AI is getting increasingly sophisticated at doing what humans do, but more efficiently, more quickly and at a lower cost. The potential for both AI and robotics in healthcare is vast. Just like in our every-day lives, AI and robotics are increasingly a part of our healthcare eco-system.

We have highlighted eight ways that showcase how this transformation is currently underway.

Diagram

Description automatically generated

Shape

Description automatically generated with medium confidence

One of AI's biggest potential benefits is to help people stay healthy so they don't need a doctor, or at least not as often. The use of AI and the Internet of Medical Things (IoMT) in consumer health applications is already helping people.

Technology applications and apps encourage healthier behaviour in individuals and help with the proactive management of a healthy lifestyle. It puts consumers in control of health and well-being.

Additionally, AI increases the ability for healthcare professionals to better understand the day-to-day patterns and needs of the people they care for, and with that understanding they are able to provide better feedback, guidance and support for staying healthy.

Shape

Description automatically generated with medium confidence

AI is already being used to detect diseases, such as cancer, more accurately and in their early stages. According to the American Cancer Society, a high proportion of mammograms yield false results, leading to 1 in 2 healthy women being told they have cancer. The use of AI is enabling review and translation of mammograms 30 times faster with 99% accuracy, reducing the need for unnecessary biopsies[1].

The proliferation of consumer wearables and other medical devices combined with AI is also being applied to oversee early-stage heart disease, enabling doctors and other caregivers to better monitor and detect potentially life-threatening episodes at earlier, more treatable stages.

Shape

Description automatically generated with medium confidence

IBM’s Watson for Health is helping healthcare organizations apply cognitive technology to unlock vast amounts of health data and power diagnosis.  Watson can review and store far more medical information – every medical journal, symptom, and case study of treatment and response around the world – exponentially faster than any human.

Google’s DeepMind Health is working in partnership with clinicians, researchers and patients to solve real-world healthcare problems. The technology combines machine learning and systems neuroscience to build powerful general-purpose learning algorithms into neural networks that mimic the human brain.

Shape

Description automatically generated with medium confidence

Improving care requires the alignment of big health data with appropriate and timely decisions, and predictive analytics can support clinical decision-making and actions as well as prioritise administrative tasks.

Using pattern recognition to identify patients at risk of developing a condition – or seeing it deteriorate due to lifestyle, environmental, genomic, or other factors – is another area where AI is beginning to take hold in healthcare.

Shape

Description automatically generated with medium confidence

Beyond scanning health records to help providers identify chronically ill individuals who may be at risk of an adverse episode, AI can help clinicians take a more comprehensive approach for disease management, better coordinate care plans and help patients to better manage and comply with their long-term treatment programmes.

Robots have been used in medicine for more than 30 years. They range from simple laboratory robots to highly complex surgical robots that can either aid a human surgeon or execute operations by themselves. In addition to surgery, they’re used in hospitals and labs for repetitive tasks, in rehabilitation, physical therapy and in support of those with long-term conditions.

Shape

Description automatically generated with medium confidence

We are living much longer than previous generations, and as we approach the end of life, we are dying in a different and slower way, from conditions like dementia, heart failure and osteoporosis. It is also a phase of life that is often plagued by loneliness.

Robots have the potential to revolutionise end of life care, helping people to remain independent for longer, reducing the need for hospitalisation and care homes. AI combined with the advancements in humanoid design are enabling robots to go even further and have ‘conversations’ and other social interactions with people to keep aging minds sharp.

Shape

Description automatically generated with medium confidence

The path from research lab to patient is a long and costly one. According to the California Biomedical Research Association, it takes an average of 12 years for a drug to travel from the research lab to the patient. Only five in 5,000 of the drugs that begin preclinical testing ever make it to human testing and just one of these five is ever approved for human usage. Furthermore, on average, it will cost a company US $359 million to develop a new drug from the research lab to the patient[1].

Drug research and discovery is one of the more recent applications for AI in healthcare. By directing the latest advances in AI to streamline the drug discovery and drug repurposing processes there is the potential to significantly cut both the time to market for new drugs and their costs.

Shape

Description automatically generated with medium confidence

AI allows those in training to go through naturalistic simulations in a way that simple computer-driven algorithms cannot. The advent of natural speech and the ability of an AI computer to draw instantly on a large database of scenarios, means the response to questions, decisions or advice from a trainee can challenge in a way that a human cannot. And the training programme can learn from previous responses from the trainee, meaning that the challenges can be continually adjusted to meet their learning needs.

And training can be done anywhere; with the power of AI embedded on a smartphone, quick catch up sessions, after a tricky case in a clinic or while travelling, will be possible.