view and ownership of their own medical data, which is more important when such information spans

many hospital treatments, labs, doctor consultations and information from wearables. Blockchain addresses this concern. Blockchain is tamper-evident because data is stored on multiple nodes managed by independent parties and the code which works on these copies works in a consensus driven manner. There is no centralized structure for any malicious user to target.

The healthcare sector is gradually implementing blockchain for efficient and holistic management of stakeholder's needs. We foresee that public Blockchain technology based self-sovereign digital identities will quickly emerge as the foundation layer which is not-healthcare specific. On top of this foundation layer, we foresee that a set of healthcare specific Blockchain use-cases will transform health care delivery models to address all the problems described above, generating lots of benefits for all healthcare ecosystem stakeholders.

The foundation layer will consist of tools to enable (1) patients to generate and manage digital identities for themselves and use these to manage the data they own as well as control the usage of their data in various processes (2) patients to generate and manage digital identities for their connected devices as well as access and control their digital footprints on community/public devices as well as control the usage of the data from these devices (3) enable providers to generate and manage digital identities to enable patients and other healthcare stakeholders to onboard, use and pay for healthcare services and control the digital exhaust of such healthcare services.

Patients will be able to create, own and operate digital identities which could leverage their centrally provided digital identities like Aadhar, providing the latter only when really needed, but performing all other operations without exposing centralized digital identities like Aadhar.

- Essentially each patient creates their own self-sovereign digital identity on their trusted devices/services and acquires an Aadhar ID attestation for it from the Indian government, which it can use to prove Aadhar ID digitally when required by appropriate provider/payer parties.
- The patient may acquire other attestations from providers and payers to this self-sovereign digital identity while on-boarding to and using the services provided by these parties.
  - Each such self-sovereign digital identity will have one or more nominee digital identities, such that these nominees will get control over all the patient's digital identity in case of the following scenarios
    - Death of the patient – If an appropriately trusted party provides the attestation of the death of the identity that will enable the stored nominee identity to acquire control over the patient's identity. There will need to be regulations for this.
    - Inability of the patient due to physical or mental health to control the digital identity – In this case, either the patient may trigger a power of attorney attestation or the court may provide the attestation to transfer the control of the patient's digital identity to the nominee's digital identity as per appropriate guidelines. Regulations are needed for this.
- The patient can also create and manage their own personal medical health records to which providers and payers can provide attested data regarding various aspects of their health as part of the services. This data could be copies of distributed data stored in the respective enterprise systems of the providers and/or payers. This data typically is generated and utilized in the provision of various health care services

The current trend of multiple personal digital devices and multiple community/enterprise/public devices gathering snippets of data about each citizen will accelerate and the rules about the storage and processing of such data for various personal/community/enterprise/public purposes will become more comprehensive and clearer.

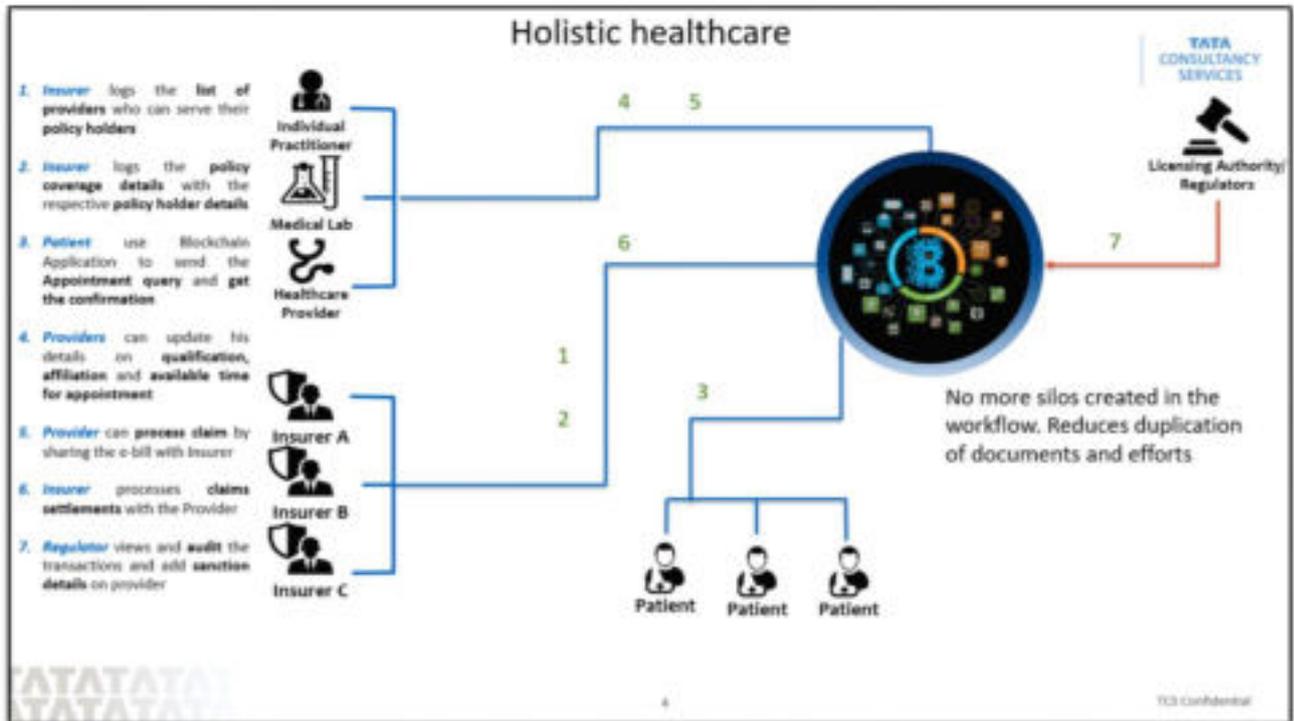
- We expect the regulations will give control to the person to own his/her data (following the global data protection regulations); we expect technology providers to empower each human to own and operate their data stores to derive value
- We expect to see the emergence of third-party processing providers who will be able to use confidential computing technologies to provide advisory services to the patients.
  - Confidential computing services ensure that the service providers do not get access and control over the data when their algorithm processes the data of the patient and do not have visibility of the result. But confidential technology also ensure that the patient will be able to get reassurance based on cryptography that the providers algorithm has processed the data.
- We expect patients to use these types of providers to get self-service at no-liability to the service providers. Further we expect patients providing the output from one set of providers to a human/robot advisor, to get more value-added and contextual advice through digital or direct means
- Medical devices maintenance – Blockchain enables the sharing of operating data of machines with those responsible for their maintenance without violating any compliance or privacy issues. Blockchain can also keep service records and make sure device logs are tamper proof.

Healthcare providers will be able to create, own and operate self-sovereign institutional digital identities which can participate in the above digital identity ecosystem

- Providers could obtain attestations from appropriate certifying bodies requiring periodic re-attestations. Certifying bodies will be able to revoke the attestations provided to providers if needed during these periods.
  - For some use-cases, attestation users need not check whether the attestation has been revoked
  - For some use-cases, attestation users can be mandated to check whether the attestation has been revoked by the attesting party which is easily accessible and authenticatable
- Providers can provide/receive attestations from patients and payers related to the services received/provided from/to them and use these to simplify the on-boarding and service provision to them.

Based on the above foundation layer, the Holistic healthcare ecosystem can be realized as show below

Figure 2 - Holistic healthcare using blockchain



The benefits and the use-cases which deliver them include –

- 1) Providers are on-boarded and managed in optimal manner into a common registry, which increases the array of choices for patients, while reducing compliance risk and losses.
  - **Challenge:** Capturing up to date provider details is manual and this cumbersome process done by all payers separately. It adds administrative burden for provider and generates duplicate data. Revocation information is not captured/acted on in real time
  - **Solution:** A Blockchain based platform will help the payers to use updated details of providers after provider’s consent and reduce the administrative burden of providers and eliminates redundancy. Revocation information can be easily broadcasted to all payers. All provider data is managed by in a single distributed ledger avoiding duplication
  - **Benefits:** Reduction in costs, Ease to access data, Near real time data availability
- 2) Patients can purchase policy from an insurer and book appointments for healthcare services with the policy related co-ordination happening behind the scenes to simplify the patient experience
  - **Challenge:** Presently, the appointments happen in silos between the patient and healthcare providers without the insurer in view which later increases the difficulty in claiming these bills
  - **Solution:** Blockchain will allow the creation of a single interoperable provider directory, and automated smart contracts to automatically invalidate providers as soon

as the contracts end. Also, the presence of the data on blockchain will ensure that the patient records, accounting and billing records are tamperproof and safe from vulnerabilities

- **Benefits:** Single unified view across all stakeholders, Ease the settlement process by the insurance company, Ease of providing consent
- 3) Providers can use the whole electronic health records needed to maximise the quality of the service and are able to update these records based on service delivered. This is done while storing all the patient records with individual providers, thus duplication of data among providers and insurers is avoided
- **Challenge:** Medication errors and adverse drug events contribute to approximately 7,000 deaths per year, with estimated cost for drug-related morbidity and mortality exceeding \$77 billion a year. Global institutions recognized e-prescription as a promising tool for this challenge.
  - **Solution:** Each prescription will be containing a digital signature of the doctor and it will be available for the stakeholders who can validate and thus it will eliminate the inefficiencies in the system. Blockchain enabled prescription sharing will automate the associated processes and the entire validation process will become independent. All records are managed in a single distributed ledger avoiding duplication.
  - **Benefits:** Consent management by the patient, Prevent over medication – patient safety, Patient convenience – no doctor revisit for repeat medication, No transcription errors
- 4) Providers can raise electronic invoices/claims and link them to electronic health records which include electronic prescriptions. Even if insurers have different invoice/claim formats and different clinical codes for different providers, blockchain makes it easy for providers to raise correct claims, while ensuring that insurers receive invoices/claims in the formats the need. The presence of a shared ledger removes the need for third party Interventions for verification and processing decreasing turnaround time and claims processing costs
- **Challenge:** Claims processing is manual intensive and administrative costs are high due to need for multiple manual intervention and errors which is because of a single view is lacking for the multiple stakeholders
  - **Solution:** A common platform for the payers, patients and providers to come together using Blockchain technology with a decentralized claims handling and automation of settlements using Smart contract – Involving regulator as per GDPR compliance: Transparency of medical data & Hyper-productivity
  - **Benefits:** Data integrity: Single version claim details, Single platform for interfacing with multiple stakeholders, Easier mapping of claims for the insurer, Reduced turnaround time
- 5) Healthcare ecosystems can leverage tokens and Stable coins to improve various processes and accelerate the settlement of funds between the members of the ecosystem

- **Challenge:** (1) Many healthcare processes use physical tokens creating challenges for managing physical tokens. (2) Settlement of payments between healthcare ecosystem stakeholders takes lot of time and efforts.
  - **Solution:** (1) Since digital devices are increasingly widespread, using digital tokens can be used (2) Using Stable coins can help to reduce the time and effort to settle payments between health care ecosystem parties.
  - **Benefits:** (1) Digital tokens help to improve the processes and make them easier to manage (2) Stable coins generate interest income from the reserve funds and help to reduce delivery versus payment settlement risk
- 6) Healthcare data marketplaces can emerge to enable patients to monetize their data
- **Challenge:** The health data of patients who have the worst variant of diseases is of most value to drug designers. The process of obtaining this data and health data for drug design is very complicated.
  - **Solution:** The electronic health records solution can be integrated with a blockchain based health data marketplace while keeping the patient in control. This will require new regulations to emerge.
  - **Benefits:** Enabling patients and their nominees to monetize their data will benefit patients, drug designers and humanity by improving the capability to design drugs to treat the worst variants of diseases.

## CONCLUSION

In traditional healthcare delivery models, once the patient had consented, he/she could not ensure compliance to consent. The promise of Blockchain healthcare delivery models is that once patients choose service and provide consent, the healthcare ecosystem and connected devices just cannot violate committed consent related conditions in enabling efficient, high quality, continuously improving in-person/virtual services. The other main promise of Blockchain is that it can support diverse healthcare services across multiple healthcare ecosystem stakeholders while optimizing costs, risks, agility and resilience and make it easy for patients to find and get the services they need. There is no alternative to Blockchain in the future of healthcare globally.

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James Fisher is the Health Provider Lead for TCS in North America for the Healthcare Consulting and Service Integration practice. He has over 25 years of experience working with large, integrated health systems ambulatory practices, as well as adjacent Health Provider practices such as Home Health, Hospice, Palliative Care, Dialysis Centers and others. James has extensive experience in leading large, complex technology-enabled transformation programs. The majority of these programs have had large components of technology, operations, financial, and business implications at the executive and board level. Most recently, James has been leading several Private Equity-backed organizations on market and product viability, customer segmentation, industry sizing, marketing strategies, and financial forecasting. Several of these have been both pre and post-merger integration.

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## **Intelligent Automation In Health Insurance**

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The covid-19 pandemic has necessitated the urgent option of digital adoption across all industries, including the insurance sector, and the consequent digitization has accelerated particularly the healthcare sector. The health care sector including the medicare facilities had to switch over to remote and networked conditions almost overnight, expand their digital capabilities to support the increased volume of business across the entire healthcare networks; collaborate with hospitals, diagnostic centers, pathological laboratories, medical equipment firms, etc., in order to ensure timely settlement of claims of customers. The new-age technologies like AI, IoT, blockchain, computer vision, etc., triggered the digital disruption in the health care services as never before and it is changing the way the health insurance business is conducted today.

The automation process in healthcare involves automating the core areas of sales, quote to card, enrolment, consumer engagement, claims' processing, referrals and authorization, payment integrity, and case management – in the final analysis, the effort to deliver a superior customer experience.

**Intelligent automation** is a fully automated end-to-end process across an entire business, and the IT processes through a dedicated set of solutions and services around the automation continuum including Robotic Process Automation (RPA), Intelligent Process Automation (IPA), and Artificial Intelligence (AI).

The potential business benefits of intelligent automation are much broader than the cost savings that might be implied by the term 'automation', as it uses a large volume of data from all the key stakeholders in the healthcare delivery chain – i.e., customers/policyholders, insurers, hospitals, diagnostic centers, pathological labs, and other health-accessary services. These required data are collected from various sources, verified, and fully integrated, and hence, the quality of health data that these intelligent machines generate are ready for use leading to faster actions and quicker decision making by all the key stakeholders. Thus, the insurers are enabled to issue the policies instantly, personalize the coverage and benefits according to the risk profile of the customers.

Consequently, hospitals would be able to admit the policyholders instantly without any hassle, free admission process, and access instant pre-authorization approvals to provide quality care. Thus, the entire process of hospital services, right from nursing care to physician diagnostics,

would be standardized and driven by intelligent analysis of the customer, based on the pre-existing data on health conditions. As a result, the hospitalization period of the customers would be reduced considerably. And for insurers, healthcare costs, including the claims' cost would come down drastically. Additionally, automation would enable effective fraud detection and control, thus minimizing the claims leakages.

Depending upon the health requirements of the patients, technology would help in deciding the exact man-hours required for treatment. An intelligent health analysis would indicate the specific medical skills of the physician and the paramedical professionals required to treat the particular patient, thus improving the efficiency and effectiveness of the customized quality care provided to the patients. As a result, digitization would lower the healthcare cost and provide greater scalability to all the stakeholders, i.e., hospitals, customers, insurers, and the entire healthcare supply chain, including vendors.

The adoption and use of new-age technologies like AI, ML, and IoT generate a lot of intelligent data, helping in better understanding of the risk profile of the customers as well as their healthcare needs at a micro-level. Thus, technology is applied to enable insurers to develop customized products and services in accordance with the risk profiles of the customers. Accordingly, insurers would be able to introduce disease-specific insurance policies, like Cancer Insurance, Diabetic and Cardiac Care insurance, Mental Health, Psychosomatic illness covers, and long-term care insurance.

Currently, a large amount of medical data on the personal health of the customers is being used in an unscripted form, and, some companies use cloud data sources, which are highly susceptible to data breaches. Currently, the health sector is one of the prime targets for hacking. With the introduction of new customer data protection law or regulation similar to GDPR, any customer data particularly highly sensitive data, like individual's health, the amount of compensation, regulatory breach penalty, would be the potential for a breach, which could be as high as 4% of the global turnover of the company. Consequently, the personal data protection officer or director can be held liable for civil and or criminal liability. Automation using encrypted data would protect the companies from a data breach as well as a huge regulatory penalty or third-party liability.

Intelligent automation necessitates the automation not only of the critical process of healthcare delivery, but the total healthcare ecosystem needs to be integrated including the entire supply/delivery chain of all the outsourced medical services or accessory vendors. Technology like RPA or blockchain enables all the stakeholders, not only in standardizing the healthcare treatment process but also the entire process of outsourced entities/agents in the healthcare ecosystem. This would not only reduce the operational cost to each of the entities in the system but also improve the efficiency and speed of the healthcare delivery significantly.

Automation also enables the service providers to improve their legal and regulatory compliance as the system automates the compliance requirements and regulatory activities among all the entities associated with the blockchain system. This would also reduce the submission of fraudulent claims or insurance proposals, save huge leakages by way of fraudulent claims at every point of the healthcare delivery system.

### **Automation in Member Enrolment**

The current enrolment process is time-consuming and error-prone since all the enrolment requests with all the required information need to be validated and verified manually before data entry. The challenges faced in the process are:

- (a) Missing precise information about the applicant's name, address, income, and other demographic and basic health information.
- (b) High turn-around time between submission and approval of an application.
- (c) Lack of a robust tracking mechanism for monitoring.

Intelligent automation brings together multiple input channels, such as email, shared folders, web portals managed by bots for enrolment request data intake. Data can then be extracted from these sources and be validated as per the predefined organization's rules. Automation in member enrolment saves cost, increases process efficiency, and can reduce administrative process time by 75% and Average Handling Time by 35-45%.

Similarly, **Coverage and benefits verification, eligibility conditions of the customers** can also be verified instantly when the insured approaches the hospital or TPA at the time of admission. The intelligent automation software can also verify the **credentials of the service provider** through multiple platforms including social media and also accreditation agencies. The automation can also ensure that the latest provider data is used in this process, leading to minimized credentialing cycle time and enhanced provider onboarding experience.

### **Enabling Automated Underwriting**

This is an important cross-cutting function. Innovation and automation can drive efficient premium pricing. This function requires demography, health data (preventive checks, IoT, etc.), claims data, financial, and other alternate datasets of the member to identify the risk before arriving at a premium. Systems should be tightly integrated to generate an intelligent report combining the customer's health data, clinical/hospital data, insurance/policy data, claims information, etc. This allows the system to build a complete member profile and also generate an accurate risk score. Automated pipelines have to be built which constantly consume data from various sources and link them in order to create a 360-degree view of the member data. AI and ML-based algorithms built on this ever-increasing and accurate data would certainly help in pricing efficiently and accurately.

## Medical Coding Standardization: Clinical Claim Review for Utilization Management Claims Processing.

It also enables data **coding of every clinical procedure, diagnosis**, and medical practice and thus **standardizing the entire clinical procedures/diagnoses** based on the standard clinical guidelines and procedural/diagnostic codes. This can help in (i) **effective monitoring of the treatment protocols**, (ii) **clinical review**, (iii) **prior authorization**, (iv) **case management**, (v) **utilization management** (vi) **cost containment**, (vii) **research purpose**, and (viii) **automated claims processing**. Multiple validations of the standardized solutions, using the current health claims data and historical clinical data across the automation continuum, can help a third-party provider/experts expedite the clinical claims processing and medical review based on the actual utilization. This would also help in standardizing the cost of healthcare for all types of medical treatments based on place of service, quality of provider, provider setting, geography (urban, rural, etc.), which would also reduce the insurance claims cost.

This will also create ample job opportunities for medical coders and health-tech professionals. The US healthcare system is one of the largest employers of health scientists, life science graduates, and post-graduates in India. Medical coding will not only add value to the healthcare ecosystem giving higher ROI (Return on Investment) but also create vast job opportunities for Indians.<sup>1</sup>

CoverSelf - An InsurTech company has taken the initiative to standardize the healthcare data at par with any developed countries to reap the benefits of rich and comprehensive healthcare data. It is working with large insurance companies in India and the US. Such data standardization provides transparency for the Insurance companies and the ecosystem in India. It has also pioneered the creation of the pharmacy drugs codes (at the drug ingredients and the manufacturer's levels) for India to automate claims processing, report utilization, and bring transparency into the system.

### Applications of Standardized Data

1. *Standardized data*: This can be used across the company by various teams for data-driven decision-making, senior management reporting, strategic initiatives, and IRDAI reporting.
2. *Auto-adjudication for the claims team*: With the quality of data generated, we can work towards efficient and scalable auto-adjudication. It will benefit the design mapped to code which can easily be converted into a rule engine for automation.

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<sup>1</sup> <https://www.financialexpress.com/lifestyle/health/medical-coding-certification-course-in-india-under-ayushman-bharat-irdai-nha-proposal-details/1710850/>

3. *Payment Integrity for Risk/ILM/SIU teams:* Rule-based (policy, clinical, utilization, and behavioural) and AI/ML models are now possible, as the data is structured and machine-readable.
4. *Network benchmarking for network team:* Standardized network pricing, benchmarking the cost, quality, etc.
5. *New product innovation:* Structured data for underwriting.
6. *Clinical decision-support systems:* Like the population health and disease management program which provides –
  - Screening and wellness examination based on patient’s health profile for preventive healthcare.
  - Better risk stratification for care management.
  - Predictive Analytics, AI/ML Models to detect diseases at the early stages to bend the cost curve and offer better patient health outcomes.
7. *Research and quality measurements* (quality of care and outcomes).
8. *Interoperability:* Seamless communication between various healthcare systems and code sets,

## **Payment Integrity**

*Healthcare payment integrity:* The automated payment process ensures that the healthcare claim is paid accurately by the health insurance/payer, for eligible/covered members, as per the policy/contractual/clinical benchmarks, not in error or duplicate, and void of fraudulent, wasteful and abusive practices.

Healthcare insurers are seeking to uncover the signs of overcharging, false reporting, errors, wasteful and non-compliant practices, frauds and also evolve novel methods in claims handling and billing processes. Claims standardization will immensely help automated payment integrity solutions. Risk/ILM (Investigation Loss and Minimization) /SIU (Special Investigative Unit) teams can now focus on the cost-containment efforts and help mitigate risk proactively. This can be achieved by following the procedures described below, as many insurers have well-defined rules which will curtail the majority of falsified payments.

Rules-driven payment integrity has been thoroughly validated with the existing automation tools and it is working successfully in many developed countries. However, now with the availability of AI & ML algorithms, it could further be augmented with the availability of standardized and labeled data.

### ***A. Personalized Product Pricing***

With the increased adoption of IoT in insured wellness, insurers are enabled to incorporate a wide range of risk factors to accurately price products. The wearable can now transform the insurers from reactive to proactive mode. Sensor data from wearable technology directly

connects insurers and policyholders, and the data indicating their mode of lifestyle can be used to determine the appropriate premiums in accordance with the risk profile of the customers.

Alternate data from healthcare claims utilization (IPD, OPD, Pharmacy) will help the patient to be profiled and risk-stratified giving a 360-degree view of the patient enabling personalized and patient-centric programs, like Care management for high-cost claimants, Population health programs, Disease Management, Medication adherence program, Wellness, and preventative care program, etc.

Insurers can reward policyholders with healthy behaviors by offering them low premiums and they should offer preventive care at no cost (Non-deductible, Co-insurance, etc.) to patients based on demography, present illness, family and personal health history, which encourage early detection of any severe disease ensuring the quality of life and better health outcomes to the patient in order to avoid high treatment costs when illnesses are detected late. Periodic/Planned preventive tests, when taken on a scheduled basis, the premiums could be reduced for the subsequent years.

### ***B. Provider Network Optimization***

Optimizing the use of the provider's network through appropriate collaboration between the insurers and the health care providers is essential for providing value-based healthcare, where both have incentives aligned around providing the right care to the right patient at the right time. Hence the insurers need to select the providers carefully.

### **Important Quality Parameters to Select Network Provider**

**(a) Data-driven quality measurement:** Medical codes also provide key information on quality metrics like re-admissions, post-operative complication, clinical non-compliance by the patient, no follow-ups, preventive test non-compliance, extended length of stay, hospital-acquired infections/conditions (HAC), viz., sepsis, Ventilator-Associated Pneumonia (VAP), etc.

**(b) Quality accreditation:** Many healthcare-focused accreditation authorities/bodies, like the Joint Commission (JC), National Accreditation Board for Hospitals and Healthcare Providers (NABH), and American College of Radiology for Imaging Centers, provide such service.

**(c) Patient reviews and Surveys:** Analyzing the online patient reviews, surveys, and testimonials (from provider websites and third-party aggregators), coupled with social listening (mentioning of providers by policyholders), can help the insurers in contract negotiations and decide to retain the providers. However one needs to be cautious since their opinions could be biased.

‘Quality as the centerpiece’, based on the qualified quality measurements, the industry can move toward a value-based model that will focus on the health outcomes of patients rather than on the fee for the service model.

#### **(d) Improved fraud detection and mitigation through payment integrity**

Healthcare fraud is a moral hazard contributed by the users, patients, providers, and all those who are associated with the health care ecosystem. This prevalent menace is a threat contributing to huge financial losses to every stakeholder, and more importantly, it affects the trust built over the years between the entities and also the client-patient morale. The total loss contributed, by the fraudulent transactions, to the health care industry in the US has been estimated to be around \$68 billion to \$260 billion annually which accounts for 3 to 10% of all healthcare spending. Collectively, fraud, waste, and abuse (FWA) account for about 25% (\$900B in 2018) of the total cost of health care in the US. The US has put in place strong regulations, standards, and technology, yet the fraud percentage is somewhere between 3 to 10%.

The Indian Penal Code does not as yet have an effective insurance fraud law/regulation even though frauds had contributed a leakage of Rs 45,000-crore to the insurance industry in 2019. In percentage terms, it had impacted most insurers in the range of 10%-15% across all lines of their business, while health insurance fraudulent claims could even touch 35% due to its complexities.<sup>2</sup> Being on the cautious side, the insurance sector at present does not have a standardized and qualified data collection methodology to quantify this assumption accurately.

Payment integrity is a specialized function that focuses on over/fraudulent payments and FWA. Payers have to reduce their risk from FWA, hence each payer (Private, PSU, Government-funded) should have payment integrity programs/initiatives internally not only to detect but also to prevent such payments even before they are disbursed. Adopting the standardization and leveraging payment integrity technologies by the insurers/payers can bring the fraud percentage down to between 3 and 10.<sup>3</sup>

Fraud detection is most effective with standardized (Medical coding) data that is scientifically structured and comprehensive, which enables FWA prevention and detection possible. Some of the most prevalent approaches are rules-driven (Clinical, Policy, etc.) and with labeled data advanced micro-level analytics can be performed using statistical algorithms and AI/ML.

#### **Improved wellness and personalized healthcare in the next 10-20 years**

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<sup>2</sup> <https://www.businesstoday.in/opinion/columns/story/insurance-frauds-control-act-an-urgent-need-in-india-fraudulent-claims-indian-penal-code-253947-2020-04-05>

<sup>3</sup> <https://www.acfe.com/article.aspx?id=4294974475>

With rapid advancements in technology, like IoT, Sensors, AR/VR, computer vision, and availability of the better quality of data, doctors will have access to holistic and real-time data of the patient (past and present family history) including an integrated P Health Record (PHR) culled from different sources. This would enable the healthcare industry to move towards quality healthcare with the following improvements:

- (a) Wellness and preventive care
- (b) Early detection of diseases
- (c) Disease management
- (d) Medication adherence
- (e) Precision medicine

Further, this would definitely improve the quality of life as well as the life expectancy of the people in the near future.

### **Regulatory and legal changes to improve healthcare in the Indian market**

Strong regulations/laws are needed for interoperability, complete electronic transactions, administrative simplification, standardization and digitization, data privacy, and data security, Monitoring and enforcing compliance to the rules will help encourage the healthcare industry to simplify administration and reduce risk and at the same time lead to innovate, and create many new verticals within the healthcare ecosystem and generate a variety of job opportunities, and businesses, thus add value to society and most importantly the patient's holistic wellbeing.

There have been several initiatives by the Government. of India like National Health Stack (NHS), National Digital Health Blueprint (NDHB), NDHM, etc. However, well-regulated monitoring by the policyholders would help the healthcare industry to ensure standardized quality care for all the stakeholders.

*Given below are the details of HIPAA, which is implemented in the US healthcare industry, and it is absolutely mandatory.*

### **The US – HIPAA: Health Insurance Portability and Accountability Act**

The HIPAA law is enacted to ensure that healthcare entities protect sensitive patient health information (PHI) and patient privacy. Since its enactment by the US Congress in 1996, new rules have been added to the HIPAA in order to enhance the current levels of protection. It is vitally important for organizations to keep themselves up to date with these changes and understand what HIPAA means in order to keep abreast of one's business domain and practices.

## The Salient features of HIPAA Rules

The HIPAA regulation consists of several rules and guidelines covering the privacy of individual health information, security, and protection of electronic data, administrative simplifications and enforcement, etc. Some of the important features of these rules are summarized below for a better understanding of HIPAA regulation.

1. **HIPAA Privacy Rule** protects the Personal Health Information (PHI) and the medical records of the individuals. It places limits and conditions on the various uses and disclosures that can and cannot be made without patient authorization. This rule also gives every patient the right to inspect and obtain a copy of their records and request corrections/update to their file.
2. **HIPAA Security Rule** defines and regulates the standards, methods, and procedures related to the protection of electronic PHI on storage, accessibility, and transmission.
3. **Administrative Simplification:** To reduce paperwork and streamline business processes across the healthcare system, the Health Insurance Portability and Accountability Act (HIPAA) of 1996 and subsequent legislation has set national standards for electronic transactions and uniform data coding.
  - A. **Electronic transactions:** Under the HIPAA, certain standard transactions for the electronic exchange of healthcare data include:(a) Payment and remittance advice, (b) Claims status, (c) Eligibility, (d) Coordination of benefits, (e) Claims and encounter information, (f) Enrollment and de-enrollment, (g) Referrals and authorizations and (h) Premium payment.
  - B. **There is certain uniform codes used in the HIPAA transactions:** The following code sets of healthcare are to be submitted electronically while processing the claims. (a) International Classification of Diseases (ICD), (b) Current Procedural Terminology (CPT), (c) HCFA Common Procedure Coding System (HCPCS), (d) Code on Dental Procedures and Nomenclature (CDT) and (e) National Drug Codes (NDC).

Adopting a uniform set of medical codes is intended to simplify the process of submitting claims electronically and reduce administrative burdens on healthcare providers and insurers. The correct use of these codes ensures the safety, accuracy, security of medical records and the PHI.

4. **Enforcement Rule** governs mainly data privacy and security. Any violations of data privacy and security penalize the persons who are associated with it. The enforcement rule addresses five main areas in regard to covered entities (hospital, Insurance, clearinghouse) and business associates (Any vendor who supports the covered entities in certain functions), in respect of data security and privacy, breach reporting, accounting disclosure requirements, the establishment of new criminal and civil penalties and enforcement methods for HIPAA non-compliance.

**The introduction of Regulations like HIPAA in India** would help achieve Standardization, Privacy, and Security as the policymakers are giving priority to data privacy, security, and consumer experience. A formalized regulatory push from the Government of India could expand the ecosystem, open new verticals and create jobs while addressing standardization, privacy, and security compliance. No doubt, technology will play a vital role in enabling this. Hence, InsurTech space in India will get a lot of traction for startups and investors, which in turn would allow innovations in this space. In a similar line, India has already set up National Health Authority (NHA) which is currently administering the national health insurance scheme PMJAY – Ayushman Bharat, providing health protection to nearly 50 crore individuals, especially, the economically weaker section of the population. NHA has also created an Electronic Health Data Repository under the National Digital Health Mission, which is an aggregate data portal where electronic health data records of the individuals shall be maintained. Such a data repository platform would certainly enable insurers and health service providers to analyze the mortality and morbidity trends at a micro level, which would help in designing customized coverages based on the risk profiles of the individuals. Further, NHA has also developed Health data standards covering health record IT standards, ISO Health Informatics, standard definitions of Medical Terminology, and coding standards for a better understanding of the medical terminologies. Such standardization of medical and procedural coding, would improve the quality of health care services and also ensure better data privacy and security.

## **CONCLUSION:**

Automation has already been initiated in every vertical and its sub-processes within the healthcare industry. But with the acceleration of the new age technologies like AI & ML, Blockchain, RPA, etc., the entire process of healthcare delivery, third-party services, insurance services, pharmaceutical, and healthcare ancillary services would get integrated into one automated system which uses the data from multiple sources, verifies and authenticates the sources, does deep drive analysis and provides a more accurate intelligent service to every entity in the health care ecosystem. This would also enable Computer-Assisted Coding wherein the medical coding is also automated to some extent with help of Electronic Health Records, Optical Character Recognition, Natural Language Processing (NLP), AI/ML. This would also enable automated risk-based underwriting, policy issues, automated-claims adjudication, and payment integrity – Auto verification, prevention and detection of frauds, etc. Further automation with AI would accelerate robotic surgery in every branch of health science with IoT or smart sensors or devices integrated with PHR for real-time monitoring, risk classification, and early detection of diseases. More importantly, it would enable the policymakers in streamlining the existing health care policies, support evidence-based research, better disease control & cost management, and develop sustainable health care programs ensuring quality health care for everyone.

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# **The Future of Mental Health in India: Challenges and Opportunities**

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### **Figure 1**

The Ripple Effect © Tatsam Wellness 2021 artist: Divya Tak from *The Future of Mental Health in India – Challenges and Opportunities* by Dey. A.; Das. S., Sharma. I

### **Figure 2**

The Impact of COVID-19: Direct and Indirect Effects © Tatsam Wellness 2021 from *The Future of Mental Health in India – Challenges and Opportunities* by Dey. A.; Das. S., Sharma. I

### **Figure 3**

The Direct Costs of Mental Health Issues in India © Tatsam Wellness 2021 from *The Future of Mental Health in India – Challenges and Opportunities* by Dey. A.; Das. S., Sharma. I

### **Figure 4**

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## **Figure 6**

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## **Figure 7**

Transforming Mental Health: Recommendations © Tatsam Wellness 2021 from *The Future of Mental Health in India – Challenges and Opportunities* by Dey. A.; Das. S., Sharma. I

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### **Note on Terminology**

- *The terms ‘mental health conditions’, and ‘mental health issues’ are used in this brief, while the terms ‘mental illness’ and ‘mental disorder’ are largely avoided. This is to align language with ongoing shifts that go hand in hand with efforts to raise awareness and address stigma, and to ensure, where possible, language is person-centred, strengths-based, recovery-focused, and reflective of the differing experiences of mental health issues from individual to individual.*
- *The words ‘disease burden’ and ‘epidemic’ are used within this report to describe the gap between the current health status and an ideal situation in which everyone lives free of disease and disability. Causes of this gap are typically premature mortality, disability, and exposure to certain risk factors that contribute to illness. This description aligns with the technical language of the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) and is not intended to imply negative judgment of individuals who experience mental health problems.*

## INTRODUCTION

***“We must heed and act on this wake-up call and dramatically accelerate the scale-up of investment in mental health, because there is no health without mental health.”***

*- Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organisation.*

The 2014 mandate<sup>1</sup> defined by the Government of India’s Ministry of Health and Family Affairs promised a holistic, integrated and evidence-based approach to mental health care. However, 5 years from the implementation of The Mental HealthCare Act 2017 (MHCA, 2017)<sup>2</sup> and 8 years from the National Mental Health Policy (NMH Policy), in 2014, an estimated 200 million adults in India suffer from mental health issues with limited access to treatment. In India, one person dies every 40 seconds due to suicide; and human rights violations against people with mental health conditions are numerous, widespread, and increasing (Sagar et al., 2020).<sup>3</sup> Indian children and the youth are disproportionately impacted by India’s mental health epidemic with UNICEF’s *The State of the World’s Children: On my Mind* findings stating 1 in 7 Indian children aged 10–19 are estimated to live with a diagnosed mental disorder (2021).<sup>4</sup> The undiagnosed scope of the issue for individuals across the lifespan is much higher — of the 50 million children and 200 million adults in India affected by mental health issues, 80 – 90% have no access to care or do not seek support due to social discrimination, lack of knowledge and stigma.

Mental health conditions reduce quality of life, as well as total lifespan of affected individuals (Viron & Stern, 2010).<sup>5</sup> However the cost of mental health is not isolated to the affected individual, mental health issues impact all family members; causing burden, financial strain, emotional turmoil and distress (Goldman, 1982; Noh & Turner, 1987; Sahithya, & Reddy, 2018).<sup>6,7,8</sup>

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<sup>1</sup> National Mental Health Policy of India, October 2014.

<https://www.nhp.gov.in/sites/default/files/pdf/national%20mental%20health%20policy%20of%20india%202014.pdf> (accessed November 26, 2021)

<sup>2</sup> Ministry of Law & Justice. The Mental Health Care Act, 2017.

<https://egazette.nic.in/WriteReadData/2017/175248.pdf> (accessed November 26, 2021).

<sup>3</sup> Sagar, R., Dandona, R., Gururaj, G., Dhaliwal, R. S., Singh, A., Ferrari, A., Dua, T., Ganguli, A., Varghese, M., Chakma, J. K., Kumar, G. A., Shaji, K. S., Ambekar, A., Rangaswamy, T., Vijayakumar, L., Agarwal, V., Krishnankutty, R. P., Bhatia, R., Charlson, F., ... Dandona, L. (2020). The burden of mental disorders across the states of India: The Global Burden of Disease Study 1990–2017. *The Lancet Psychiatry*, 7(2), 148–161. [https://doi.org/10.1016/S2215-0366\(19\)30475-4](https://doi.org/10.1016/S2215-0366(19)30475-4)

<sup>4</sup> United Nations Children’s Fund. (2021). *The State of the World’s Children 2021: On my Mind*. UNICEF Office of Global Insight & Policy. Available at: <https://www.unicef.org/media/108036/file/SOWC-2021-executive-summary.pdf> (accessed December, 2021)

<sup>5</sup> Viron, M. J., & Stern, T. A. (2010). The Impact of Serious Mental Illness on Health and Healthcare. *Psychosomatics*, 51(6), 458–465. [https://doi.org/10.1016/s0033-3182\(10\)70737-4](https://doi.org/10.1016/s0033-3182(10)70737-4)

<sup>6</sup> Goldman, H. H. (1982). Mental Illness and Family Burden: A Public Health Perspective. *Psychiatric Services*, 33(7), 557–560. <https://doi.org/10.1176/ps.33.7.55>

<sup>7</sup> Noh, S., & Turner, R. J. (1987). Living with psychiatric patients: Implications for the mental health of family members. *Social Science & Medicine*, 25(3), 263–272. [https://doi.org/10.1016/0277-9536\(87\)90229-2](https://doi.org/10.1016/0277-9536(87)90229-2)

<sup>8</sup> Sahithya, B. R., & Reddy, R. P. (2018). Burden of mental illness: a review in an Indian context. *International Journal of Culture and Mental Health*, 11(4), 553–563. <https://doi.org/10.1080/17542863.2018.1442869>

Children who grow up with a parent experiencing mental health issues also require additional support to build resilience (Foster et al., 2011; Tabak et al., 2016).<sup>9,10</sup> This is especially true given the heritability of mental illness and the interaction between gene and environmental factors in mental health (Uher, 2014).<sup>11</sup> In India, the Global Burden of Disease Study found that the contribution of mental disorders to the total disease burden in India in 2017 was almost double of what it was in 1990 (Sagar et al., 2020).<sup>3</sup> This also translates to a huge economic burden to the country, aside from debilitating disorders, mental health issues cause absenteeism, lowered productivity and increased organisational cost (Shankardass, 2018).<sup>12</sup>

In the next 20 years, an ambitious and transformational health programme that integrates mental and physical health is needed to avoid significant economic implications, loss of human capital, and the social burden of worsening mental health. Health insurance will play a critical role in this transformation.

## OBJECTIVES

This paper defines the scope and scale of the current mental health epidemic following COVID-19. It will consider the future 20-year implications of the current treatment gap, lack of healthcare infrastructure, and the deteriorating condition of mental and physical public health. We also define a multisectoral approach that coordinates services from the government, health, social and private sectors, with an emphasis on:

1. Public mental health promotion, knowledge and awareness
2. Prioritising primary prevention programmes (early detection and intervention), alongside evidence-based treatments
3. Addressing the current mental health treatment gap
4. Rehabilitation, care and recovery

For Insurers, healthcare providers, policymakers, and relevant stakeholders, we propose substantial reform recommendations to the current Mental Health Care Act 2017 with specific reference to Section 21 (4) of the Act, which states “*every insurer shall make provision for medical insurance for treatment of mental illness on the same basis as is available for the treatment of physical illness*” (MHCA, 2017).<sup>2</sup>

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<sup>9</sup> Foster, K., O'Brien, L., & Korhonen, T. (2011). Developing resilient children and families when parents have mental illness: A family-focused approach. *International Journal of Mental Health Nursing*, 21(1), 3–11. <https://doi.org/10.1111/j.1447-0349.2011.00754.x>

<sup>10</sup> Tabak, I., Zabłocka-Żytka, L., Ryan, P., Poma, S. Z., Joronen, K., Viganò, G., Simpson, W., Paavilainen, E., Scherbaum, N., Smith, M., & Dawson, I. (2016). Needs, expectations and consequences for children growing up in a family where the parent has a mental illness. *International Journal of Mental Health Nursing*, 25(4), 319–329. <https://doi.org/10.1111/inm.12194>

<sup>11</sup> Uher, R. (2014). Gene-Environment Interactions in Severe Mental Illness. *Frontiers in Psychiatry*, 5, 48. <https://doi.org/10.3389/fpsy.2014.00048>

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Recommendations will take into account equity, the feasibility of implementation, acceptability to stakeholders and strength of evidence. They focus on the following six core principles:

- Parity between physical and mental health
- Choice and autonomy – ensuring health service users’ views and choices are respected
- empowering stakeholders to abide by their legal obligations to ensure that every individual has access to affordable mental healthcare without discrimination.
- Least restriction – ensuring the Act’s powers are used in the least restrictive way
- Therapeutic benefit – ensuring patients are supported throughout the life course
- The person as an individual – ensuring patients are viewed and treated as individuals

Many national healthcare guidelines and policy recommendations address the need for parity between physical and mental health, but their implementation to date has been poor (Ghosh, 2021).<sup>13</sup> Stakeholders from the government, healthcare, policy, the private and public sector should be aware that inequalities in care are adversely influencing mental health outcomes, (Shidhaye & Kermode, 2013).<sup>14</sup> Managers, healthcare organisations and politicians need to provide resources and education to address this gap.

This briefing will also address and outline the challenges and best practices for the core challenges below:

- The right to care for every individual
- Stigma and discrimination
- Lack of Healthcare infrastructure and Human resource shortages in this sector
- Fragmented service delivery models and lack of health infrastructure
- The severe lack of research capacity for policy change and implementation.
- Income disparity, treatment gaps, and the lack of access to quality mental health care services

## **BACKGROUND**

### **➤ Understanding Mental Health**

#### **Mental health versus mental illness: The Need for an Accurate Definition**

The terms are used interchangeably but ‘mental health’ and ‘mental illness’ are not the same. Mental health is often defined as the absence of mental illnesses or a disorder.

The present discussion defines mental health as more than just the absence of mental illness because the absence of a diagnosed mental health problem is a minimal outcome from a psychological perspective on lifespan development, quality of life, or an individual’s DALY — Disability-adjusted

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<sup>13</sup> Ghosh, M. (2021). Mental health insurance in India: Lack of parity. *The Lancet Psychiatry*, 8(10), 860. [https://doi.org/10.1016/s2215-0366\(21\)00287-x](https://doi.org/10.1016/s2215-0366(21)00287-x)

<sup>14</sup> Shidhaye, R., & Kermode, M. (2013). Stigma and discrimination as a barrier to mental health service utilization in India. *International Health*, 5(1), 6–8. <https://doi.org/10.1093/inthealth/ihs011>

life years (Murray, 1994).<sup>15</sup> DALYs are a particularly relevant indicator in this context and consider the sum of potential years of life lost due to premature mortality, plus the years of productive life lost due to disability (The Lancet Infectious Diseases, 2020).<sup>16</sup>

This definition adopts the dual continuum model of mental health and illness to provide a contemporary view of mental wellbeing which shows that “mental health and mental illness are separate and distinct concepts” (Keyes, 2002),<sup>17</sup> occurring on two separate but linked spectrums. This model is important in conveying the importance of early detection, preventive healthcare programmes and a comprehensive understanding of issues from depression to epilepsy to alcohol abuse, which are grouped and defined as ‘Mental Health, Neurological and Substance Use’ (MNS).

MNS disorders may be caused by genetic, biological, psychological, and social factors; however, many health systems and policies provide care for these disorders through separate channels, with an emphasis on specialist services in hospitals. MNS issues are grouped together because they often co-occur in the same individual and are often linked to other physical health conditions (Patel et al., 2016).<sup>18</sup> Understanding their connections can help guide policy makers, (particularly in low-resource settings), where prioritising essential health care packages and delivery platforms is crucial.

To date, the absence of standardised terminology across public mental health policy has negatively impacted the establishment of common policies and public health understanding. This leads to fragmented approaches, amplifies stigma and discrimination and also contributes to low help-seeking behaviours.

### ➤ **Mental, neurological, and substance use disorders**

There are several dimensions of mental illness and people rarely fall into one category of mental health condition, in addition, frequently adopted terms about mental health are derived from earlier understandings of the mind and brain. Research now demonstrates that mental health is also determined by biological (including genetic), psychological, and social factors (World Health Organization, 2018).<sup>19</sup>

MNS disorders share several important characteristics, notably:

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<sup>15</sup> Murray, C. J. (1994). Quantifying the burden of disease: the technical basis for disability-adjusted life years. *Bulletin of the World Health Organization*, 72(3), 429. <https://pubmed.ncbi.nlm.nih.gov/8062401/>

<sup>16</sup> The Lancet Infectious Diseases. (2020). The intersection of COVID-19 and mental health. *The Lancet. Infectious Diseases*, 20(11), 1217. [https://doi.org/10.1016/S1473-3099\(20\)30797-0](https://doi.org/10.1016/S1473-3099(20)30797-0)

<sup>17</sup> Keyes, C. L. M. (2002). The Mental Health Continuum: From Languishing to Flourishing in Life. *Journal of Health and Social Behavior*, 43(2), 207. <https://doi.org/10.2307/3090197>

<sup>18</sup> Patel, V., Chisholm, D., Parikh, R., Charlson, F. J., Degenhardt, L., Dua, T., Ferrari, A. J., Hyman, S., Laxminarayan, R., Levin, C., Lund, C., Medina Mora, M. E., Petersen, I., Scott, J., Shidhaye, R., Vijayakumar, L., Thornicroft, G., & Whiteford, H. (2016). Addressing the burden of mental, neurological, and substance use disorders: key messages from Disease Control Priorities, 3rd edition. *The Lancet*, 4(10028), 1672–1685. [https://doi.org/10.1016/s0140-6736\(15\)00390-6](https://doi.org/10.1016/s0140-6736(15)00390-6)

<sup>19</sup> World Health Organization. (2018). *Mental Health: Strengthening Our Response*. <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>

- They all owe their symptoms and impairments to some degree of brain dysfunction.
- Social determinants play an important role in expression of symptoms.
- The disorders frequently co-occur in the same individual.
- Their impact on families and society is profound.
- They are strongly associated with stigma and discrimination.
- They often observe a chronic or relapsing course.
- They all share inadequate treatment responses from health care systems globally.
- MNS disorders have increased exponentially worldwide and have become widespread post the COVID-19 pandemic (The Lancet Infectious Diseases, 2020).<sup>16</sup>
- They show the most positive treatment outcomes through early detection, preventative healthcare programmes and a comprehensive understanding of comorbid issues.
- May occur throughout the life course and along a continuum from mild, time-limited distress to severely debilitating conditions with associated psychosocial disabilities. Their duration can vary considerably, from a single episode occurring over a few weeks or months, to a lifelong condition.
- Include more common conditions such as anxiety and depressive disorders, less common problems (which can be more severe), like schizophrenia, attention deficit hyperactivity disorder (ADHD), and bipolar affective disorder, and conditions that are not typically identified with mental health in India, such as alcohol abuse (World Health Organization, 2018).<sup>19</sup>

### **Definitions: Mental health**

Mental health is conceptualised as positive feelings and positive functioning. High mental health can be thought of as ‘flourishing’ or a state of *psychological well-being* that can be cultivated and developed. Mental health includes aspects of physical health, emotional health, psychological well-being, social wellbeing, social, personal and cultural acceptance (Keyes, 2002).<sup>17</sup>

It is important to study developmental outcomes in mental health beyond pathological and negative outcomes by including the study of optimal mental health when creating policy and public awareness and support programmes.

### **➤ Mental Health in India: An increasingly significant concern**

***Mental health in India is determined by a range of socioeconomic, biological and environmental factors and is more than the absence of mental disorders.***

Mental health in India is one of the most neglected areas of health. Positive initiatives such as the United Nations’ Sustainable Development Goals (SDGs) agenda by 2030 (United Nations, 2015),<sup>20</sup>

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<sup>20</sup> United Nations. (2015). *Resolution adopted by the General Assembly on 25 September 2015- Transforming our world: the 2030 Agenda for Sustainable Development*. Seventieth Session. A/RES/70/1. Available at [https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E) (accessed December 2021).

and Universal Healthcare Coverage (WHO, 2019)<sup>21</sup> has led to considerable changes such as the National Mental Health Policy (introduced in 2014) and a rights-based Mental Healthcare Act in 2017, however, the complex and wide-ranging impact of the COVID-19 pandemic has doubled the rates of most frequent sources of mental distress.

➤ **Key Challenges in India:**

***The absolute number of individuals living with mental health problems is enormous:***

- As per the *National Mental Health Survey of India*, Mental health morbidity in India exceeds global norms at 10.6%, with 10% accounted for by Common Mental Disorders (CMDs); including depression, anxiety, and substance abuse (Gururaj et al., 2016).<sup>22</sup>
- The World Health Organisation (WHO) estimates that the burden of mental health problems in India is 2443 disability-adjusted life years (DALYs) per 10,000 population with the age-adjusted suicide rate per 100,000 population at 21.1, compared to a global average of 11.6 per 100,000. (World Health Organization, 2019).<sup>23</sup>
- WHO estimates the economic loss due to mental health conditions, between 2012-2030, as USD 1.03 trillion. (World Health Organization, 2019).<sup>22</sup>
- Mental health has a far greater illness burden with higher mortality rates, however, with much lower treatment uptake than physical disorders- only 10% of people with mental disorders receive evidence-based interventions.
- At present, the attention and resources devoted to major physical disorders far exceed the resources for mental health, despite the fact that mental health makes up 11.8% of India's disease burden.
- In India, **patients with mental illness still receive inferior medical, rehabilitation support and preventive care.**
- Violence and abuse increase the risk of mental health problems and childhood adversity accounts for 30% of all mental disorders. (Malhotra & Shah, 2015; Gururaj et al., 2016).<sup>21, 24</sup>
- National Mental Health Survey (NMHS) estimated the treatment gap in mental health in India is 83%. (Gururaj et al., 2016).<sup>21</sup>

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<sup>21</sup> World Health Organization. (2019, July 16). *Universal Health Coverage*. [https://www.who.int/health-topics/universal-health-coverage#tab=tab\\_1](https://www.who.int/health-topics/universal-health-coverage#tab=tab_1) (accessed December 2021)

<sup>22</sup> Gururaj, G., Varghese, M., Benegal, V., ... Misra, R. (2016). *National Mental Health Survey of India, 2015-16: Prevalence, pattern and outcomes*. NIMHANS Publication. <http://www.indianmhs.nimhans.ac.in/Docs/Summary.pdf> (accessed December, 2021)

<sup>23</sup> World Health Organization (2019). *Mental Health* Retrieved May 2019, from <https://www.who.int/india/health-topics/mental-health>.

<sup>24</sup> Malhotra, S., & Shah, R. (2015). Women and mental health in India: An overview. *Indian journal of psychiatry*, 57(Suppl 2), S205–S211. <https://doi.org/10.4103/0019-5545.161479>

India needs to achieve the objectives of promotive, preventive, curative, rehabilitative and holistic health services across the population within the next 20 years to avoid significant repercussions from mental ill-health.

## HOW DOES POOR MENTAL HEALTH IMPACT A POPULATION?

Mental health cannot be tackled in isolation because it is not just a health sector issue. The World Bank (2021)<sup>25</sup> highlights in their 2021 report “*Mental health: Lessons learned in 2020 for 2021 and forward, 2021*” that the impact of poor mental health percolates through every sector of a country’s economy and positive outcomes are crucial for the country’s public health, human capital, social security and quality of life in the population. These cumulative, rippling effects have a burgeoning, magnified impact on the whole national healthcare system.



Figure 1: The Ripple Effect

The deteriorating condition of public health in India is, therefore, a grave and increasingly pertinent concern for policymakers. Addressing mental health holistically and sustainably must include broader approaches inspired by public-health, health infrastructure and social inclusion considerations. It also requires moving beyond treatment-oriented programmes in health-care settings.

### ➤ The scope of the issue: Mental Health in India before COVID-19

Prior to the COVID-19 pandemic, mental disorders were the **second leading cause of disease burden** in terms of years lived with disability (YLDs) and the sixth leading cause of DALYs worldwide.<sup>3</sup> The comprehensive assessment of mental disorders which evaluated every state of India

<sup>25</sup> World Bank. (2021, February 11). *Mental health: Lessons learned in 2020 for 2021 and forward*. worldbank.org. Retrieved November 26, 2021, from <https://blogs.worldbank.org/health/mental-health-lessons-learned-20>

from 1990 to 2017 highlighted the crucial and urgent need to put in place systems that can facilitate better diagnosis and management of mental disorders across the country and underlined the concept of parity of esteem. (Mitchell et al., 2017).<sup>26</sup>

## THE REPERCUSSIONS OF THE COVID-19 PANDEMIC

The COVID-19 crisis caused widespread unprecedented challenges and has heightened the risk factors generally associated with poor mental health. These included increased financial insecurity, unemployment and fear and a dramatic reduction of protective factors such as social connection, employment and educational engagement, access to physical exercise and access to health services. Beyond these factors, the COVID-19 virus has been directly linked to neurological symptoms with early research linking the illness to altered mental states and psychosis, and long-term impacts yet to be determined (Marshall, 2020).<sup>27</sup>

The unprecedented levels of mental health support required are still largely unaddressed or inaccessible due to the treatment disparities within states and insufficient healthcare infrastructure. Recent figures suggest that the final impact from the pandemic across demographics demonstrated a varying yet considerable increase in mental health issues in the general population. The full consequences of pandemic-related psychological distress will not be observed now and, although the potential impact of COVID-19 is speculative from a social, economic, individual and public mental health perspective, exposure to these adversities may have caused ‘ sleeper effects ’ in children and the Indian youth. (Magson et al., 2020).<sup>28</sup> Researchers expect and have advised that policymakers and stakeholders prepare for a mental health epidemic curve, describing a high probability of an increase in the burden of mental health issues in the post-pandemic era. (Inchausti et al., 2020; Vadivel et al., 2021).<sup>29,30</sup>

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<sup>26</sup> Mitchell, A. J., Hardy, S., & Shiers, D. (2017). Parity of esteem: Addressing the inequalities between mental and physical healthcare. *BJPsych Advances*, 23(3), 196–205. <https://doi.org/10.1192/apt.bp.114.014266>

<sup>27</sup> Marshall, M. (2020). How COVID-19 can damage the brain. *Nature*, 585(7825), 342–343. <https://doi.org/10.1038/d41586-020-02599-5>

<sup>28</sup> Magson, N. R., Freeman, J. Y. A., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2020). Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. *Journal of Youth and Adolescence*, 50(1), 44–57. <https://doi.org/10.1007/s10964-020-01332-9>

<sup>29</sup> Inchausti, F., MacBeth, A., Hasson-Ohayon, I., & Dimaggio, G. (2020). Psychological intervention and COVID-19: What we know so far and what we can do. *Journal of Contemporary Psychotherapy*, 50(4), 243–250. <https://doi.org/10.1007/s10879-020-09460-w>

<sup>30</sup> Vadivel, R., Shoib, S., Halabi, S., el Hayek, S., Essam, L., Gashi Bytyçi, D., Karaliuniene, R., Schuh Teixeira, A. L., Nagendrappa, S., Ramalho, R., Ransing, R., Pereira-Sanchez, V., Jatchavala, C., Adiukwu, F. N., & Kudva Kundadak, G. (2021). Mental health in the post-COVID-19 era: challenges and the way forward. *General Psychiatry*, 34(1), e100424. <https://doi.org/10.1136/gpsych-2020-100424>



Figure 2: The Impact of COVID-19

## DEVELOPING MENTAL HEALTH PUBLIC POLICY

### ➤ The importance of awareness and definitions

Public mental health is difficult to define because there are contested boundaries and terminology. A formal definition of mental health problems and mental health remains essential for health insurance providers, healthcare professionals and policymakers for reasons including but not limited to, the following:

- There are contested boundaries within mental health and the widespread use by researchers and policymakers of an array of unvalidated proxy mental wellbeing measures of varying lengths and sophistication. (Daves & Mehta, 2015).<sup>31</sup>
- The psychometric relationships between “positive” and “negative” mental health and their variations are not yet sufficiently understood.
- There is an inconsistent blurring of the boundaries between approaches to promote positive mental health and wellbeing, alongside prevention of mental illness, and treatment and rehabilitation, with little or no thought about the interrelated concepts in question.

<sup>31</sup> Davies, S. C., & Mehta, N. (2015). Public mental health: evidence to policy. *World psychiatry: official journal of the World Psychiatric Association (WPA)*, 14(1), 44–45. <https://doi.org/10.1002/wps.20188>

- Clear definitions and boundaries allow for a more comprehensive understanding and provide indicators and guidance to further public mental health monitoring, research diagnosis and preventive care.
- For healthcare professionals and health insurance providers, and other stakeholders, a comprehensive definition of mental “wellbeing”, “mental health issues”, “mental health” and “mental health disabilities” are crucial:
  1. To understand which diagnosis should or not be included in the classifications; for the purpose of public health knowledge and to streamline initiatives from all sectors.
  2. To separate areas of responsibility of the medical system from other societal systems and ensure appropriate distinctions are made between those with diagnosed mental health problems and those suffering from mental health symptoms, so that appropriate primary preventions of mental health problems can be integrated into policies and guidelines
  3. To avoid dangerous medicalisation of social problems and to ensure that symptoms, disability and rehabilitation from mental health problems are addressed holistically
  4. To identify the conditions that are related to or co-morbid with physical health ailments which, as a result of their negative consequences, implicitly have a call to action to psychiatrists, psychologists and other mental healthcare professionals.
- **The connections between Mental Health and Physical Health**

Mental health is fundamentally linked to physical health, social functioning and overall health outcomes. MNS disorders directly impact physical functioning by compromising the immune system and altering appetite, sleep cycles and/ or hormonal balance.<sup>32</sup> Indirectly, they reduce motivation to exercise or socialise and may cause multiple side effects due to psychiatric medication and/or treatments (Dickerson et al., 2001; Firth et al., 2016; Balon, 2019).<sup>33,34,35</sup> People living with serious mental health problems are at higher risk of experiencing a wide range of chronic physical conditions. For instance, research shows that depression increases the risk of cardiometabolic diseases, whilst people with chronic pain conditions or mobility issues are twice as susceptible to depression and anxiety.<sup>36</sup>

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<sup>32</sup> Institute of Medicine (US) Forum on Neuroscience and Nervous System Disorders; Uganda National Academy of Sciences Forum on Health and Nutrition. *Mental, Neurological, and Substance Use Disorders in Sub-Saharan Africa: Reducing the Treatment Gap, Improving Quality of Care: Workshop Summary*. Washington (DC): National Academies Press (US); 2010. <https://www.ncbi.nlm.nih.gov/books/NBK53441/>

<sup>33</sup> Dickerson, F. B., Somerville, J., Origoni, A. E., Ringel, N. B., & Parente, F. (2001). Outpatients with schizophrenia and bipolar I disorder: Do they differ in their cognitive and social functioning? *Psychiatry Research*, 102(1), 21–27. [https://doi.org/10.1016/s0165-1781\(01\)00247-5](https://doi.org/10.1016/s0165-1781(01)00247-5)

<sup>34</sup> Firth, J., Rosenbaum, S., Stubbs, B., Gorczynski, P., Yung, A. R., & Vancampfort, D. (2016). Motivating factors and barriers towards exercise in severe mental illness: A systematic review and meta-analysis. *Psychological Medicine*, 46(14), 2869–2881. <https://doi.org/10.1017/s0033291716001732>

<sup>35</sup> Balon, R. (2019). Managing the side effects of psychotropic medications, Second edition. *Journal of Psychiatric Practice*, 25(5), 411–413. <https://doi.org/10.1097/prs.0000000000000406>

<sup>36</sup> World Health Organization. (2020, October). *The impact of COVID-19 on mental, neurological and substance use services* (No. 978-92-4-001245-5). <https://www.who.int/publications/i/item/978924012455>

Understanding the pathways between mental and physical health, and other antecedent (and consequent) indirect effects of mental ill-health such as social functioning and disability, present important implications for the design of health policies.

## **CURRENT CHALLENGES**

### **➤ The Current Mental Health Treatment Gap**

There is an overwhelming global shortage of human resources for mental health and India faces one of the largest (83%) mental health treatment gaps (Singh, 2018)<sup>37</sup>. The World Health Organization's *Mental Health Atlas* (World Health Organization, 2018)<sup>38</sup> reveals that for every million people in India, there are just three psychiatrists and even fewer psychologists, 18 times less than the commonwealth norm of 5.6 psychiatrists per 100,000 people.

The India National Mental Health Survey 2015-2016 found a huge treatment gap for common mental disorders, the highest being 86.3% for alcohol use disorders, 85.2% for major depression and 83.2% for neurotic disorders. One of the biggest factors impacting the treatment gap is the affordability of mental health care services: currently a staggering 95% (National Mental Health Survey, 2016).<sup>21</sup>

Rural areas contend with the least developed mental health infrastructure and also tend to be economically less advantaged than urban counterparts. Issues, such as financial insecurity and poverty, create environmental conditions that are highly detrimental to individuals', families' and communities' mental health. Other risk factors in rural communities compound and further treatment disparities as well as lack of access to appropriate care (Smalley et al., 2012).<sup>39</sup>

To mitigate the huge expertise gap, recognising varied mental health care roles and understanding how social workers, community health workers, educators, counsellors, psychologists, medical doctors and psychiatrists can work in cohesion to address mental health, is key. In addition, it is urgently needed to incentivise job and skills training opportunities in this field, offering mental health first aid training to healthcare professionals and community support workers, and ensuring that medical doctors are more sensitive to mental health problems.

Positive steps such as the introduction of improved legislation and mental awareness programmes deserve recognition for their contributions, but the introduction of inclusive and comprehensive insurance plans that meet the needs of many takes India a huge step closer to affordable healthcare (Ghosh & Chatterji, 2020).<sup>40</sup>

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<sup>37</sup> Singh, O. P. (2018). Closing treatment gap of mental disorders in India: Opportunity in new competency-based Medical Council of India curriculum. *Indian Journal of Psychiatry*, 60(4), 375–376. [https://doi.org/10.4103/psychiatry.IndianJPsychiatry\\_458\\_18](https://doi.org/10.4103/psychiatry.IndianJPsychiatry_458_18)

<sup>38</sup> World Health Organization (2018) *Mental Health Atlas 2017*. Geneva: World Health Organization.

<sup>39</sup> Smalley, K. B., Warren, J. C., & Rainer, J. P. (2012). *Rural Mental Health: Issues, policies, and best practices*. Springer Pub.

<sup>40</sup> Ghosh, M., & Chatterji, B. P. (2020). Mental Health Insurance in India after COVID-19. *The Lancet Psychiatry*, 7(12), 1016–1017. [https://doi.org/10.1016/s2215-0366\(20\)30468-5](https://doi.org/10.1016/s2215-0366(20)30468-5)

Systematic reform is needed to address stigma, discrimination, shortage of resources, fragmented and inaccessible service delivery models, and the severe lack of research capacity to facilitate policy change and implementation (Wainberg, et al., 2017).<sup>41</sup>

### ➤ Stigma in the Healthcare System

Mental health stigma has inhibited a comprehensive understanding of the various issues and aetiologies associated with mental illness. This has made it difficult to develop comprehensive treatment plans and access to quality care. Many people refrain from seeking support or treatment and remain undiagnosed due to stigma, negative beliefs and discriminating attitudes. Research before the pandemic suggested that of the estimated 50 million children in India affected by mental health issues, 80 – 90% did not seek support, and 59% of the young Indian population did not believe that support related to mental health problems was helpful.<sup>4</sup>

This remains a major barrier both in helping people and in providing quality care. Evidence suggests that negative attitudes of medical professionals who are not specialists in psychiatric care considerably impairs mental healthcare delivery and contributes to the treatment gap. (Thornicroft et al., 2016)<sup>42</sup> In some areas medical doctors are sceptical and reluctant to refer patients for psychiatric treatment even when they present symptoms of mental illness. This is of particular concern since mental health problems can manifest as psychosomatic physical symptoms in an Asian context, which is likely to result in mental health patients seeking assistance from general practitioners (Patel & Oomman, 1999; Kuang-Peng et al, 2008).<sup>43, 44</sup> This clearly indicates that there is not enough knowledge, awareness and/or training on MNS conditions. This is especially evident in rural health facilities and can result in a failure to clinically manage the condition.<sup>45</sup> The penetration of stigma in the country's healthcare system underlines that systemic change needs to be taken to sensitise health professionals and clinicians to public mental health.

### ➤ Investment/ Budget Allocations

The World Bank (2021)<sup>24</sup> report on mental health after COVID-19 estimates that the return on investment (ROI) of mental health programmes is 1:4, however, India has continued with low mental health investments and budget allocations thus far (Patel et al., 2016)<sup>46</sup>. There is negligible available data for future planning, implementation, and research, even with a national programme in place, as

<sup>41</sup> Wainberg, M. L., Scorza, P., Schultz, J. M., Helpman, L., Mootz, J. J., Johnson, K. a, Neria, Y., Arbuckle, M. R., Oquendo, M. A., & Bradford, J.-M. E. (2017). Challenges and opportunities in global mental health: a research-to-practice perspective. *Current Psychiatry Reports*, 19(5), 28. <https://doi.org/10.1007/s11920-017-0780-z>

<sup>42</sup> Thornicroft, G., Deb, T., & Henderson, C. (2016). Community mental health care worldwide: current status and further developments. *World Psychiatry*, 15(3), 276–286. <https://doi.org/10.1002/wps.20349>

<sup>43</sup> Patel, V., & Oomman, N. (1999). Mental health matters too: Gynaecological symptoms and depression in South Asia. *Reproductive Health Matters*, 7(14), 30–38. [https://doi.org/10.1016/s0968-8080\(99\)90004-6](https://doi.org/10.1016/s0968-8080(99)90004-6)

<sup>44</sup> Lee, P., Zhang, M., Hong, J. P., Chua, H. C., Chen, K. P., Tang, S. W., Chan, B. T. M., Lee, M. S., Lee, B., Gallagher, G. L., & Dossenbach, M. (2008). Frequency of Painful Physical Symptoms With Major Depressive Disorder in Asia. *The Journal of Clinical Psychiatry*, 70(1), 83–91. <https://doi.org/10.4088/jcp.08m04114>

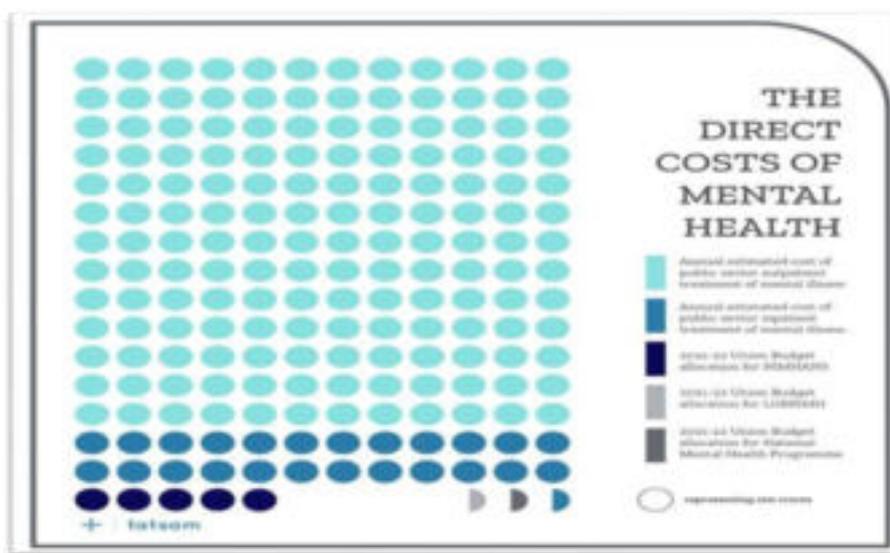
<sup>45</sup> Kumar, A. (2011). Mental health services in rural India: challenges and prospects. *Health*, 3(12), 757-761.

<sup>46</sup> Patel, V., Xiao, S., Chen, H., Hanna, F., Jotheeswaran, A. T., Luo, D., Parikh, R., Sharma, E., Usmani, S., Yu, Y., Druss, B. G., & Saxena, S. (2016). The magnitude of and health system responses to the mental health treatment gap in adults in India and China. *The Lancet*, 388(10063), 3074–3084. [https://doi.org/10.1016/s0140-6736\(16\)00160-4](https://doi.org/10.1016/s0140-6736(16)00160-4)

poor service provisions, out-of-pocket healthcare costs, and stigma prevent people from using mental health services (Maulik et al., 2016; Ahuja et al., 2018; Carbonell et al., 2020; Hans & Sharan, 2021).<sup>47,48,49,50</sup> This acts as a barrier to research that examines the prevalence and prevention of mental disorders in India.<sup>49</sup>

The current scenario demands a substantial increase in the allocation of mental health budgets and parallel investments in the research and development of robust frameworks to address the various public health challenges that result from mental health problem

➤ **Economic Disparities between needs and requirements**



**Figure 3: The Direct Costs of Mental Health Issues in India**

Extensive gaps persist between mental health needs and mental health funding. After the Mental Health Act passed, the budget estimates for the National Mental Health Program increased from Rs. 3.5 million in 2017-18 to Rs. 5 million in 2018-19; this figure was reduced to Rs. 4 million in 2019-20 and has remained the same as per 2021-22, with only a few state budgets including a separate line

<sup>47</sup> Maulik, P. K., Devarapalli, S., Kallakuri, S., Tewari, A., Chilappagari, S., Koschorke, M., & Thornicroft, G. (2016). Evaluation of an anti-stigma campaign related to common mental disorders in rural India: A mixed methods approach. *Psychological Medicine*, 47(3), 565–575. <https://doi.org/10.1017/s0033291716002804>

<sup>48</sup> Ahuja, S., Shidhaye, R., Semrau, M., Thornicroft, G., & Jordans, M. (2018). Mental Health Information Systems in resource-challenged countries: Experiences from India. *BJPsych International*, 15(2), 43–46. <https://doi.org/10.1192/bji.2017.6>

<sup>49</sup> Carbonell, Á., Navarro- Pérez, J. J., & Mestre, M. V. (2020). Challenges and barriers in mental healthcare systems and their impact on the family: A systematic integrative review. *Health & Social Care in the Community*, 28(5), 1366–1379. <https://doi.org/10.1111/hsc.12968>

<sup>50</sup> Hans, G., & Sharan, P. (2021). Community-based mental health services in India: Current status and roadmap for the future. *Consortium Psychiatricum*, 2(3), 63–71. <https://doi.org/10.17816/cp92>

item towards mental health infrastructure (Sonani, 2021).<sup>51</sup> In addition, despite this already reduced budget, as per 2020 India only actually spent Rs. 50 million on mental health (Rathore, 2020).<sup>52</sup>

## THE COST OF MENTAL HEALTH



Figure 4: The Indirect Costs of Mental Health

## SOCIO-CULTURAL AND ECONOMIC TRENDS IMPACTING MENTAL HEALTHCARE

### ➤ Mental Health in the Indian Youth & Stigma

Evidence suggests that half of all mental health conditions start at the age of 14 and a younger onset of mental illness is associated with longer-term problems throughout life (Gore et al., 2011)<sup>53</sup>. Diverse neuropsychiatric symptoms among young people have been aggravated by closing schools and universities during COVID-19. Exposure to acute and multiple co-occurring risk factors during and after the pandemic has also created an environment for an increase in mental health difficulties in the future, for children and adolescents under 18 years of age (41% of India's total population)

<sup>51</sup> Sonani, S. M. (2021, December 10). Mental health needs more candour. *BioSpectrum*. Retrieved from <https://www.biospectrumindia.com/views/21/19171/mental-health-needs-more-candour.html>

<sup>52</sup> Rathore, H. (2020, March 21). How Committed Is India to Mental Health? *The Diplomat*. <https://thediplomat.com/2020/03/how-committed-is-india-to-mental-health/>

<sup>53</sup> Gore, F. M., Bloem, P. J., Patton, G. C., Ferguson, J., Joseph, V., Coffey, C., Sawyer, S. M., & Mathers, C. D. (2011). Global burden of disease in young people aged 10–24 years: a systematic analysis. *The Lancet*, 377(9783), 2093–2102. [https://doi.org/10.1016/s0140-6736\(11\)60512-6](https://doi.org/10.1016/s0140-6736(11)60512-6)

(Panchal et al., 2021).<sup>54</sup> Family involvement, education, and support are important, as the family is much more involved in caring for its members and thus also suffers a greater illness burden within Indian family units (van der Sanden et al., 2014; Murthy, 2016).<sup>55, 56</sup>

Stigma and discrimination both within the family unit and in some sectors of the healthcare system prevent sufferers from seeking treatment (Venkatesh et al., 2015; Munimasi et al., 2020).<sup>57,58</sup> However, community-based mental health interventions such as mental health literacy, sensitisation, and education, adherence management, psychosocial rehabilitation, and disability support alongside facility-based care can significantly assist people with managing these conditions (Thara et al., 2008).<sup>59</sup> Evidence suggests stigma, discrimination and lack of education contributes to the vulnerability of people with mental and psychosocial disabilities. They often experience physical and sexual abuse, social exclusion and are less likely to receive treatment for physical illnesses. They are also and typically not included in public policy or decision-making processes (impacting civil and human rights). Abuse and discrimination stem from widely held misconceptions about mental health conditions and may occur in a range of settings, such as healthcare facilities and hospitals, community and educational environments, and within the home (Wainberg et al., 2017).<sup>60,61</sup> Collectivist orientations and attitudes are prevalent in Indian culture and act as a major contributing factor to psychological stress and anxiety disorders; they often prevent people from seeking help and treatment due to stigma, societal disapproval, and shame (Shidhaye & Kermode, 2013; Sanghvi & Mehrotra, 2021).<sup>62, 63</sup>

## ➤ Socioeconomic Status

### • Poverty

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<sup>54</sup> Panchal, U., Salazar de Pablo, G., Franco, M., Moreno, C., Parellada, M., Arango, C., & Fusar-Poli, P. (2021). The impact of COVID-19 lockdown on child and Adolescent Mental Health: Systematic Review. *European Child & Adolescent Psychiatry*. <https://doi.org/10.1007/s00787-021-01856-w>

<sup>55</sup> van der Sanden, R. L. M., Stutterheim, S. E., Pryor, J. B., Kok, G., & Bos, A. E. R. (2014). Coping with stigma by association and family burden among family members of people with mental illness. *Journal of Nervous & Mental Disease*, 202(10), 710–717. <https://doi.org/10.1097/nmd.0000000000000189>

<sup>56</sup> Murthy, R. S. (2016). Caregiving and caregivers: Challenges and opportunities in India. *Indian Journal of Social Psychiatry*, 32(1), 10. <https://doi.org/10.4103/0971-9962.176761>

<sup>57</sup> Venkatesh, B. T., Andrews, T., Mayya, S. S., Singh, M. M., & Parsekar, S. S. (2015). Perception of stigma toward mental illness in South India. *Journal of Family Medicine and Primary Care*, 4(3), 449. <https://doi.org/10.4103/2249-4863.161352>

<sup>58</sup> Munisami, T., Namasivayam, R. K., & Annamalai, A. (2020). Mental-illness-related stigma in health care in South India: Mixed-Methods Study. *Indian Journal of Psychological Medicine*, 43(1), 58–64. <https://doi.org/10.1177/0253717620932244>

<sup>59</sup> Thara, R., Padmavati, R., Aynkran, J. R., & John, S. (2008). Community mental health in India: A rethink. *International Journal of Mental Health Systems*, 2(1), 11. <https://doi.org/10.1186/1752-4458-2-11>

<sup>60</sup> Wainberg, M. L., Scorza, P., Shultz, J. M., Helpman, L., Mootz, J. J., Johnson, K. A., Neria, Y., Bradford, J.-M. E., Oquendo, M. A., & Arbuckle, M. R. (2017). Challenges and Opportunities in Global Mental Health: A Research-to-Practice Perspective. *Current Psychiatry Reports*, 19(5), 28. <https://doi.org/10.1007/s11920-017-0780-z>  
[https://www.who.int/mental\\_health/policy/mhtargeting/development\\_targeting\\_mh\\_summary.pdf](https://www.who.int/mental_health/policy/mhtargeting/development_targeting_mh_summary.pdf)

<sup>61</sup> Funk, Michelle, Drew, Natalie, Freeman, Melvyn, Faydi, Edwige & World Health Organization. (2010). Mental health and development : targeting people with mental health conditions as a vulnerable group / Michelle Funk ... [et al]. World Health Organization.

<sup>62</sup> Shidhaye, R., & Kermode, M. (2013). Stigma and discrimination as a barrier to Mental Health Service Utilization in India. *International Health*, 5(1), 6–8. <https://doi.org/10.1093/inthealth/ihs011>

<sup>63</sup> Sanghvi, P. B., & Mehrotra, S. (2021). Help-seeking for mental health concerns: Review of Indian research and Emergent Insights. *Journal of Health Research*. Advance online publication. <https://doi.org/10.1108/jhr-02-2020-0040>

COVID-19 has significantly augmented the poverty numbers in India and recent reports estimate that 150–199 million more people now fall below the poverty line, (Ram & Yadav, 2021; Aneja & Ahuja, 2020; Dang et al., 2021).<sup>64,65,66</sup> Poor mental health can be both a cause and a consequence of poverty which often disrupts an individual's education and employment prospects, may increase redundancy, and is associated with detrimental social and economic consequences throughout the life course. (Elliott, 2016).<sup>67</sup> This has significant public health implications in the future, poor mental health strongly correlates with premature mortality, compromised physical health and substance abuse issues.

Socio-economic inequalities and disparity further limits access to quality mental health care, and current options for health insurance need to be further developed to include all economic sections of the society to create uniformity in access to treatment protocols. In order to address the complexity of these challenges, future public health policies must strengthen the current evidence base and address mental health alongside poverty data and research.

- **Urbanisation**

India has witnessed rapid urbanisation and the creation of a 'fringe population' that is linked to increased mental health problems, especially among more vulnerable demographic groups (Islam et al., 2006).<sup>68</sup> These include workers in the informal sector who rely on a daily-wage income, migrant workers, women, children and the elderly. The profound influence of the changing cultural dynamics in urban areas can create a negative environment which can lead to psychosocial issues. These include: earlier age of onset of substance use especially in the vulnerable youth (for example homeless children and disadvantaged children); increased rates of technology addiction and self-harm behaviours with and without suicidal intent.

Furthermore, a direct result of rapid urbanisation is the unequal access to mental healthcare in more rural and remote parts. Barriers to access service include lack of resources, lack of mental health practitioners, time and cost of travel to access healthcare, and reduced access to remote services due to technological and connectivity barriers.

- **The Digital Age**

- **Creation of new networks**

There has been an influx of technological innovations in the 21<sup>st</sup> century, and the significant increase in the use of these products and services has allowed for the creation of new networks between

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<sup>64</sup> Ram, K., Yadav, S. (2021, July 8). The pandemic has worsened India's poverty crisis. *The Indian Express*. <https://indianexpress.com/article/opinion/the-pandemic-has-worsened-indias-poverty-crisis-7394367/>

<sup>65</sup> Aneja, R., & Ahuja, V. (2020). An assessment of socioeconomic impact of COVID- 19 pandemic in India. *Journal of Public Affairs*, e2266. <https://doi.org/10.1002/pa.2266>

<sup>66</sup> Dang, H.-A., Lanjouw, P., & Vrijburg, E. (2021). Poverty in India in the face of COVID-19: Diagnosis and prospects\*. *Review of Development Economics*, 25(4), 1816–1837. <https://doi.org/10.1111/rode.12833>

<sup>67</sup> Elliott, I. (2016). Poverty and Mental Health: A review to inform the Joseph Rowntree Foundation's Anti-Poverty Strategy. London: Mental Health Foundation. <https://www.mentalhealth.org.uk/sites/default/files/Poverty%20and%20Mental%20Health.pdf>.

<sup>68</sup> Islam, M., Montgomery, M., & Taneja, S. (2006). Urban health and care-seeking behavior: a case study of slums in India and the Philippines. *Bethesda, Maryland: Abt Associates and Partners for Health Reform Plus*.

individuals. However, increased digitisation can lead to a higher risk of social isolation, loneliness, mood disorders and other unique mental health challenges. In addition, social media use has been tied to an increase in eating disorders and psychological distress, particularly in adolescents (McLean et al., 2017).<sup>69</sup> Research also suggests that high levels of screen use in children and adolescents is associated with reduced physical activity, increased risk of depression, poorer relationships, increased social issues, higher addictive behaviours, and poorer physical wellbeing (Twenge & Campbell, 2018).<sup>70</sup>

- **Work-life balance - the changing nature of work**

Mental health impacts the Indian workforce at all levels; recent research highlights that over 40% of Indian professionals suffer from symptoms of depression and anxiety. Tatsam's research of over 3000 employees across industries found that almost 73.9% reported work impairment as a result of psychological stress, with 70% reporting high levels of anxiety, sadness and loneliness. Work-related stressors play a big part in either causing or exacerbating mental health illnesses, and these issues have amplified following indirect pandemic effects such as lockdowns, work-from-home protocols, financial worries, and job insecurity (Basole et al., 2021).<sup>71</sup> The role of mental health professionals has become crucial in providing relief, support, and psychological first aid to people who cannot cope with the ongoing situation with the aim of improving their quality of life and well-being. Although advancements in technology present a higher scope for increasing workplace productivity, this also pushes people to spend more time working. Most employers lack knowledge about psychological safety at work and this combined with highly stressful work environments and a burnout-inducing work culture, all contribute to a detrimental future defined by poor mental health — especially in the young and currently thriving workforce.

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<sup>69</sup> McLean, S. A., Wertheim, E. H., Masters, J., & Paxton, S. J. (2017). A pilot evaluation of a social media literacy intervention to reduce risk factors for eating disorders. *International Journal of Eating Disorders*, 50(7), 847-851. <https://doi.org/10.1002/eat.22708>

<sup>70</sup> Twenge, J. M., & Campbell, W. K. (2018). Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. *Preventive medicine reports*, 12, 271–283. <https://doi.org/10.1016/j.pmedr.2018.10.003>

<sup>71</sup> Basole, A., Abraham, R., Lahoti, R., Kesar, S., Jha, M., Nath, P., Kapoor, R., Mandela, N. S., Shrivastava, A., Dasgupta, Z., Gupta, G., & Narayanan, R. (2021). *State of Working India 2021 - cse.azimpremjiuniversity.edu.in*. [https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2021/08/SWI2021\\_August\\_WEB.pdf](https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2021/08/SWI2021_August_WEB.pdf). (accessed December, 2021)



Figure 5: Tatsam Research Insights

## CURRENT CHALLENGES WITHIN THE INSURANCE INFRASTRUCTURE

Indian insurance companies only consistently mandated mental health issues in their policies post the pandemic in 2021, (Ghosh, 2021).<sup>13</sup> Out-patient department (OPD) treatments have not been widely covered under healthcare policies, (Gambhir et al., 2019).<sup>72</sup> This is a major concern since mental health care and treatments require a strong focus on therapy, rehabilitation, and medication-based OPD treatment. To address this gap, insurance companies need to design more innovative products and broaden their areas of coverage, so that they are holistic, preventative and comprehensively address the range of Mental, Neurological, and substance use disorders and their varied treatment protocols.

The laws described in MHCA 2017 are categorically clear about the obligations of insurance companies, however, comprehensive mental healthcare plans which recognise the roles of counsellors and psychologists besides psychiatrists (and the fact that not every person diagnosed with an MNS needs hospitalisation) are not currently available.

Although some insurance companies have removed standardised exclusion clauses following the IRDAI's Master Circular on Standardization of Health Insurance Products (Insurance Regulatory and

<sup>72</sup> Gambhir, R. S., Malhi, R., Khosla, S., Singh, R., Bhardwaj, A., & Kumar, M. (2019). Out-patient coverage: Private sector insurance in India. *Journal of family medicine and primary care*, 8(3), 788–792. [https://doi.org/10.4103/jfmmpc.jfmmpc\\_101\\_19](https://doi.org/10.4103/jfmmpc.jfmmpc_101_19)

Development Authority of India, 2020),<sup>73</sup> coverage for mental illness is still differential and lacks parity of esteem. There are longer waiting periods, lower provisions of sums assured and, in some instances, coverage contravene the mandates on the MHCA (2017).<sup>2</sup> In addition, policies exclude 'self-inflicted injuries,' 'attempted suicide,' and "substance-related problems" from coverage even though Section 115 of the MHCA creates a presumption that a person attempting suicide is under severe stress and hence cannot be prosecuted under Section 309 of the Indian Penal Code, 1860 (Sneha et al., 2018).<sup>74</sup> This is concerning, since substance related problems and self-harm behaviours are symptoms of a majority of mental health issues, particularly mood disorders (depression, bipolar disorder, etc), eating disorders and borderline personality disorder (Skegg, 2005).<sup>75</sup> Additionally, internationally and in India, self-harm is mostly likely to occur in adolescents, with higher rates in girls- a group that is extremely vulnerable and is critical to early and preventative intervention (Thompson, & Bhugra, 2000; Grover et al., 2015).<sup>76,77</sup>

Although these examples are representative, treatment exclusions, the lack of true parity between physical and mental health care, and a lack of mental health care practices that are delivered within integrated and aligned models to identify and treat people with long-term comorbid conditions, are yet unaddressed.

### ➤ The Future of Mental Health Insurance

Being at a very nascent stage, mental health insurance is a challenging business in India, where definitions and treatment protocols are not yet fully standardised. There is a considerable requirement for healthcare and insurance providers to address the lack of clear definitions, categorise conditions accurately, and appropriately consider mental health and physical health comorbidities. For instance, the Disease Control Priorities (DCP3) makes a strong case for an integrated public health response that addresses MNS disorders concurrently; particularly in settings where there is a lack of specialist services, a significant treatment gap and immense strain on the healthcare infrastructure, (Patel et al., 2016)<sup>18</sup> There is clearly a need for a broader definition of mental illness for the purpose of inclusivity and ease of understanding.

Many mental illness health insurance plans do not include coverage for outpatient treatment, which is required by a larger section of the Indian population than inpatient treatment. In addition, most current plans do not cover substance use disorders — a consideration that needs to be re-evaluated as this is often a consequence or symptom of a pre-existing mental, and is prevalent in the population. It

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<sup>73</sup> Insurance Regulatory and Development Authority of India. (2020). *Master Circular on Standardization of Health Insurance Products*. IRDAI/HLT/REG/CIR/193/07/2020. Retrieved from [https://www.irdai.gov.in/ADMINCMS/cms/frmGuidelines\\_Layout.aspx?page=PageNo4196](https://www.irdai.gov.in/ADMINCMS/cms/frmGuidelines_Layout.aspx?page=PageNo4196)

<sup>74</sup> Sneha, V., Madhusudhan, S., Prashanth, N. R., & Chandrashekar, H. (2018). Decriminalization of suicide as per Section 115 of Mental Health Care Act 2017. *Indian journal of psychiatry*, 60(1), 147-148. [https://doi.org/10.4103/psychiatry.IndianJPsychiatry\\_335\\_17](https://doi.org/10.4103/psychiatry.IndianJPsychiatry_335_17)

<sup>75</sup> Skegg, K. (2005). Self-harm. *The Lancet*, 366(9495), 1471-1483. [https://doi.org/10.1016/S0140-6736\(05\)67600-3](https://doi.org/10.1016/S0140-6736(05)67600-3)

<sup>76</sup> Thompson, N., & Bhugra, D. (2000). Rates of deliberate self-harm in Asians: Findings and Models. *International Review of Psychiatry*, 12(1), 37-43. <https://doi.org/10.1080/09540260074102>

<sup>77</sup> Grover, S., Sarkar, S., Chakrabarti, S., Malhotra, S., & Avasthi, A. (2015). Intentional Self-harm in Children and Adolescents: A Study from Psychiatry Consultation Liaison Services of a Tertiary Care Hospital. *Indian journal of psychological medicine*, 37(1), 12-16. <https://doi.org/10.4103/0253-7176.150801>

is also globally recognised as a separate mental health condition in its own right (American Psychiatric Association, 2013).<sup>78</sup>

Even though Insurance Regulatory and Development Authority of India (IRDA) mandated insurance companies to extend coverage to mental illness treatments on the "same basis" (as is currently provided for physical illnesses) (The Insurance Regulatory and Development Authority of India, 2018),<sup>79</sup> the absence of domestic actuarial data and related claims experience complicates the process of accurate pricing and underwriting coverages for mental illness. This results in insufficient coverage and eventually leads to heavy out of pocket expenditures for the claimant (Jenkins, Bahukhandi & Srivastava, 2020).<sup>80</sup> Although quite a few insurance policies have included mental health cover, there are limits set on mental health claims, which may not solve the long-term problem. Mental health care is usually a time consuming and financially straining process for an individual, and this must be taken into account when designing policies. Additionally, there must be transparency in all clinical and administrative data and integrated communication processes established across stakeholders.

## FUTURE TRENDS

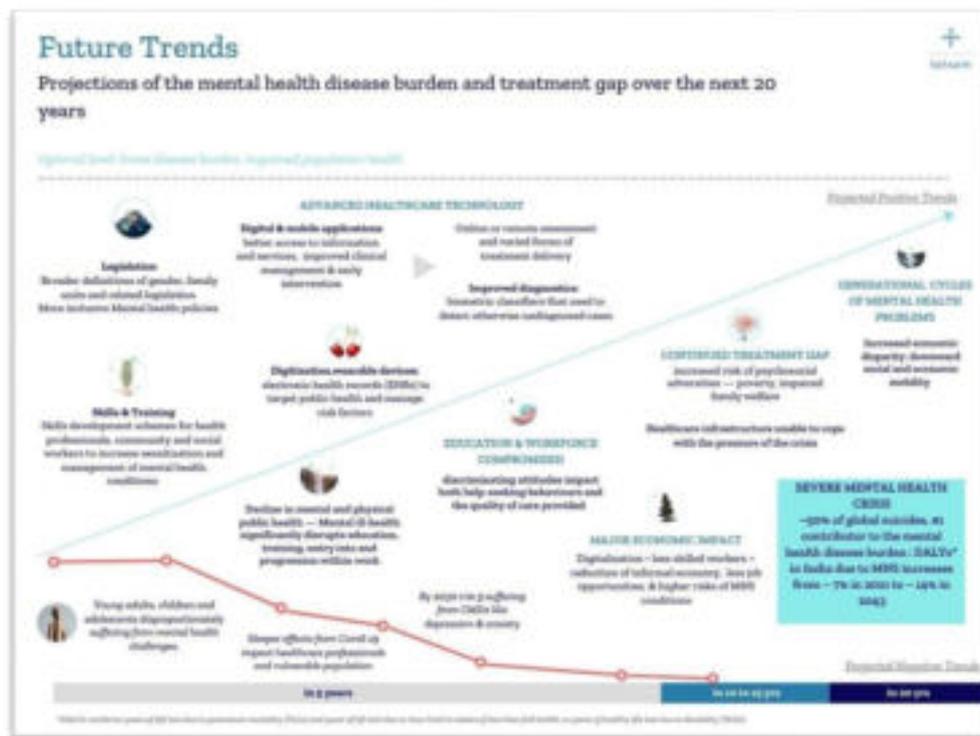


Figure 6: Future Trends

<sup>78</sup> American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

<https://doi.org/10.1176/appi.books.9780890425596>

<sup>79</sup> The Insurance Regulatory and Development Authority of India. (August, 2018). *The Mental Healthcare Act, 2017*.

[https://www.irdai.gov.in/ADMINCMS/cms/whatsNew\\_Layout.aspx?page=PageNo3555&flag=1](https://www.irdai.gov.in/ADMINCMS/cms/whatsNew_Layout.aspx?page=PageNo3555&flag=1) (accessed December, 2021)

<sup>80</sup> Jenkins, C., Bahukhandi, A., & Srivastava, N. (2020, August 11). *Health insurance cover for mental illnesses*. Lexology.

<https://www.lexology.com/commentary/insurance/india/tuli-co/health-insurance-cover-for-mental-illnesses>.

## RECOMMENDATIONS

### ➤ **Current Gaps in Insurance**

The IRDAI 2018 circular requiring all insurance companies to comply with the provision of the Mental Care Act stipulated that health insurance for mental illness treatments must be on par with those for physical illness. However, there have been challenges in implementation arising from the differing nature of mental health, as well as gaps in coverage.

A report by the Economic Times in 2021, found that 50-75% of hospitalisation claims filed for insurance coverage for mental health issues are found to be rejected (Somvanshi & Manikandan, 2021).<sup>81</sup> The gaps in coverage for OPD treatments, as well as for on-going non-critical mental health interventions not only exclude individuals with mental health needs, but also are a barrier to early intervention in the case of mental health.

### ➤ **Recommendations to Transform Mental Healthcare**

Insurance for mental health should be on par with that of physical health but should also recognise the different requirements of the two.

Mental health interventions primarily occur outside of hospital settings, and individuals with mental health issues are likely to see mental health professionals OPD and undertake ongoing mental health interventions, which should be covered. Premature drop off from therapy (ceasing therapy before symptoms cease) and lack of attrition is a major concern, increasing risks of relapse, reducing treatment effectiveness, and resulting in a loss of revenue and time underutilisation for service providers (Swift & Greenberg, 2012).<sup>82</sup> To prevent this insurance should cover the long-term treatment of mental illnesses until symptom relief is experienced.

Furthermore, insurance policies should limit exclusions due to suicide attempts, self-harm and substance use. All of these are recognized as some of the key symptoms of several mental health disorders internationally, and so, result in the exclusion of individuals suffering from illnesses such as but not limited to, depressive disorders, eating disorders and substance use disorders (Diagnostic & Statistical Manual, 2013).<sup>74</sup>

Since there is such a close relationship between psychological and physical illnesses with each increasing risk for the other, there should be greater awareness amongst both practitioners, and the general population, about the connection between the two. Steps should be taken to ensure psychosomatic symptoms of mental health issues are identified and treated appropriately. To address the lack of accessible mental health resources, community workers should be involved and empowered to support in the fight for improved mental health.

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<sup>81</sup> Somvanshi, K. K., & Manikandan, A. (2021, October 21). Gaping holes in mental health insurance adding to distress of patients and kin. *The Economic Times*.

<sup>82</sup> Swift, J. K., & Greenberg, R. P. (2012). Premature discontinuation in adult psychotherapy: A meta-analysis. *Journal of Consulting and Clinical Psychology, 80*(4), 547–559. <https://doi.org/10.1037/a0028226>

Finally, special steps should be taken to ensure safeguards for children and adolescents seeking mental healthcare support. This includes provisions to minimize discrimination and to emphasize their rights to express their views and accounts of their own mental health, in accordance with their age. Most importantly, age-appropriate mental health services should be made available for children, and support should be given to allow for building awareness and combating stigma within family members. **Further specific suggestions for insurance and policy are elaborated in Figure 7.**



Figure 7: specific suggestions for insurance and policy

## CONCLUSION

There have been significant recent efforts and initiatives to improve the access and availability of mental health support that have recognised the importance of parity between mental and physical health. Although these changes have been reflected in legislature and policy, much of this is still to be translated to allow for implementation and improve public health education.

A transformational policy approach that addresses physical, mental, and behavioural health on parity and considers the current systemic inequalities is required to comprehensively solve the complex and

multi-faceted challenges currently faced by the country. A standardisation of legislation, definitions of MNS conditions and a widespread mental health literacy programme is crucial, alongside a framework that assists individuals by improving access to healthcare and other support options, within the community and across the health and social care system. It is also pertinent to develop mental health education policies at all socioeconomic levels, improve familial support and education and foster the creation of a more inclusive and less stigmatised approach across the healthcare system.

Grassroots initiatives and community support systems focused on mental health promotion will also be vital in future to empower the public and allow people to make more informed decisions and choices for themselves. Greater cohesion in public mental health initiatives that build on current community support initiatives integrate physical and mental health education and greater investment into skills building and research will allow for the development of clearer, standardised definitions and policies and can improve public mental health monitoring, better diagnosis and expanded facilities for preventive and rehabilitative care.

From an insurance and health perspective, knowledge, awareness and education and support to understand health information, rehabilitation processes and weigh different options, will facilitate both care options and raise awareness of how social context and social needs are essential to effective care.

In the future, public health education and research can dramatically improve and reduce systemic stigma and may help foster a greater understanding of mental health across the country. Given the potential of significant and widespread challenges in the future, innovative highly progressive government policies based on evidence-based approaches, integrated with cohesive and comprehensive public health awareness campaigns that engage stakeholders across educational policy, family welfare and social health is vital for tangible impact. A mission-driven, independent stakeholder–team collaboration including patients and families, healthcare providers (professionals and facilities), financiers (government, insurance companies), public health and regulatory agencies, industry, the research community, and the media, with a central charter, may facilitate and help regulate policy, by generating relevant information and actionable knowledge to address current serious problems and system limitations. We anticipate that this alongside rapid, transparent, and open-access knowledge generation and dissemination, combined with proactive action from the healthcare industry and the strategic adoption of new technologies and digital tools can entirely shift the serious implications of current projections.

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## Abstract of the Knowledge Paper on Health Insurance-2042

- The Health Care has been one of the largest and fastest growing market globally and it is consuming nearly 10% of GDP in all developed markets. The **global health care market is nearly \$8.1 trillion today** and is growing at 5% annually (OECD, 2019). It would continue to grow faster in the coming years and is projected to reach around US\$ 18.28 trillion by 2040 (CMS, 2021). Further, the Covid-19 Pandemic has caused an exorbitant increase in the health care spending and the cost of health care significantly to a higher level globally. **The total amount of health care spending in India is estimated to be US \$ 4.5 billion at 3.5%** of the country's GDP. For the current financial year (2021-22), the government has allocated Rs.2.23 lakh crore on Health and Wellness in the union budget, which is almost 137% higher than the last year Rs.94452 crore (2020-21).
- The **health insurance market in India has been growing steadily around a CAGR of 17%** every year and the amount of premium collected from health insurance is estimated to be around Rs.58572 Crore (US\$7 billion) during the Financial Year 2020-21.
- In spite of rapid growth of health insurance as well as a large coverage of individuals through government insurance scheme, still 30% of the population do not have any kind of health insurance protection. The main reasons for the significant number of our population not coming forward to take health insurance are lack of awareness, do not have affordability, easy access to buy, non-availability of customized products, exclusion of pre-existing diseases, no OPD cover, expensive premium rates, and lack of trust, etc.
- The **changing demographics** and the Covid-19 pandemic have strained the healthcare industry with increasing health care cost and older patients having chronic and complex ailments requiring multiple hospitalisations has really impacted them with severe out of pocket expenses. The insurance protection gap in health care is nearly 70% which includes the out-of-pocket expenses of 63% and 7% from cost of delayed treatments.
- **The advantage of providing OPD benefits**, alongside IPD care would definitely to increase the efficiency and value of the healthcare provided through bundling of fragmented and simplified services (physician fee, cost of diagnostics, medicine and drug cost, etc.) help in improving the health of entire society at affordable cost and timely care to the large number of low- and middle-income customers, almost 70% of the population.
- **Increasing digitalization in Health care** including use of new age technologies like AI & ML, IoT and block chain, etc., has transformed the entire process of health care delivery including technology-based medicines for both primary prevention and curative purposes. In addition, shift from paper-based medical records to electronic records through NHDM would not only reduce the cost of health care, improve innovations in health care but also enable evidence-based treatments and personalised drugs and surgeries.
- **Intelligent automation** necessitates the automation not only of the critical process of healthcare delivery, but the total healthcare ecosystem needs to be integrated including the entire supply/ delivery chain of all the outsourced medical services or accessory vendors. Technology like RPA or blockchain enables all the stakeholders, not only in standardizing the healthcare treatment process but also the entire process of outsourced entities/agents in the healthcare ecosystem. This would not only reduce the operational cost to each of the entities in the system but also improve the efficiency and speed of the healthcare delivery significantly.

Automation also enables the service providers to improve their legal and regulatory compliance as the system automates the compliance requirements and regulatory activities among all the entities associated with the blockchain system. This would also reduce the submission of fraudulent claims or insurance proposals and save huge leakages by way of fraudulent claims at every point of the healthcare delivery system.
- **Improved health awareness** due to the pandemic, have motivated customers practicing healthy lifestyles backed by efficient wellness and preventive healthcare measures. Further with the usage of Internet of Things (IoT), connected devices, fit bits, health applications (Health APPs), etc., a large amount of customers' health data being collected and the same is being analysed with their lifestyle and behavioural profile.
- The increasing **advancement in technologies and AI & ML**, ability to cure and prevent chronic diseases at early stage, improved health care awareness and positive health care

experiences and improved availability of better health to middle and lower-class people in the emerging economics, may change the health care spending trends in the next 20 years.

- Soon, **medically trained AI algorithms** could aid physicians and health care technicians in providing the necessary medical insights, help in diagnosis, selection of appropriate treatments, therapies, and surgeries, etc. AI enabled medical devices would be developed which can automatically read, monitor, analyse and generate insights, from all the basic health parameters like blood pressure, sugar level, heart rate, BMI, sleeping pattern, smoking and consumption of drugs, alcohol consumption, etc., just with the help of facial algorithm or computer vision. This would in turn advice the patients go for necessary medical and laboratory or health check-ups, which would reduce the diagnostic load of the physicians and enable error free faster diagnostics and provide personalized treatments.
  - Advances in biotechnology, regenerative medicine and molecular biology would enable create **3D printed or artificially engineered organs** and tissues in the near future. Similarly, developments in gene therapy and genetic engineering would help in diagnosing critical diseases like cancer, renal diseases, heart diseases and metabolic disorders, etc., early in their development stage, regenerate or repair the damaged cells & organs and may probably stop or reverse the critical diseases and also lead for anti-aging and longer life span.
  - The research in **DNA sequencing** is progressing at much faster level and the specific cells causing cancers and life-threatening diseases have already been done. In the next 20 years, over millions of patient's DNA sequencing would have been carried out globally. This progression would revolutionize the entire health care industry into a highly personalized treatment and care management.
  - A series of pandemic and catastrophic events triggered depressions and anxiety globally as the studies from mental health highlights that nearly 25% of the global population is suffering from some kind of **mental disorders** i.e., depressions, anxiety, alcohol and drug addiction, etc. Studies from OECD countries indicate that 20% of working population are affected by some kind of mental disorders. A recent study from US indicates that the percentage of people, suffering from mental illness as the result of this Covid-19 pandemic, have gone up to 53% in 2021 from 32% in 2019.
  - **Government and policy makers need to realize the importance of mental health**, collaborate with health care partners, insurers, and other professionals in the mental health ecosystem to ensure the people suffering from mental health gets the required support, proper care and adequate insurance coverage.
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PHDCCI is a National Apex Chamber having its international office at Bahrain for 6 GCC countries, with 1,30,000 companies as its members base, as total focus on the development of small and medium businesses. PHDCCI has co-opted National and International Industry Associations and Organisations through over 100 MoUs signed between the parties.”



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NIA was established in 1980 jointly by the Ministry of Finance - Government of India, Life Insurance Corporation of India, General Insurance Corporation of India, The New India Assurance Company, National Insurance Company, United India Insurance Company and The Oriental Insurance Company on 16th December, 1980 in Mumbai to be the institute of excellence in learning and research in Insurance, Pension and allied areas. The Academy was shifted to Pune on 4th June, 1990 with the state-of-the-art facilities for learning and research.

Initial years of NIA were dedicated to Management Development Programmes catering to the insurance industry professionals to enhance the management skills and do main expertise. Later, the two year Post Graduate Diploma in Management course was initiated to fulfill the growing demand of skilled professionals in Insurance and Risk Management. The programme offers dual expertise in management and Insurance.

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