

NATIONAL HEALTH SERVICE



Nazia Kousar Rafiq 2030249

Dominate Alexandra Ionela 2030824

Leonildo Vieira Co 2030796

Rute Eugenio Ribeiro Spencer 2028984

BACKGROUND OF THE NHS

- NHS= National Health Services
- NHS created= 5 July 1948 (England)
- Provides healthcare for UK citizens for free
- Values - working together for patients, respect and dignity, commitment of quality of care, compassion, improving lives and everyone counts
- Founder = Aneurin Bevan
- Headquarter = London



(NHS, 2015)



BACKGROUND OF THE NHS

- GP holds electronic records of patient data and can be used anywhere in the healthcare system.
- NHS Provides:
 1. High quality care for staff and patients
 2. Services and supports patients
 3. Focus on patient experience
 4. Education and training (NHS, 2014)



Improvement

(Stephenson, 2019)



BACKGROUND OF THE NHS

- Aim= improve the safest care quality
- 6Cs= care, compassion, courage, commitment, competence and communication (set by NHS England chief nursing officer Jane Cumming)
- Barts health NHS trust = 5 branches (Royal London, Whipps cross, Mile end, St Bartholomew's(Barts) and Newham) (established 2012)

(Stephenson, 2019)



Barts Health
NHS Trust



CHALLENGES BEFORE MODERN TECHNOLOGY



- NHS is struggling to keep up with technology
 - NHS was meant to be 100% digital by 2020.
 - Unsecure data
 - Slow appointments
 - Hand written reports
 - Hard to communicate
- (Scroxtton, 2021)



CHALLENGES BEFORE MODERN TECHNOLOGY

- Low percentage of saving lives
 - Hard to find information
 - Time wasting on opening doors and germs spreading due to no automatic doors
- (Scroxtton, 2021)



INSIGHTS TO THE MODERN TECHNOLOGY INTRODUCED

Insights to Artificial Intelligence use in NHS

- The use of AI in medicine is divided into two categories:

❑ virtual branch:

Machine Learning (also known as Deep Learning)-mathematical techniques that enhance learning via experience—represents the virtual component.

❑ physical branch

Use of robots and such to perform some duties.

(Panesar, 2019)



BENEFITS OF ARTIFICIAL INTELLIGENCE IN NHS

- AI can undoubtedly help doctors:
 - ❑ Clinical decision making - improved clinical decision making
 - ❑ In some sectors of healthcare, artificial intelligence may take the role of human judgment (eg, radiology).
 - ❑ current medical knowledge derived from journals, textbooks, and clinical procedures
 - ❑ Clinician Experience vs. New Clinician
 - ❑ Experts are available 24 hours a day, seven days a week.

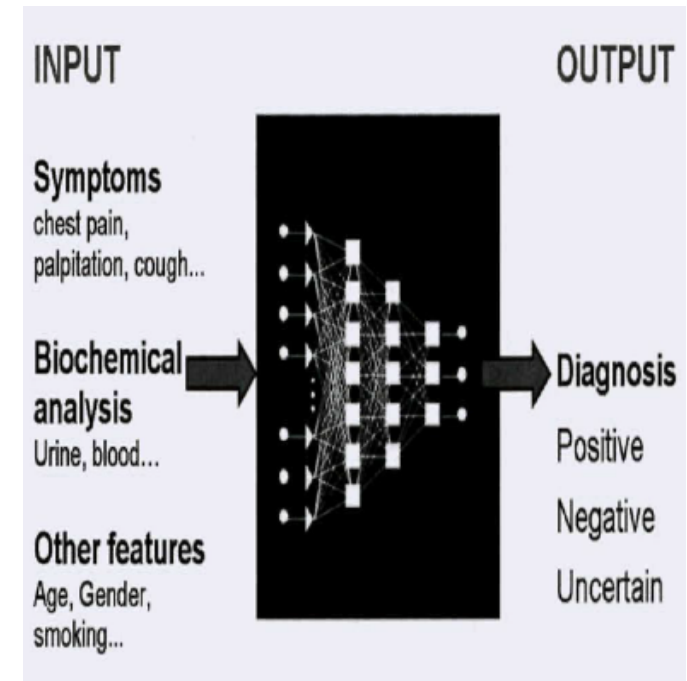
(Panesar, 2019)



BENEFITS CONTINUED...

- ❑ Early detection
- ❑ Prediction of illness prognosis as well as therapy
- ❑ Treatment feedback
- ❑ Strengthen non-pharmacological management.
- ❑ Cut down on diagnostic and therapeutic mistakes.
- ❑ Increased patient safety and significant cost reductions are linked with the usage of AI.
- ❑ An artificial intelligence system collects valuable information from a huge patient population.
- ❑ Assist in making real-time inferences for health risk alerts and prediction of health outcomes.
- ❑ Based on input, it learns and self-corrects to increase its accuracy.

(Shah and Chircu, 2018)



CHALLENGES OF AI USE IN NHS

- Costs of development
- Problems with integration
- Ethical concerns
 - ❑ Fear of replacing people is causing reluctance among healthcare professionals to embrace AI.
- Privacy and security of data
 - ❑ AI-powered mobile health apps and devices
 - ❑ Interoperability issues between AI solutions

(Shah and Chircu, 2018)



CHALLENGES CONTINUED...



- Exchange of information
 - ❑ Data from clinical trials are needed to provide ongoing training.
 - ❑ Incentives for providing data about the system in order to further develop and enhance the system. Nonetheless, all stakeholders in the healthcare system, including doctors, pharmaceutical firms, and patients, have more incentives to collect and share data.
- Regulations at the state and federal levels
- Rapid and iterative software update processes are frequently employed to enhance current goods and services.

(Shah and Chircu, 2018)



THE IMPACT OF THE TECHNOLOGY INTRODUCED

Impact of AI on NHS

- Exceptional achievement in a variety of economic areas AI models have the potential to enhance healthcare operations.
- Healthcare Artificial Intelligence and Automation
Collaboration with tech companies has increased to make healthcare better
- Interested in evaluating current regulations and facilitating the safe integration of artificial intelligence (AI) into healthcare

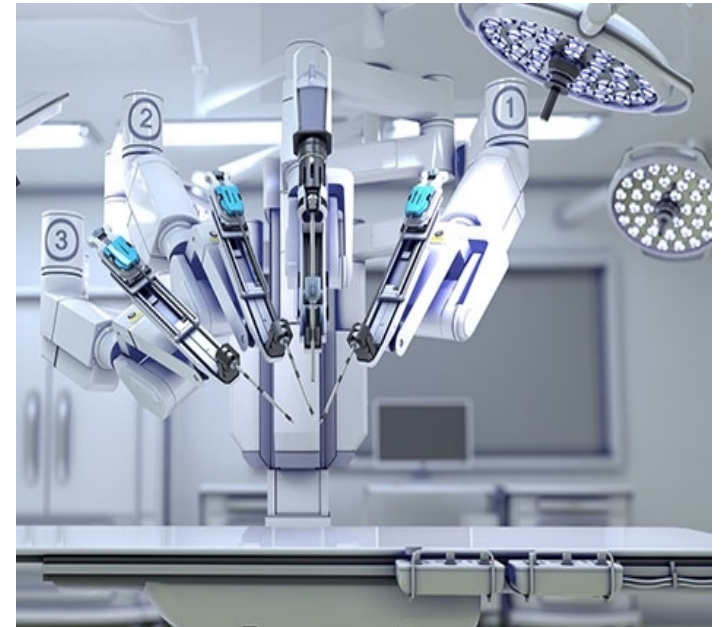
(Davenport and Kalakota, 2019)



IMPACT OF ARTIFICIAL INTELLIGENCE ON NHS

- AI has both good and bad impacts on nurses' and other medical personnel's work.
- Automated robots can do riskier jobs with more precision and accuracy.
- Healthcare professionals are at risk of losing their jobs.

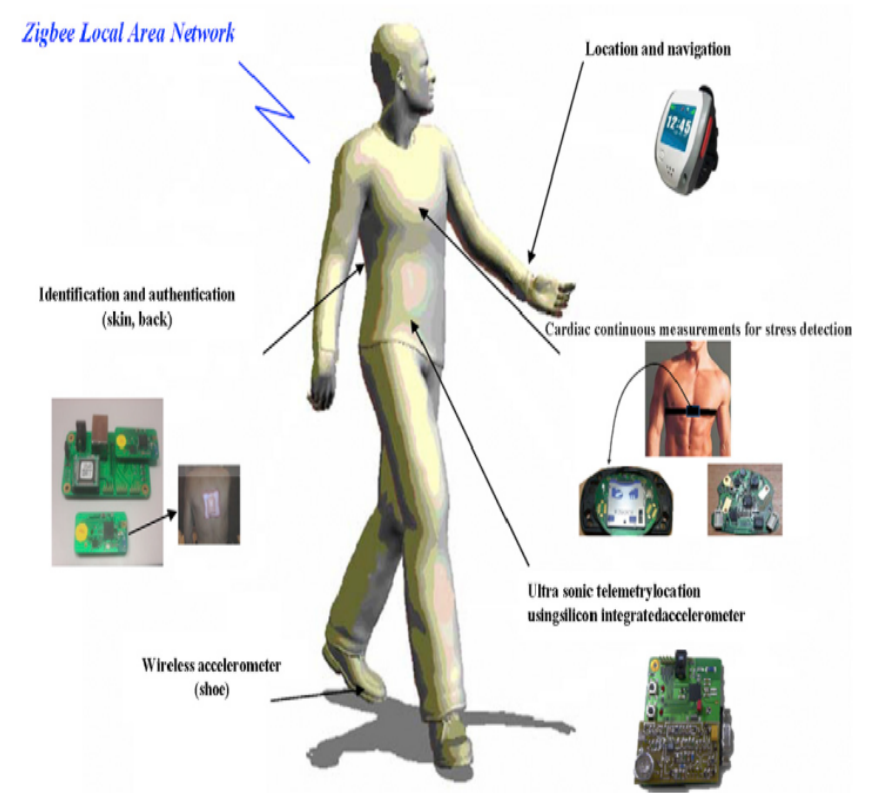
(Davenport and Kalakota, 2019)



IMPACT OF AI ON NHS

- Understanding the fundamental information and processes supplied into the machines is critical.
- AI promises to revolutionize healthcare procedures at an exponential rate.
- Delivering more customized care
- Machines help to enhance patient medical records.

(Pawar et al., 2020)



IMPACT OF AI ON NHS

- Increases safety precautions
- Reduces the likelihood of acquiring diseases and infections
- Workstations may be scanned and sanitized by machines to remove possible threats.
- increased diagnostic precision
- Care delivery effectiveness

(Davenport and Kalakota, 2019)



IMPACT OF AI ON NHS AND LESSONS THAT CAN BE DRAWN FROM THE CASE STUDY

- Medical records of patients Pharmaceutical research and development
- Enhance access to high-quality care.

The negative consequences are as follows:

- Machines are a direct threat to healthcare workers' practice like instances of inequality
- AI has hampered efficient face-to-face communication.
- AI has increased the expense of operating health care facilities.

(Panch et al., 2019)



CONCLUSION

- **With all the information gathered we can conclude that the technology has helped a lot to develop the functioning of the NHS**
- **Now services get easier for NHS staff**
- **Patients are already able to make appointments more easily**
- **Services are faster than they used to be**
- **And it helps to save the lives of many people**



REFERENCES

- NHS (2015). *Values of the NHS Constitution*. [online] Health Careers. Available at: <https://www.healthcareers.nhs.uk/working-health/working-nhs/nhs-constitution>.
- NHS (2014). *7 Key Principles | EPUT*. [online] EPUT. Available at: <https://eput.nhs.uk/about-us/nhs-constitution/7-key-principles/>.
- Stephenson, J. (2019). *NHS England to rollout '6Cs' nursing values to all health service staff*. [online] Nursing Times. Available at: <https://www.nursingtimes.net/roles/nurse-managers/exclusive-6cs-nursing-values-to-be-rolled-out-to-all-nhs-staff-23-04-2014/>.
- Panch, T., Mattie, H. and Celi, L.A., 2019. The “inconvenient truth” about AI in healthcare. *NPJ digital medicine*, 2(1), pp.1-3.
- Davenport, T. and Kalakota, R., 2019. The potential for artificial intelligence in healthcare. *Future healthcare journal*, 6(2), p.94.
- Pawar, U., O'Shea, D., Rea, S. and O'Reilly, R., 2020, June. Explainable ai in healthcare. In *2020 International Conference on Cyber Situational Awareness, Data Analytics and Assessment (CyberSA)* (pp. 1-2). IEEE.



REFERENCES

- Panesar, A., 2019. *Machine learning and AI for healthcare* (pp. 1-73). Coventry, UK: Apress.
- Shah, R. and Chircu, A., 2018. IoT and AI in healthcare: A systematic literature review. *Issues in Information Systems*, 19(3).
- Alex Scroxton, 2021. *Privacy experts concerned over NHS data collection plans*. [online] Available at: <https://www.computerweekly.com/news/252501494/Privacy-experts-concerned-over-NHS-data-collection-plans> [Accessed 20 Aug. 2021].
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