**Artificial Intelligence: Ethics in Healthcare**

**Anubha Dubey\***

*\*Department of Computational Biology, Gayatri Nagar, Katni, MP, India.*

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**INTRODUCTION**

In this computer aided technology era, all fields of science involved information technology. Whether it is biotechnology, bioinformatics, nanotechnology, etc. All aspects of researches need to be ethics free so that can be used for human welfare. It is well known that “Necessity is the mother of Invention” and we human beings want all secrets of life disclosed. Regularly different scientific groups are working on finding vaccines for chronic diseases because it is the safest way to be getting rid of diseases. Nowadays artificial intelligence is a boom in all areas whether it is biomedical sciences. It is amalgamation of computer ethics and bioethics.

**ROLE OF NANOTECHNOLOGY IN ARTIFICIAL INTELLIGENCE**

Nanotechnology will play a crucial role in providing nano devices which can repair cells, promising great improvements in longetivity and quality of life, i.e., cancer, HIV, etc. Nanotechnology proves better in understanding the full functioning of the human body [1]. With its molecular mechanism/machines all organizational working is done. Our body is fully functional in all its own way. Many bioinformatics techniques are needed to understand the protein folding and functioning *in silico*. Machine learning models are also developed for understanding disease, diagnosis, and further treatment [2,3]. Machine learning models also help to classify and understand health care system in human by association or interaction of genes, enzymes, proteins. Nanomedicine products are also developed for healthcare are nearly available in the market.

**ARTIFICIAL INTELLIGENCE AND DISEASE DIAGNOSIS/TREATMENT**

*In vivo* disease detection and monitoring through micro-electromechanical system creates “lab-on-a-chip” devices to detect cells infected with bacteria/virus. The devices are manufactured to provide real time processing of several blood levels, leads to a strong cost benefit for people with chronic disease s. Artificial intelligence provide the digital nurses, personal assistant, health monitoring, etc. AI will provide early and precise diagnosis. One example is AiCure, a mobile app that uses AI and image analysis to control patient adherence to prescriptions. This includes making sure patients take their medication on time and perform other tasks ordained by their doctor. This can be useful for people with serious medical conditions and patients who might go against their doctor’s prescriptions.AI models can better use in treatment processes on the basis of patients history [4-6].

**ISSUES AND CHALLENGES FOR AI IN HEALTHCARE**

AI in the healthcare sector assumes substantial significance. Law will need to implement with new innovation in order to save from unusual deeds. There are several ways in which AI is being used or proposed to be used in the healthcare industry which mainly include data collection, data storage, data analysis, monitoring conditions, prescribing treatments, AI assisted robotic surgeries. Hospitals, pharmaceutical companies, diagnostic companies, fitness wearable’s and telemedicine are some of the businesses in the healthcare sector which use AI.

If a medical professional is responsible for case a deficiency of his/her duty leads to negligence. There have been instances of civil as well as criminal penalties being imposed on medical professionals in the past for negligence. The regulations do not, however, distinguish cases where there is an error in diagnosis malfunction of a technology, or the use of inaccurate or inappropriate data. As a result, presently there is no accountability for the software developer developing the AI solution or the specific program engineer who designed it. It is also unclear on how one determines the level of accountability of the medical professional when he/she provides the wrong treatment or diagnosis due to a

**Corresponding author**: Anubha Dubey, Independent Researcher and Analyst, Department of Computational Biology, Gayatri Nagar, Katni, MP, India, E-mail: anubhadubey@rediffmail.com

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glitch in the system or an error in data entry.

Some instances showed that according to publicly available data, patients have had instances of giving unsafe treatment recommendations. For example, reports have suggested that cancer patients with severe bleeding have been recommended a drug that could cause the bleeding to worsen. Under the current regulations in India, the medical professional may not be able to take a defence that he/she relied on the recommendation of an AI solution.The lack of adequate data privacy laws in India could result in such data sets being commercially exploited for matters beyond the development of AI solutions. This is really a big issue that was understood by the Ministry of Health and Family Welfare and released a draft of the Healthcare Security Act. In addition to the electronic health record standards, this law proposes to provide civil and criminal remedies for breach of data and principles for data collection and use. It also provides for the establishment of the National Digital Health Authority, a regulator which will focus exclusively on enforcing healthcare data protection norms.

**IPR**

An intellectual property right provides two types of rights: first is an industrial property right, i.e., trademark, patents, designation of origin, industrial designs and models. And another is copyright. The motive of intellectual property law is for encouragement the own creations. But sadly there is no law for patenting the algorithms. According to IPR, algorithms are not inventions. The AI algorithms are created by collating and analyzing human intelligence which developed creativity with data and datasets of different origins. As the technology is changing fast day by day, now AI is needed for healthcare assessments. It will make the machines to learn from experience, adjust to new inputs and perform human like tasks. While seeing it’s all round importance in research and development, the Indian law will also need to developed and amended constantly and adequately regulate the role of AI in healthcare sector. In India, a committee could be formed which entrusted with the task of evaluating the operation of AI-driven health care solutions and provide suggestions to reform Indian regulations.

As always said we are the best creatures of the almighty to make this world beautiful, so now here is our good chance to reshape the society and make our earth a better place to live. The development of novel technologies based therapies being the part of AI, Bioinformatics, Machine learning, Deep learning, Nanotechnology will arise several ethic principles about human rights which need to be followed in all levels: moral, political, and religion. All these will make human privacy, dignity, justice, and fair access to the knowledge of the diseases for possible beneficial therapy. It is moral responsibility of researchers that they tell beforehand about the misuse or any contemporary use of AI as treatment. AI will deliver healthcare revolution if used in proper manner and unseen ever.

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