Transformation of Healthcare in the Digital Era - Emerging Trends in Digital Healthcare in India

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Abstract

Digital health focuses on healthcare in the digital world, connecting the evolution of advancements in informatics and technology in medicine, and all aspects of healthcare with the application of these developments in clinical practice, patient experience, and their social, political, and economic consequences. The research describes both negative and positive results and outcomes and the challenges faced in this digital world. Digital technology has become an integral part of healthcare and is set to revolutionize the practice of medicine.

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Introduction

Digital technology has dramatically improved operational efficiency when it comes to standards of medical care. The transformation has dramatically improved the overall experience for healthcare professionals and patients. Technology is profoundly changing the way health care is being delivered. However, on the bright side in the healthcare sector, the pandemic has triggered an unprecedented increase in the adoption and use of digital health technologies in India.

With multiple lockdowns and movement restrictions across the country, healthcare workers and doctors have used telemedicine solutions to provide quicker and faster access to patients, as this was cost effective and could reduce the strain associated with travel. Telemedicine has played an important role when it is not necessary for patients to go to the hospital or to a doctor in person. The advancement of telecommunication technologies in India has also helped in keeping a patient's medical records and can help patients to better manage their medications and illnesses.

Due to digitalisation in the health care sector, patients consulting medical practitioners through online primary care services, the use of clinically applicable artificial intelligence and deep learning in diagnostic and referral pathways, or the Robot-assisted surgery performed across continents, rapid technological development is transforming the healthcare landscape. With all this said, the law must keep pace with these developments, especially when medical error occurs during surgeries and treatments. Are these laws updated? Also, there should be a balance while

determining the liability of the doctors in case of any error.

The advancement of digital technology has solved a variety of issues in the healthcare industry, ranging from diagnostic testing to promoting treatment. Hospitals started using tele consultation technologies, remote monitoring, paperless systems such as EMR, E-prescriptions, Aadhaar linked E-health card and virtual training.[1] The reality is that accountability in the digital age is an emerging field with many complex facets. It is a challenge for legal regimes to evolve at a sufficient pace, but ultimately lawmakers and courts will want

[1] https://ehealth.eletsonline.com/2021/09/digital-health-the-next-frontier/

to ensure a fair distribution of losses, consistency in the law, and effective access to justice - the complexity and blurred lines of
responsibility should not result in injury victims not being compensated for their losses.
The Union government has the vision to set up a national telemedicine network, with its ambition to create an Electronic Health Record. The government released the National Health Policy in 2017 which envisioned a digital health technology ecosystem and recognized the critical role of technologies such as e-health, mobile health, cloud, IoT, wearable devices, among
others. in the delivery of healthcare.
In addition, as part of its Digital India mission, the Indian government recognizes the issue of cybersecurity and the need for strong laws to protect digital data. An important step in this direction is the Bill on Digital Information Security in Healthcare ("DISHA"), which aims to
ensure the confidentiality of electronic health data; confidentiality, security and standardization; and establishment of the National Authority for digital health and the exchange of information on

health. However, India is yet to adopt any legislation to regulate and govern digital health tools.
In 2011, the government established a National Telemedicine Resource Center in Lucknow to develop and strengthen telemedicine technologies. There is a clear need for a comprehensive digital health framework in order to provide necessary technical assistance to state governments. In 2019, the government finalized the National Digital Health Blueprint (NDHB) as the architectural framework for digital health in India for the evolution of the National Digital Health Ecosystem (NDHE).

NDHM is a Revolutionary Reform in Healthcare

National Digital Health Mission was formed to become a national aggregator and nodal agency to facilitate and manage digital health infrastructure in India. It has become a formal body providing a foundation for the health ecosystem. Having all healthcare professionals, facilities, electronic health records, and patients with a unique identifier, will make healthcare accessible to
patients with speed and quality of care delivery, while minimizing the waste of precious resources.
The key feature of NDHM is the technological part; it will support open digital systems to deliver high quality health care to every citizen. The digital health mission will integrate with various digital health services to create an ecosystem capable of adapting existing health
information systems.
A survey by Practo, a popular Indian healthcare technology company, recently estimated that there had been a 67% drop in clinic visits and a massive 500% growth in online medical consultations just between the 1st March 2020 and May 31, 2020. Telemedicine is one of the grooming aspects in the digital era after Covid 19 cases around the country. But is it providing healthcare without cons? Absolutely no. The virtual care treatment is having issues like the adoption of technology, technical training to the doctors, and collection of evidence of the conversation between doctor and the patient. [2.] As regards the regulatory framework, the Ministry of Health and Family Welfare of India (MoHFW) introduced the Telemedicine Practice
Guidelines (TPG) in March 2020.[3]The TPG are applicable to the registered medical practitioners (ie, who are enrolled in the State Medical Register or the Indian Medical Register under the erstwhile Indian Medical Council Act, 1956 and current National Medical Commission Act, 2019 (NMC Act)). Under the existing framework, the TPG does not apply to registered medical practitioners outside India.[3]

[2] https://www.bridgepatientportal.com/blog/the-facts-about-hipaa-and-email-sms-communication-with-patients/
[3]https://practiceguides.chambers.com/practice-guides/digital-healthcare-2021/india/trends-anddevelopme nts
[3] https://practiceguides.chambers.com/practice-guides/digital-healthcare-2021/india/trends-anddevelopme nts

The telemedicine platforms are currently governed under the NMC Act, the Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations 2002 (IMC Regulations), the Drugs & Cosmetics Act, 1940 (D&C Act), the Drugs & Cosmetic Rules 1945 (D&C Rules), the Clinical Establishment (Registration and Regulation) Act, 2010, the Information Technology Act, 2000 (IT Act), and the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules 2011 (Privacy Rules). Further, in the case of medical negligence, a patient may lodge a complaint before the relevant consumer forum under the Consumer Protection Act, 1986, a civil suit for damages, a criminal petition under the Indian Penal Code, 1860, or lodge a complaint with the National Medical Commission (NMC). There is no specific law in India currently that governs online consultations provided by foreign medical practitioners.[4]

Robotics is the biggest invention in the 21st century and is amusingly gaining huge response in the medical field. Robots in the medical field (AI) are transforming how surgeries are being performed, smoothing out supply delivery and disinfection, and freeing up time for providers to engage with patients.[5] But the biggest issue with handling robots is security issues and energy consumption. Artificial intelligence (AI), is the ability of computers to perform tasks commonly associated with human intelligence[6]. The AI-based systems are regulated by the NMC Act, the IMC Regulations, the Medical Devices Rules, 2017, the IT Act and the Privacy Rules. With the growing role of robotic surgeries and AI in healthcare in India, the Insurance Regulatory and Development Authority of India (IRDAI) released the guidelines for standard individual health insurance products in January. 2020, ordering insurers to cover robotic surgeries under standard health insurance policies.[7] However, collecting, storing and communicating a wide variety of personal patient data presents a major challenge. How to provide the data required by new forms
of care while protecting patient privacy?
The modern era has all the technical wearables that are there in the hospital at its home itself. For e.g., oximeters after the breakage of covid cases around the country, These devices allow the patients to self-detect various physiological changes in the body and also alert the patients in the case of arising issues, but still the cost of the device, safety, security, privacy of the consumer is still a big question.[8] Although there are no specific regulations pertaining to wearable devices, under the current regulatory framework, these medical wearable devices require registration and approval from the Central Drugs Standard Control Organisation (CDSCO) in India.[9]

An individual is typically found at one end of a communication channel: a consumer viewing their portable data on a smartphone; or a clinician using their computer to review a patient's health record. Virtual assistance like google assistance and Alexa are keeping the consumers intact with information that are needed for consumers regarding medical support. The IoMT[10] The sector is growing at a tremendous pace and is estimated to touch US$158 billion by 2022 from US$41 billion in 2017. [11] The Internet of Things (IoT)

[4] https://practiceguides.chambers.com/practice-guides/digital-healthcare-2021/india/trends-anddevelopme nts

[5] https://www.intel.com/content/www/us/en/healthcare-it/robotics-in-healthcare.html

[6] Goodfellow, I., Bengio, Y., Courville, A. & Bengio, Y. *Deep learning*. 1 (MIT press Cambridge, 2016

[7] https://practiceguides.chambers.com/practice-guides/digital-healthcare-2021/india/trends-anddevelopme nts

[8] https://blogs.cdc.gov/niosh-science-blog/2019/11/18/wearables-construction/

[9] https://practiceguides.chambers.com/practice-guides/digital-healthcare-2021/india/trends-and-developm ents

[10] Internet of medical things

[11] Deloitte, Medtech and Internet of Medical Things (2018)
https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-medtech-io mt-brochure.pdf.

enables the communication between electronic devices which facilitates communication between doctor and patients virtually. The recent COVID-19 crisis will accelerate the process of growth in this sector. This research provides an overview of the emergence of IoT in healthcare globally, the complexity of the various factors hampering its current status, and recommends policy intervention for an optimal roadmap for it. 'IoT in Healthcare in the Indian Context.

Medical care businesses are at a high. Business startups are designing mobile apps to help the consumers reach pharmacy at their door steps i.e., med plus, net meds etc. A 2013 analysis of mobile medical, health, and fitness apps revealed disturbing findings: privacy policies were completely lacking for 40% of paid apps; 40% of the apps collect high risk data roughly only 50% of apps encrypted personally identifiable information (PII) being sent over the Internet;

83% of both free mobile health and fitness apps store data locally on the device without encryption.[12]

Health care in 2014 had the largest increase in the number of potential attack surfaces of any industry.[13] The digitization of health data has created new challenges for those charged with ensuring that patient information remains secure and private. Coupled with the lack of updated comprehensive legislation, a critical gap exists between technological advancements, consumer computing tools, and privacy regulations. The objective of this thesis is to describe the challenges

in the health care sector in the digital world, the concerns that consumers need to be aware of changing dimensions, and how the liability of the doctor is fixed in case of medical

negligence in this digital Era. [14]

With general tourism on the rise, it has been estimated that the volume of medical tourists reached 4 million per year in 2012. Medical tourism was becoming a major force for the growth of service exports around the world while focusing on a selective number of recipient countries with India and Thailand as the main world markets. Medical tourism, also known as medical travel, health tourism, or global healthcare, meant the rapid growth of overseas travel for health services.[15] This thesis reviews the growth in medical tourism in recent years and the challenges

faced in the healthcare sector.

Cost - defined as the price a consumer has to pay to access it - may be an inadequate

differentiator of digital health solutions - many are free or low-cost, especially in the area of mobile apps. When integrated into a composite appraisal, however, the actual cost can provide greater discrimination in overall value. Here, cost estimation becomes more complex by

incorporating broader considerations, such as the life cycle costs of the technology and those for integrating the technology into the clinical workflow.

The digital health space has seen many innovative products under development. Protection of these ideas and inventions becomes essential in this highly competitive market in India. The

intellectual property rights ("IPR") regime protects the newly invented instruments or articles in various forms, including patents, copyrights, trademarks and designs.[16]

[12] Ackerman L. Mobile Health and Fitness Applications and Information Privacy, Report to California Consumer Protection Foundation. 2013 [Google Scholar]

[13] Healthcare is a Growing Target for Cybercrime, and It's Only Going to Get Worse. *United States Cybersecurity Magazine.* 2014

[14] https://www.healthcatalyst.com/insights/digitization-healthcare-5-keys-progress/

[15] https://ceoworld.biz/2018/12/14/healthcare-in-india-and-the-rise-of-medical-tourism-is-lack-of-professionalism-ar oadblock/

[16] https://dokumen.pub/digital-entrepreneurship-interfaces-between-digital-technologies-and-entrepreneurship30302 01376-9783030201371.html

In the context of Digital Health, the development focuses on software areas applications (including mobile applications) and portable devices. This thesis reviews various forms of IP
protection available with these developments in mind, and the challenges under each legislation.

EXISTING LIABILITY REGIMES

When a patient suffers harm while getting medical care the presently available avenues of redress are via tort, contract (both fault-based systems) or defective product laws such as the Consumer Protection Act 1987 (where strict liability can apply). In certain circumstances, inquirers may seek after an activity under a mix of these systems for instance, where a specialist
embeds a prosthetic hip, questions may emerge about:

(I) The legitimate careful strategy (which would be managed in misdeed or agreement, contingent upon whether the activity was acted in the general population or private area) and (ii) The security of the hip embed itself (which would be managed under the CPA, just like the case in the Pinnacle metal-on-metal hip gathering litigation.

In[17] a recent judgment on medical negligence in Kolkata based hospital, the Supreme Court awarded compensation amounting to Rs. 11 crores to a victim,[17] to be paid by doctors and the private hospital held responsible for the wrongful death of a patient. This landmark decision was by far the largest award in Indian medical negligence litigation history. As a result, the process of calculating medical negligence compensation has been the subject of much attention and debate, largely due to the impact it will have on the practice of medicine in the country. in a close future. With over 80% of healthcare in India provided by the private sector, predictability and consistency in the regulation of medical negligence compensation would benefit victims and the physicians involved. This thesis discusses the pros and cons of large claims and also examines whether the system is down, in need of a quick fix, or a massive overhaul.[18]

Conclusion

[17] Due to the unprecedented cost of litigation, many healthcare providers have now insisted on including a pre-litigation ADR clause in their admissions agreement. They take the form of arbitration, negotiation or mediation. As understood, healthcare litigation involves cases related to medical negligence, wrongful treatment, breach of trust, etc. which are all very technical and complex in nature. The Alternative Dispute Resolution Forum gives the parties in dispute the freedom to appoint people who have the desired experience and knowledge in this specific area and who carefully understand the framework used.[18] The Medical Council of India can act as a dispute resolution body that can provide experienced panels on a case-by-case basis to help carry out the resolution process. A set of guidelines should also be published which will govern the process of the ADR mechanism. However, these guidelines should be fair, equitable and should uphold the conscience of the parties prior to the dispute.[19]

[17] https://www.jatinverma.org/affordable-healthcare-in-india/

[18] https://health.economictimes.indiatimes.com/news/industry/medical-litigation-cases-go-up-by-400-show-stats/500 62328

[19] https://wbconsumers.gov.in/writereaddata/ACT%20&%20RULES/Relevant%20Act%20&%20Rules/Code%20of%20Medical%20Ethics%20Regulations.pdf