

# Usage of AI

## 1. Case of usage of AI

Processing medical signals using machine learning techniques. For example, epilepsy seizure prediction based on EEG or identifying stroke based on ECG signal.

## 2. Benefits of AI

- AI can definitely assist physicians
  - Clinical decision making ( better clinical decisions )
  - Replace human judgement in certain functional areas of healthcare (eg, radiology).
  - up-to-date medical information from journals, textbooks and clinical practices
  - Experienced vs fresh Clinician
  - 24x7 availability of expert
- Early diagnosis
- Prediction of outcome of the disease as well as treatment
- Feedback on treatment
- Reinforce non pharmacological management
- Reduce diagnostic and therapeutic errors
- Increased patient safety and Huge cost savings associated with use of AI
- AI system extracts useful information from a large patient population
- Assist making real-time inferences for health risk alert and health outcome prediction
- Learning and self-correcting abilities to improve its accuracy based on feedback

## 3. Potential challenges

- Development costs
- Integration issues
  - Ethical issues
  - Reluctance among medical practitioners to adopt AI
  - Fear of replacing humans
- Data Privacy and security
  - Mobile health applications and devices that use AI
  - Lack of interoperability between AI solutions
- Data exchange
  - Need for continuous training by data from clinical studies
  - Incentives for sharing data on the system for further development and improvement of the system.
  - All the parties in the healthcare system, the physicians, the pharmaceutical companies and the patients, have greater incentives to compile and exchange information
- State and federal regulations

- Rapid and iterative process of software updates commonly used to improve existing products and services

#### **4. Ethical issues**

Many ethical and social issues raised by AI overlap with those raised by data use, automation, the reliance on technologies more broadly, and issues that arise with the use of assistive technologies and ‘telehealth’ such as:

- Reliability and safety
- Transparency and accountability
- Data bias, fairness, equity
- Effects on patients
- Trust
- Effects on healthcare professionals
- Data privacy and security
- Malicious use of AI
- Challenges for government