
ARTIFICIAL INTELLIGENCE: A MEANS OF ENSURING ACCESS TO HEALTH

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ABSTRACT

Right to health care and well being is one of the basic Right of a person affirmed by different international conventions and guaranteed by the constitution, which cannot be attained without proper and updated health care system. The health care system needs to incorporate the technological advancement. Artificial Intelligence use in the health care sector, has helped in increasing the efficiency in the research area, vaccine, and medicines manufacture, distribution, tracking and pandemic assessment. However there are few legal challenges in the when it comes to use of Artificial intelligence. This paper aims to analyse the right to health and how incorporation of Artificial Intelligence technology in the healthcare system has helped in realizing the same.

Keywords: Artificial Intelligence, Right to Health, COVID-19

INTRODUCTION

A healthy life is one of the most important aspects of a human life, in which health includes having a bodily condition that is devoid of any disease or ailment. Given the importance of health in human existence, it has been granted to the people as a right, with states obligated to make efforts to provide a healthy life to their citizens. This provision of health is possible only if there is regular development in the technology used for preventing, controlling, and treating diseases. In the sphere of health care, there has been a lot of technical advancement in the last 50 years. Different antivirals, anticlotting medications, anti-diabetic drugs, antihypertensive drugs, antirheumatic drugs, vaccinations, pharmacogenomics, and targeted cancer treatments have all aided in the improvement of health care delivery and patient outcomes in recent years. All of these advancements have helped in extending human life expectancy as well as the rate of recovery from several diseases¹. These technological advancements have a direct influence on our health care access, which helps in attaining the fundamental right, i.e., access to health care. Access to health has progressed on many levels in a positive direction due to the inclusion of technology, especially with the introduction of computers and artificial intelligence.

RIGHT TO HEALTH

A fundamental right to health is outlined in the “Universal Declaration of Human Rights”, which stipulates that the state is responsible for providing a "standard of life adequate for health and well-being," which includes access to medical care.² There is an analogous right contained in Article 12³ of the “International Covenant on Economic, Social, and Cultural Rights (ICESCR)”, to which India has also become a party and which also contains a corresponding right. Despite the fact that there is no such thing as a "right to health" in the European Union, the European Court of Human Rights has ruled that Article 5 (1)⁴ of the “European Convention

¹ ALUMINIPORTAL, <https://www.alumniportal-deutschland.org/en/global-goals/sdg-03-health/increasing-life-expectancy-age-ageing/#:~:text=Increasing%20life%20expectancy%3A%20people%20are,age%20of%2030%20on%20average.&txxt=Average%20global%20life%20expectancy%20is,average%20life%20expectancy%20of%2087> (last visited on June 30,2022)

² Art. 25 of Universal Declaration of Human Rights 1948

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

³ Art. 12.1 of International Covenant on Economic, Social, and Cultural Rights, 1976

“The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”

⁴ Article 5 (1) of the European Convention on Human Rights, 1950

on Human Rights” imposes a positive responsibility on Member States to act proactively in the interest of public health (liberty and security)⁵. Because of the World Health Organization's (WHO) objective and the principles listed, the Right to health has been recognised as one of the fundamental rights⁶. Healthy lives and well-being for everyone at all ages are among one of the seventeen goals of the “Sustainable Development Goals (SDGs)”, which were adopted by the United Nations in 2015.⁷

In addition, a number of similar rights are recognised in various international conventions, such as Art 5(e)(iv) of "The International Convention on the Elimination of All Forms of Racial Discrimination, 1965," Art 11(1)(f), Art 12 and Art 14(2) of "The Convention on the Elimination of All Forms of Discrimination Against Women" (1979), and Art 24 of "The Convention on the Rights of the Child 1989," which also recognises the right to health and access to healthcare.⁸ "The International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families," 1990, also bestows the duty on the state to provide health facilities and maintain the health and hygiene of the workers. The Convention on the Rights of Persons with Disabilities" 2006 through its Article 25 recognizes the right of disabled people to enjoy the highest attainable health.⁹ All these Conventions place a responsibility upon the member states to provide adequate health facilities to different categories of people within their territory. The majorities of member nations have so thus directly included the right to health as a fundamental right, or have implemented it in their policies even if it is not specifically defined.

RIGHT TO HEALTH IN INDIA

India, being a welfare state and a member of many of the international organisations and a party to the aforementioned conventions, has imbibed these principles and endeavours to provide the right to health care to its people. The Indian Constitution has explicitly provided a guideline to

“Right to liberty:- Everyone has the right to liberty and security of person. No one shall be deprived of his liberty save in the following cases and in accordance with a procedure prescribed by law.”

⁵ *Enhorn v. Sweden*, (2005) E.C.H.R. 56529/00.

⁶ Principles and Objectives of 'The Constitution of The World Health Organization, 1946'

“The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.”

⁷ Goal 3, “GOOD HEALTH AND WELL-BEING”, Sustainable Development Goals, United Nation Organisation, <https://www.undp.org/sustainable-development-goals#good-health>.

⁸ Art. 3, Art. 23 Art. 24, of The Convention on the Rights of the Child 1989.

⁹ UNITED NATIONS HUMAN RIGHTS OFFICE OF HIGH COMMISSIONER, <https://www.ohchr.org/en/issues/health/pages/internationalstandards.aspx#:~:text=Everyone%20has%20the%20right%20to,age%20or%20other%20lack%20of> (visited on June 30, 2022)

the government under the Directive Principles of State Policy to ensure that measures are taken to safeguard the health of the citizens of the Constitution. Art. 39 (e), of the Indian Constitution, directs "*The State shall, in particular, direct its policy towards securing the health and strength of workers, men and women*"¹⁰ and Art. 47¹¹ further directs the state to provide 'public assistance in case of sickness and disablement' and make effort to improve the public Health respectively. It is noteworthy that though the right to health was not initially incorporated as a part of fundamental rights, but later by the effort of the judiciary, 'Right to Life under Art. 21' was expanded to include right to health. In the *Parmanad Katara Case*¹², the Supreme Court recognised that the state has the duty to preserve the lives of people. Later, through a string of decisions dating back to the 1984 case of *Bandhua Mukti Morcha v. Union of India and Others*¹³, confirmed that the right to health is derived directly from Article 21 of the Indian Constitution. Once again in *Paschim Bangal Khet Mazdoor Samity & Ors. v. State of Bengal & Ors*¹⁴ the SC stated that the primary duty of a welfare state included a responsibility on the part of the government to ensure that its citizens received appropriate medical care. The importance of right to health was further emphasised during the interpretation of Art 19 in the case of *Burrabazar Fire Works Dealers Association and Others v. Commissioner of Police*¹⁵. In this case, the Hon'ble Calcutta High Court held that Article 19 (1)(g) indicates that the health of the community should take precedence over individual freedom, and that the state is obligated to do the same. The recent *suo moto* case taken up by the Supreme court¹⁶ during the pandemic, also acknowledges the fact that it is the duty of the state to provide health care facilities to the citizen in addition to securing their right to get free vaccination at government health centers.

¹⁰ Art. 41 of 'The Constitution of India, 1950'

"*The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want.*"

¹¹ Art 47 of 'The Constitution of India, 1950'.

"*The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular...*"

¹² *Parmanand Katara v. Union of India*, (1989) 4 SCC 286. "*There can be no second opinion that preservation of human life is of paramount importance...Article 21 of the Constitution casts the obligation on the State to preserve life....*"

¹³ *Bandhua Mukti Morcha v. Union of India and Others*, 1984 SCC (3) 161.

¹⁴ *Paschim Bangal Khet Mazdoor Samity & Ors. v. State of Bengal & Ors*, 1996 SCC (4) 37.

¹⁵ *Burrabazar Fire Works Dealers Association and Others v. Commissioner of Police Calcutta*, AIR 1998 Cal. 121.

¹⁶ *In Re: Distribution Of Essential Supplies And Services During Pandemic; Suo Motu Writ Petition (Civil) No.3 of 2021.*

In view of the foregoing, since an Indian citizen's right to health is a protected fundamental right, citizens also have a right to a free vaccine, as it is a subset of the right to life provided by our Constitution. India, in keeping with its commitment as a welfare state, must deliver the vaccine free of charge, as vaccination is not a personal decision, but a requirement for the country's general security. Thus, it can be aptly said that the right to health is given as one of the most important aspects of a human life, and if we see for a healthy life, the most important need is the right to healthcare and medicine. Maintenance of public health is possible if there are adequate medicines and healthcare instruments and healthcare facilities which employ modern tools and techniques. Inclusion of science and technology in the healthcare system is essential to come up with a new solution to combat the upcoming challenges posed by an increasing number of diseases and an ever increasing population.

ARTIFICIAL INTELLIGENCE IN HEALTHCARE

Artificial intelligence, commonly known as AI, is a blend of three academic disciplines: psychology (cognitive modelling), philosophy (philosophy of mind), and computer science, with other threads from linguistics, mathematics, and logic.¹⁷ Computers are used as tools to perform AI-related tasks such as perception, learning, and problem solving, as well as to commercialise their use in a variety of fields such as medical diagnosis, satellite technologies, mineral prospecting, military, language translation, and speech recognition¹⁸. Advanced programming enables computers to reason independently in a given environment, resulting in outputs with creative features such as AI-bots writing their own poems for renowned fiction such as Harry Potter,¹⁹ or AI attractiveness detection technology utilised in image capture²⁰.

When we look at the healthcare system, we find that with the advancement of technology, the healthcare sector has also been revamped with the help of computers. With the advanced processor and storage capabilities, clubbed with the AI system, the technology is being used in patient care, clinical administration, and research purposes. It is used to store, collect, and

¹⁷ RAJENDRA AKERKAR, INTRODUCTION TO ARTIFICIAL INTELLIGENCE, 2nd ed. (PHI Learning Pvt. Ltd, New Delhi, 2014), <https://books.google.co.in/books?id=sad2BAAAQBAJ&lpq=PP1&dq=introduction%20to%20artificial%20intelligence&pg=PR2#v=onepage&q=introduction%20to%20artificial%20intelligence&f=false>,

¹⁸ *ibid*

¹⁹ Shannon Liao, *This Harry Potter AI-generated fan fiction is remarkably good*, The Verge, <https://www.theverge.com/2017/12/12/16768582/harry-potter-ai-fanfiction>, (last visited July 10, 2022).

²⁰ Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer: Generated Works: Is Anything New Since CONTU?*, 106 Harv. L. Rev., Vol. 106, No. 5 (Mar.1993), pp. 977-1073, available at <http://www.jstor.org/stable/1341682>.

process different types of data that is being used in patients²¹. Even in the health care sector, AI will be able to assist patients and perform administrative tasks in a variety of ways. Most AI and healthcare technologies can be used in the healthcare industry, but how they help might be very different from one company to another. Inclusion of the Artificial intelligence software in healthcare has numerous advantages. Inclusion of artificial intelligence software in healthcare has numerous advantages. With the ability of deep learning, AI is able to predict the treatment procedures for a patient considering their medical history. AI in healthcare is frequently employed for the support of clinical decisions.²² The bulk of AI in healthcare involves supervised learning and precision medicine applications that require data for training, for which the ultimate outcome is known. One example of Natural Language Processing (NLP) is being utilised in AI healthcare applications to understand and categorise clinical paperwork. A natural language processing tool can evaluate fragmented clinical notes on patients, providing tremendous insight into quality, technique improvement, and improved patient outcomes.²³ AI in hospital administrative areas can provide substantial efficiencies. AI in healthcare can be used for a variety of applications, including claims processing, clinical documentation, revenue cycle management, and medical records management.²⁴

AI can help with vaccination reporting. This method is multi-step and requires accurate data reporting. So AI reduces human inspection and consolidates data so healthcare firms don't have to develop reports for different EHRs or pharmacy systems. According to one poll, high-income countries like the USA and China have done more research on how AI may be used to treat and control COVID-19. With increased usage in clinical practise, AI will become more successful and diverse in patient screening, early treatment, and enhanced patient care. One of the main foci of AI research was on COVID-19 identification, categorising, and pharmaceutical

²¹ Sushanth Samudrala, "AI, *Health Care And Law: Part I*", THE DAILY GUARDIAN, (28.10.2021 & , 4:27 AM) <https://thedailyguardian.com/ai-health-care-and-law-part-1/>.

²² Vinyas Harish, et al, *Artificial Intelligence and Clinical Decision Making: The New Nature of Medical Uncertainty*, 31 ACAD MED Res Med Educ, 31, 31 (August 2020) https://www.researchgate.net/publication/343915441_Artificial_Intelligence_and_Clinical_Decision_Making_The_New_Nature_of_Medical_Uncertainty.

²³ MARUTITECH LAB, *Top 14 Use Cases of Natural Language Processing in Healthcare*, <https://marutitech.com/use-cases-of-natural-language-processing-in-healthcare/#:~:text=of%20the%20remedy.,What%20is%20NLP%20in%20Healthcare%3F,best%20use%20of%20unstructured%20data>. (last visited June 07, 2022).

²⁴ FORESEE MEDICAL, *AI in Healthcare*, <https://www.foreseemed.com/artificial-intelligence-in-healthcare/#:~:text=NLP%20systems%20can%20analyze%20unstructured,and%20better%20results%20for%20patients.&text=Expert%20systems%20based%20on%20variations,the%2080s%20and%20later%20periods> (last visited June 06, 2022).

repurposing. This will assist in fighting pandemics like COVID-19.²⁵ In fact, one third of the hospitals and diagnostic imaging centres in the United States are using artificial intelligence for diagnostic purposes.²⁶

USE OF ARTIFICIAL INTELLIGENCE IN COVID-19 CONTROL

In research conducted by a group of scholars in China, it was found that AI achieved high performance in diagnosis, prognosis evaluation, epidemic prediction, and drug discovery for COVID-19. They also concluded that AI has the potential to enhance significantly existing medical and healthcare systems' efficiency during the COVID-19 pandemic.²⁷

During this COVID pandemic, the AI has been an aide to the health care system to combat the said pandemic. AI can and is being utilised from the stage of drug research to trials and distribution of the medications. In the case of mRNA vaccines, there is a requirement to perform re-programming as quickly as feasible in a coordinated manner. And for this purpose, AI suits the best as it helps to keep pace with quickly needed creativity and analysed data.²⁸ It could further be used to help medical professionals create actionable data sets that they might utilise to study underlying causes or other concerns that researchers don't have time to look into. In fact, while dealing with 'lipid nanoparticles', the work of imaging and classifying different features is done on a large scale and is not easily manageable by humans. Artificial intelligence is now being used to analyse these scan images in real time, assisting researchers in their efforts to identify genetic mutations and variances in the growing virus.²⁹ These facilities are quite useful in the development of the vaccine, as their analysis of the huge amount of data leads them to predict the tentative next stage of the virus mutation and thus come up with a solution beforehand. With the assistance of AI, it is possible to optimise the supply chain and logistics for vaccine distribution, guaranteeing that the maximum numbers of people are

²⁵ Muzammil Khan & et al., *Application of Artificial Intelligence in COVID-19 Pandemic: Bibliometric Analysis Health care*, 185 Expert Systems with Application 1,3 (2021) <https://reader.elsevier.com/reader/sd/pii/S0957417421010794?token=2831845AF1A89779938C8AD18373A3C1FD62AC8683E1103A6AD6B2F77CE1A1C56B29F8FD293EB556A165F01A3C1621B9&originRegion=eu-west-1&originCreation=20220309095631>

²⁶ Jessica Kent, One Third of Orgs Use A.I. in Med. Imaging, HEALTH IT ANALYTICS (Jan. 28, 2020), <https://healthitanalytics.com/news/one-third-of-orgs-use-artificial-intelligence-in-medical>.

²⁷ Liang Wang Et Al, *Artificial Intelligence for COVID-19: A Systematic Review*; FRONTIERS IN MEDICINE (Sept 30, 2021), <https://www.frontiersin.org/articles/10.3389/fmed.2021.704256/full>

²⁸ Jonathan Greig, *How AI is being used for COVID-19 vaccine creation and distribution*, TECHREPUBLIC, (April 20, 2021, 6:30 AM PDT), <https://www.techrepublic.com/article/how-ai-is-being-used-for-covid-19-vaccine-creation-and-distribution/>.

²⁹ *ibid*

protected with the least amount of time spent on the vaccination procedure. Additionally, unfavourable responses and side effects can easily be monitored.³⁰

When it comes to testing of the vaccine during clinical trials, AI can be used to help the same. In stages 1 and 2 of the trial, the population sample is small, so manual works, as well as use of simple softwares can be used to analyse the results. However, when the sample grows at the later stages i.e stage 3 and 4, the AI could help by giving insight into the large number of patients' reactions on the basis of previous test results and the history of the patient to whom it is administered.³¹ The AI software is also being used to address the customer's COVID 19 issues over the existing phone, social media, chats, or social channels. The best example of this is the software chatbot³² from Genesys. It is expected that more than 330 million people in the United States will use Genesys' new digital service, COVID-19 Vaccine Rapid Response, which is powered by AI chatbots, to find information.³³

At a very detailed level, AI-augmented simulations can take into account hundreds of factors, such as mobility data, hospital use, and current infection rates, to predict thousands of possible futures for dozens of places in a state. Because of this, decision-makers can send vaccines to the communities and people who need them most.³⁴ In fact, in the case of vaccination, AI will play an important role in vaccine handling, storage, and administration. When AI is used to roll out vaccines, it will be better prepared for the second round of vaccine dosing, thus creating a road map for further vaccination and predicting the spread

LEGAL & ETHICAL CHALLENGES

These days, AI is being incorporated into all areas of the health care sector.³⁵ Data protection is one of the major legal challenges to the use of AI in the health care system. Concerns about information privacy are seen as a huge barrier to using big data in healthcare in India.³⁶ It is noteworthy that health record information is considered sensitive personal data, which needs a

³⁰ *ibid*

³¹ Tom Taulli, *Vaccine Rollout: How AI Can Help*, FORBES, (Jan 30, 2021, 10:13pm EST) <https://www.forbes.com/sites/tomtaulli/2021/01/30/vaccine-rollout-how-ai-can-help/?sh=477d9a707a81>.

³² GENESYS, <https://www.genesys.com/capabilities/chatbots> (last visited July 06, 2022).

³³ <https://www.forbes.com/sites/tomtaulli/2021/01/30/vaccine-rollout-how-ai-can-help/>.

³⁴ *Supra* at Fn 28.

³⁵ Frank Griffin, *Artificial Intelligence and Liability in Health Care*, 31 HEALTH MATRIX 65(2021).

³⁶ Keerti Pradhan, Preethi John, Namrata Sandhu, *Use of artificial intelligence in healthcare delivery in India*, 5 JHMPH (2021) 1, 5, <https://jhmhp.amegroups.com/article/view/6765/pdf>.

higher level of protection³⁷. The artificial intelligence software digs into the huge, tremendous health information of the patents for various purposes, some of which may be without their consent, affecting their right to privacy guaranteed by the Hon'ble Supreme Court.³⁸ There are worries in India that overseas firms have used intangible knowledge from India's healthcare industry to construct a hospital information system employing Indian hospital resources in the past.³⁹

The use of artificial intelligence in the healthcare system not only affects the privacy of the patients but also goes against informed consent, which forms the second big challenge.⁴⁰ Informed consent for the collection of health data and processing the same subsequently is a key challenge, and later on, use of an AI for profiling and assessing the same needs a higher degree of caution and awareness.⁴¹ The other major issue is related to intellectual property (IP) rights. If the data generated using AI belongs to the owner of the AI, the company, or the doctor, deploying the AI use or the AI itself. Though the United States Supreme Court has given its judgement that only a natural person can be the IP rights holder,⁴² making AI software ineligible to be an IP rights holder. However, in the absence of any explicit IP laws, there is still a gap. AI, being a recent technological development, does not have explicit laws to be guided by. The other major legality involved here is the fixation of liability in the case of a wrong done.

One of the ethical challenges involved here is that the use of AI in health-care delivery raises concerns about responsibility, transparency, and permission. When a physician uses a complicated, deep-learning algorithm to diagnose a patient, he or she may not be able to completely comprehend or, more crucially, explain the foundation of the diagnosis to the patient. As a result, a patient may be left confused about the status of their diagnosis or dissatisfied with how their diagnosis was delivered. In fact, in such a case of dilemma, the person who has to be held accountable for the wrong committed by AI diagnosis is usually

³⁷ Art 9. of GDPR 2016 (EU); *See also*, Rule 3 The Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules 2011.

³⁸ *K.S.Puttaswamy v. Union of India*; (2017) 10 SCC 1.

³⁹ Haider H. *Barriers to the adoption of artificial intelligence in healthcare in India*. Brighton: Inst. Dev. Stud (UK); 2020. <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/15272>.

⁴⁰ Sara Gerke, Timo Minssen, and Glenn Cohen, Ethical and legal challenges of artificial intelligence-driven healthcare, *Artificial Intelligence in Healthcare*. (2020) : 295 10.1016/ B9 78-0-12-818438-7.00012-5

⁴¹ Paul Y, Hickok E, Sinha A, et al. Artificial intelligence in the healthcare industry in India. Bengaluru: The Centre for Internet and Society (India); 2018, <https://cis-india.org/internet-governance/files/ai-and-healthcare-report>. *See also* Keerthi, Pradhan, Preethi Jhon & Namrata Sandhu, *Use of artificial intelligence in healthcare delivery in India*, April 2021 JHMHP 5.

⁴² *Naurto v. Slater*, No. 16-15469 (9th Cir. 2018); “DABUS application; In Re application No. 16/524,350. USPTO (2020).

confusing.⁴³ Thus, it is noteworthy that though there is a widespread use of artificial intelligence software in the health care system, there are still different grey areas in the legal arena that need to be regulated for effective implication.

CONCLUSION AND DISCUSSION

Despite the legal and ethical challenges, AI has had a significant impact on the health-care business. From the speedy creation of pharmaceuticals to the monitoring and combating of disease transmission to the tracking of drug distribution, AI has played a critical role in improving the efficiency and speed with which medicine and healthcare facilities are delivered. In the present pandemic, the role of the health care system, powered by AI software, cannot be denied. Thus, we find that if the health care system increases, then only the general public will be able to enjoy the benefits of the health system's addition, making access to medicine an attainable right. Thus, as the healthcare system becomes more efficient, if the government applies the same AI system to the public health sector, giving the right to healthcare will no longer be a pipe dream. This AI software has helped in a better reach of vaccination to people and thus helped people attain their right to health. It can be said that more and more incorporation of artificial intelligence-based technology in the health care sector will help in the realisation of better health facilities in all strata of medicine and health. With the incorporation of this technology into the health care system funded by the government, the fundamental right to health care will be available to every citizen.

⁴³ W. Kenneth Davis, Jr, Ashley Francois & Cheryl Camin Murray, *Top Ten Legal Considerations for Use and/or Development of Artificial Intelligence in Health Care*; 12 NAT.L.REV.(2022) <https://www.natlawreview.com/article/top-ten-legal-considerations-use-andor-development-artificial-intelligence-health>.