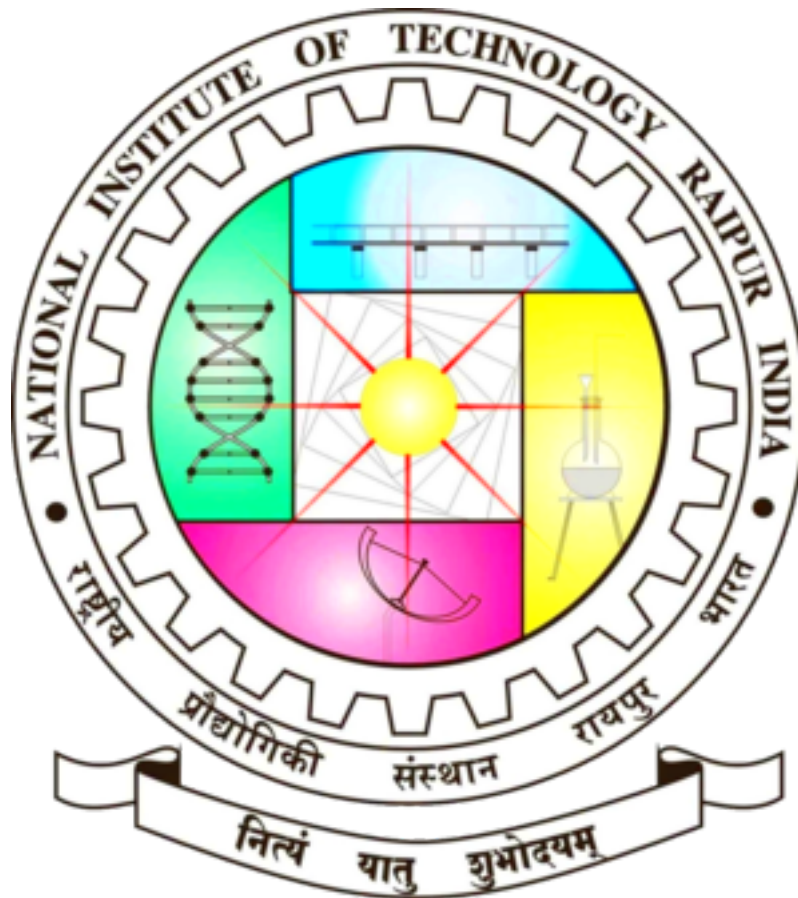# BASIC BIOMEDICAL ENGINEERING(FUTURE OF HEALTHCARE..)

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1   INTRODUCTION:

The future of Healthcare systems would demand professionals for more precision and accurate predictions for better treatment and diagnosis of diseases. With the current advancements in healthcare industries new technologies are emerging, creating new space for more precision and expand global health horizon.Also, automating current complex procedures would help in improving efficiency and avoiding human errors , helping professionals.The problems in our health care systems include quality and patient safety, a misplaced focus on acute care rather than on prevention and population health, inadequate person centeredness, and unsustainable cost.

2   CURRENT PROBLEMS:

The current healthcare system is dealing with varieties of problems. Here are few to name:

1)**CONSUMER EXPERIENCE-**Understanding, addressing, and assuring that all consumer interactions and outcomes are easy, convenient, timely, streamlined, and cohesive so that health fits naturally into the life flow of every individual's, family's and community's daily activities.

2)**COSTS AND TRANSPARENCY-** For Decades, Healthcare Costs Have Risen at Rates that Outpace the General Rate of Inflation..Transparent healthcare information is useful for a wide range of stakeholders including patients employers/purchasers, health plans, health care professionals, and policy makers. Research has found that transparency can help a patient and their families make informed choices when selecting a health plan, hospital, clinical practice, or choosing among alternative treatments, although there are questions about how well and how often patients make use of such information and how best to present such information to the public. In addition, increased healthcare transparency can allow for increased trust in the patient physician relationship and health care systems. Transparency can also improve quality, safety and efficiency throughout the healthcare system due to competition and/or the availability of clinical benchmarks.

3)**DELIVERY SYSTEMS-**Service delivery is the part of a health system where patients receive the treatment and supplies they are entitled to. All the other parts of the health system examined in this map support the delivery of healthcare services and, as a result, corruption in these other areas will indirectly impact on the quality of delivery. For example, unpublished harms data from clinical trials could lead to healthcare providers basing the treatments they give on unsound medical knowledge.

4)**PRIVACY AND MANY MORE.....**

3   HOW IN FUTURE OF HEALTHCARE SUCH PROBLEMS CAN BE SOLVED, ALSO POSSIBLE ADVANCEMENTS :

The future of healthcare services will ask professionals to integrate traditional skills in care, communication, and leadership with new skills in technology and analytics.Here are few of them:

1)Precision Medicine for Personalized Healthcare
In contrast to a one-size-fits-all approach, precision medicine takes into account an individual's genes, environment, and lifestyle to identify personalized disease treatments and prevention strategies. Best known for its uses in oncology, such as tracking the genetic profile of patient's tumor cells to identify the most effective forms of treatments, precision medicine is also impacting pharmaceutical research and healthcare technology.

2)Specialized Outpatient Care Centers
To improve the patient experience, healthcare providers are offering more timely and specialized treatment. Outpatient surgeries, or same-day surgeries, are typically less complex, and they include cataract removals and colonoscopies. Instead of the traditional hospital setting, these procedures are now offered at ambulatory surgery centers

3)Robotics in Healthcare
Robots in the medical field are transforming how surgeries are performed, streamlining supply delivery and disinfection, and freeing up time for providers to engage with patients. Robots are now used not only in the operating room, but also in clinical settings to support health workers and enhance patient care.

4)TELEMEDICINE
Telemedicine, also referred to as telehealth or e-medicine, is the remote delivery of healthcare services, including exams and consultations, over the telecommunications infrastructure.

5)BIONICS
Bionic implants refer to electronic or mechatronic parts that augment or restore physical functionality to a differently-abled person. The bionics industry has grown along four major application areas: vision, hearing, orthopedics and a small, motley group of implants that augment cardiac and neurological functions.

6)INFORMATION TECHNOLOGY IN MEDICINE
Health information technology is health technology, particularly information technology, applied to health and health care. It supports health information management across computerized systems and the secure exchange of health information between consumers, providers, payers, and quality monitors.

7) DATA PRIVACY AND CYBERSECURITY IN HEALTHCARE

Health care is evolving into a new era where nearly everything is connected through digital technologies to meet the common goal of improving the way health care is delivered to patients. In this future, there is no more guessing; consumers will know how to take their health into their own hands. Underlying all of these exciting developments is cyber. It's truly everywhere. And the risks surrounding it will only increase as the future of health takes shape.

8) FUTURE OF SURGERIES

Surgery is shifting from seeing, feeling and manipulating organs and tissues through the surgeon's own eyes and hands, to using an intelligent robotic medium to see and intervene inside the body. Developments in laparoscopic and endoscopic surgery will enable less invasive diagnostic and therapeutic procedures.

9) FUTURE OF HEALTH DIAGNOSIS

The future of diagnostics will still incorporate traditional modalities but with significant adoption of new smart medical technologies, health analytics, and AI. Similar to disruptions in other industries, the health diagnostic community is going to see newcomers such as consumer technology and AI companies dominate the industry as their devices and algorithms are increasingly being modified for use in health monitoring and diagnosis. These companies that produce watches, fitness trackers, and smartphones and have not previously dealt with FDA regulatory approvals will have to now work with them to redefine what constitutes a medical device. Finally, as we enter the era of precision medicine, wearables and AI, the future of health diagnostics will not only be about timely and precise treatment, but also prevention.

10) XENOBOTS

Currently, xenobots are primarily used as a scientific tool to understand how cells cooperate to build complex bodies during morphogenesis. However, the behavior and biocompatibility of current xenobots suggest several potential applications to which they may be put in the future.In future clinical applications, such as targeted drug delivery, xenobots could be made from a human patient's own cells, which would bypass the immune response challenges of other kinds of micro-robotic delivery systems. Such xenobots could potentially be used to scrape plaque from arteries, and with additional cell types and bioengineering, locate and treat disease.