Editorial

Artificial Intelligence in Health Care

Artificial intelligence (AI) is the latest in the field of information technology which has influenced all sectors of society with its enabling power of being a facilitator and proactive tool for various activities. Artificial intelligence has been actively utilized in selective defence and space applications wherein its success in solving problems for specific areas like risk assessment and predictability has been acclaimed globally. Artificial intelligence is exploding in popularity and is being sought by various sectors for its precision and scientific might. Growth in the AI health market is expected to reach $6.6 billion by 2021—that's a compound annual growth rate of 40%, which will be a major deciding factor for adoption of this technology.

So what exactly does AI encompass? Artificial intelligence has data at its epicenter and it is the capacity to store and process huge amounts of data in an intelligent manner, and more specifically translate that information into functional tools. Artificial intelligence is revolutionizing the health care industry by its wide applications and utility across various spheres.

The scope of AI in Medical science is unlimited. It seems straight out of fiction, but would you allow a medical robot with AI to examine, diagnose, and prescribe a treatment plan for you or a member of your family with cancer? Would you accept a robot as your primary surgeon? And if you were to do so, what would the human clinician do? Artificial intelligence and robots have long been a theme in fiction. From Isaac Asimov's "I, Robot" in 1950 to Baymax, the care robot in "Big Hero 6," we have always been fascinated by the way things materialize in an automated manner.

Robots like Baymax and tricorder scanners are not mere science fiction. Artificial intelligence and robots that support, diagnose, and treat people are already in homes, workplaces, and clinical environments all over the world. How we embrace AI and robotics to complement and enhance current health care services over the next 10 years will define our ability to deliver a more responsive health service with improved health outcomes, while at the same time enabling people to take more control of their day-to-day health needs.

Artificial intelligence in health represents a collection of multiple technologies enabling machines to comprehend and act decisively so they can perform administrative and clinical health care functions. Innovation of health care systems and processes has led to a safer world of products and these have been evidence-based. This has led to outcome-based care. The future holds augmented reality and AI to deliver predictable intelligent solutions to preventive and curative care. Unlike legacy technologies that are only algorithms/tools that complement a human, AI today can truly augment human activity.

It is imperative that existing technology will face disruptive forces and this confluence of technology-based products, platforms, and solutions will be the harbinger of previously unimagined precision medicine, down to the familial and individual level, which one day may even be able to predict and thereby prevent disease.

It is relevant to understand that better health care provisioning has sprouted in a generation of geriatrics medicine wherein chronic diseases are redefining the health care ecosystem of the globe. The paradigm shift, which is affecting the health sector, can be briefly put as:

- The challenge of handling long-term, chronic disease, rising costs, often with an aging population and limited resources. It is time to manage these issues.
- The past decade has generated humongous quantity of data owing to changing research methodologies. Analyzing them and utilizing them is the need of the hour.
- Information technology development in health care has been rapidly moving from products to services to solutions. The use of technology-based products, platforms, and solutions is leading to a previously unimagined precision medicine, down to the familial and individual level, which one day may even be able to predict and thereby prevent disease.

Artificial intelligence can be utilized in various facets of health care delivery, important amidst which is managing medical records and other data, planning treatment design, digital consultation, virtual nurses, and medication management. Precision medicine is the latest outcome which can gradually move on to planning for customized medicine.

Artificial intelligence must be utilized with a word of caution as healthcare professionals are not in production and mechanical industry, they deal with life and death. Thus, it is important that certain precautions be also embedded into the developing culture.

- Ethical standards which are applicable for the health sector should be developed and regulatory body be earmarked for handling conflicts.
- Timeline with strategic goals be planned by a centralized agency for implementation in our country.
- Training of medical professionals.
- Making the environment and patients aware of this latest development and empowering them for use of technology-based tools for their own health care.

It is important that we embrace the evolving technology with strength and be the first and fast movers in adopting this cutting-edge technology that undoubtedly has the potential to metamorphose the fictions we have heard and seen in the reality of health sector.

Shakti Kumar Gupta
Medical Superintendent
Dr. R.P. Centre for Ophthalmic Sciences
AIIMS, New Delhi, India
Editor in Chief, IJRFHHA

Sunil Kant
Brig (Med)
Editor in Chief, IJRFHAA