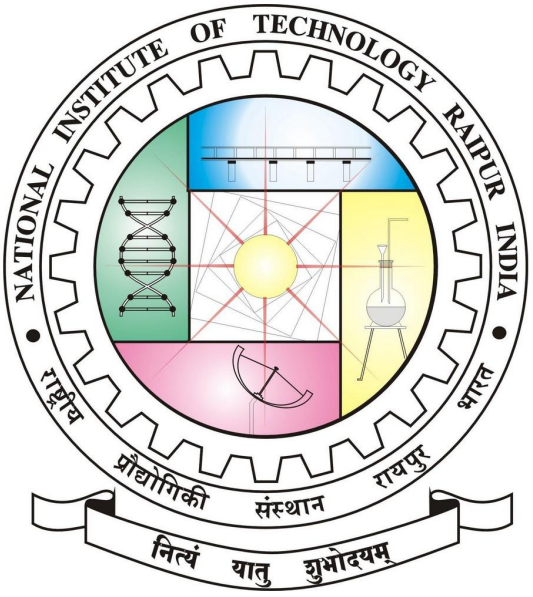

National Institute Of Technology

RAIPUR

ASSIGNMENT 03

FUTURE OF HEALTH CARE

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1 WHAT IS FUTURE OF HEALTH CARE ?

Like many other sectors, healthcare is about to enter a period of rapid change. Longevity and the advance of new technologies and discoveries – as well as innovative combinations of existing ones – are among the many factors propelling patient empowerment, which is fundamentally changing how we prevent, diagnose and cure diseases. To understand what we should expect in the years ahead, we empaneled experts in the field of healthcare to predict which technologies and innovations we will see in the near term (the next five years) and in the long term (twenty-five years and beyond). We then surveyed 400 global business leaders in and around the healthcare sector on whether they agree with the panel's views, and what they perceive as the biggest hurdle to these technologies coming to fruition.

1.1 FUTURE HOSPITALS:

While the advancements in medical knowledge and capability made over the years have been remarkable, hospitals have remained basically the same over the past fifty years. Tomorrow's hospitals will no doubt rely more heavily on robotics and digital technologies. Many of the physical and m doctors perform today will be automated via hardware, software, and combinations of both. That will leave hospitals with more space in addition to the space already being freed up through telemedicine and remote healthcare, which reduce the need for patient visits. Babylon Health, a London startup developing an AI that fields patients' health questions like a GP, currently being piloted by Britains NHS. reckons that 85 per cent of consultations do not need to be in person.

1.2 ARTIFICIAL INTELLIGENCE AND THE FUTURE OF HEALTHCARE:

One of the great early attempts to automate the work of doctors with artificial intelligence was made half a century ago in doctoral dissertation at Stanford University in the US. The system – christened "MYCIN"- attempted to codify the diagnostic process for infectious blood diseases in an algorithm – from identifying the cause of an infection to choosing a course of treatment.

Unlike some other pioneering work in AI of the time that failed to live up to the hype, MYCIN was a true success, and delivered on what it set out to do at times outperforming practicing experts. It was, however, never adopted in practice. That was because the bulk of what a doctor does is not diagnostic, of the kind MYCIN automated - to adopt it would not have to saved doctors much time at all. Rather, much of what doctors spend their time doing is observing and measuring: they ask

questions, listen and observe, take measurements and run tests. Much of medicine is perceptual. It is only very recently, with the advent of deep-learning algorithms in the current AI renaissance, that machines have started to equal or at times exceed humans in a wide range of perceptual tasks. This has truly transformative potential in medicine.

1.3 NANOTECHNOLOGY IN FUTURE OF HEALTHCARE:

Materials at the nanoscale - in the tens of nanometers - are almost incomprehensibly tiny (a sheet of paper is about 100000 nanometers thick). Engineering at this size requires manipulating individual atoms. Physical properties, such as conductivity or melting point behave differently, making it exceptionally challenging to work with. But gaining the ability to do so – to build molecule-sized machines that can build and manipulate their environment at an autonomic level, or manipulate structures made of proteins or DNA – would be the most radical transformation of healthcare in centuries.

1.4 IOT IN HEALTHCARE:

One of the most hyped technological trends of the past ten years has been the promise of internet-connected everyday devices to transform everyday life by moving the internet off of our screens and into the physical environment. It is a vision that is already being realised with the arrival of connected coffee machines and increasingly popular smart speakers such as the Amazon Echo or google Home. Many fitness fanatics have embraced wearable tracking devices such as armbands, watches or heart-beat monitors that measures their physical activity.

The ability to put cheap sensors into any object, and connect them to the internet, offers a host of benefits, particularly in healthcare. Patients save time by being monitored remotely. Those with mobility issues will also benefit, as will the hospitals and clinic, which will face lesser burdens on capacity. Doctors will also receive continuous patient data, giving them a more detailed picture of there patient health.