### **Emerging Tech in Healthcare Sector**

Healthcare is an emerging and necessary field of work which assists mankind in its numerous endeavours. It is one of the most important circles of society, both in terms of service and work opportunities. Moreover, with advancement in science and technology, numerous processes are being integrated into the healthcare sector. The past decade in itself saw a significant increase in the use of various technologies being used to improve existing systems as well as to introduce numerous new things in this field.

These are some of the ways in which emerging technology is reshaping healthcare for the future:

### Personalized Mobile Apps and Chatbots

Chatbots are software developed with machine learning algorithms, including natural language processing (NLP), to stimulate and engage in a conversation with a user to provide real-time assistance to patients.

A [customized mobile app](https://arkenea.com/blog/healthcare-mobile-app-development/) with integrated EHR/EMR systems could become the single most essential point of interaction between healthcare practitioners and patients.

From soliciting physician consultations, uploading a patient’s medical record, and receiving lab tests via a mobile app, health organizations can certainly develop useful digital technology that is ideal for today’s patients.

Furthermore, chatbots can be used to provide mental health help by bringing in cognitive behavioural therapy (CBT) to patients suffering from depression or post-traumatic stress disorder (PTSD). Woebot, (launched in 2018) is among those successful chatbots that provide CBT, mindfulness, and Dialectical Behaviour Therapy (CBT).

Choices are limitless for chatbots, from care management service to potential diagnosis of mild conditions, there’s a lot to be psyched about within the technology.

### Power of Augmented Reality & Virtual Reality in Healthcare

Augmented reality and virtual reality are useful in a variety of healthcare settings. One of the most popular and useful forms of this technology is the use of mixed reality headsets like Microsoft HoloLens 2 by [surgeons](https://healthtechmagazine.net/article/2021/03/collaboration-and-preparation-what-mixed-reality-surgery-affords-operating-room). The headset can provide heads up information to the surgeon while allowing them to use both of their hands during the procedure.

AR isn’t just restricted to headsets and operating rooms. The technology can also be used to help nurses [find veins](https://www.accuvein.com/why-accuvein/ar/) to draw blood from

AccuVein has come up with a real-world problem-solving technique using augmented reality. The use of AR here makes it much easier for clinicians to locate veins when administering injections by sensing the heat signature of the blood flow and outlining it on the patient’s arm. Using the AccuVein vein finder has been found to improve the likelihood of first stick success by 3.5 times and to reduce the need to call for assistance by 45%.

Implementing such emerging technology allows healthcare practitioners unfettered access to activities that are not currently available, as well as allowing individuals to regain their overall health and mental well-being.

### IoMT And Wearables in Healthcare

The Internet of Medical Things (IoMT) is ushering in a new era of change in the healthcare industry by rethinking the interplay between people and devices in the delivery of healthcare solutions.

IoMT combined with wearable digital devices is quickly becoming one of the most widely implemented techs in healthcare.

One of the most basic things that a smartwatch can provide that can be useful for monitoring a person’s health is heart rate. However, this is not the only thing that a smartwatch can measure. These devices can also monitor physical health with pedometers and blood oxygen saturation. Low blood oxygen saturation is difficult to detect without specialized sensors. Since this can be a life-threatening condition, smartwatches with this sensor can save lives.

Smartwatches are also improving in their ability to measure blood vitals in their users. Photoplethysmography (PPG) is an optical technology that can measure variations in blood volume and composition. Since it has been miniaturized for use on smartwatches, it can provide users with more data than ever about their blood vitals. Healthcare providers can use this data to help advise patients and complete diagnoses.

Combined with IoMT wearables provide a versatile use of technology both to patients as well as doctors.\

### Integrating Artificial Intelligence and Natural Language Processing for A Seamless Experience

Many technical developments, including AI and NLP, are increasingly being lauded for their ability to alter the healthcare industry.

From enhancing clinical data by mapping data elements in unstructured text to structured fields in Electronic Health Records to converting data from machine-readable or different formats into natural language for reporting and training/education purposes, AI, and NLP have it all covered.

Artificial intelligence has plenty of applications outside of treating and responding to the pandemic. AI is incredibly helpful for improving efficiency with information processing and decision making. In the healthcare industry, machine learning is extremely helpful for the development of new pharmaceuticals and the efficiency of diagnosis processes.

Artificial intelligence innovations don’t just apply to physical health. MIT and Harvard University researchers [have utilized machine learning](https://news.mit.edu/2020/covid-19-impact-mental-health-1105) to track trends and mental health in correlation to the COVID-19 pandemic. By using an AI model, they were able to analyse thousands of online Reddit messages to find that topics of suicidality and loneliness had nearly doubled over a period of time. This has the potential to transform our understanding of the mental health of larger populations.

## Organ Care Technology & Bioprinting

With the world’s transplantation market size predicted to reach [$26.5 billion by 2028](https://www.grandviewresearch.com/press-release/global-transplantation-market), organ transplants are certainly an important part of the healthcare industry. According to Matthew J Everly, about [2,000 heart transplants](https://pubmed.ncbi.nlm.nih.gov/19708444/) take place in the United States every year.

[The Organ Care System](https://www.thelantern.com/2021/08/wexner-medical-center-uses-new-heart-preservation-technology-in-clinical-trial/) developed by Trans medics is a great example which is in use by the Ohio State University’s Wexner Medical Centre. This device can keep a heart, lung, or liver outside of the body for several hours through proper care, heat, and provision of important nutrients.

In addition to keeping organs alive outside of the body, other options should also be explored. Although it may sound like science fiction, [3D printed organs](https://interestingengineering.com/the-science-fiction-world-of-3d-printed-organs) are a very real, although developing, technology that has already made its way into clinical testing. Ears, corneas, bones, and skin are all organs in clinical testing for 3D bioprinting.

### Future of Healthcare Technology and Final Thoughts

The arrival of new technologies such as artificial intelligence (AI), natural language processing (NLP), augmented reality (AR), virtual reality (VR), and chatbots are radically transforming the landscape and ushering in a new era in healthcare. In this industry, the purpose of digitization is to improve healthcare quality while reducing the physician burden.

As 2022 rolls forward, healthcare technology will continue to improve in every area. Although security will improve across the industry, threats are always evolving that must be dealt with through prevention rather than response. Quality and efficiency of care will continue to improve due to ground-breaking and evolving technologies like artificial intelligence, machine learning, and extended reality.

These ‘patient first’ technologies are clearing the way for new sectors of medical science applications, enabling patients to live longer while also contributing to research and innovation.