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Trinity Saint David

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Digital Skills and Research Methods

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Introduction

The use of technology is increasing healthcare services to enhance the quality of care services and offer effective medication based on expert knowledge and wider research. It has also made record keeping easy and safe. Medical staff can offer remote consultation to patients for timely intervention. It has become easy for people to access medical services using search engines and social media platforms. This presentation shall discuss the use of contemporary technologies in healthcare and during covid-19. It will also explain the use of digital communication, collaboration and participation. It will mention the use of digital literacy for employee well-being and the relevance of technical proficiency for data and information handling.

The use of contemporary technology in healthcare (diagnostic, administrative and care support).

Diagnostics:Technological intervention has a significant impact on diagnostic services, as it has increased transparency in services by providing patients, families and medical staff access to clinical documentation. Similarly, machine learning systems and AI-based tools are used for clinical analysis and optimising cognitive

performance (healthmanagement.org, 2022). The human genome is used for offering companion diagnostics. The data mining approach is used for supporting reliable diagnostics processes by identifying delayed and missed tests and follow-ups during services. Hence, the effectiveness of medicine on patients is analysed using this technology. The government is investing £250 million in NHSD to digitise diagnostics (gov.uk, 2022). This will enable clinical labs in sharing test reports, and scans with hospitals and doctors.

Administrative: Technology is making administrative operations more efficient and effective. These operations play important roles in managing patient history and keeping records of medical staff and other resources. Technology has helped professionals in managing and retrieving the bulk of data effectively using data management systems and cloud networks. Similarly, communication is also an important part of administrative operations in healthcare. Emails, websites, text messages and electronic recording systems are used for daily communications. Virtual and augmented realities are used for training staff in healthcare organisations, as it gives the close experience of real-life medical scenarios (O'Regan and O'Regan, 2022). Big Data analytics is used for understanding trends and patterns related to rare diseases and the health standards of people.

Care Support: Technology-enabled care services (TECS) are gaining popularity due to convenience and wider reach. It is developed by NHS commissioners to maximise the value of care services for the health economy (England.nhs.uk, 2022). TECS includes telemedicine, telecare, telehealth and telecoaching services that ensure long-term convenient and cost-effective care services for patients. Apps and wearables are everyday tools that are used in care services to meet the daily care needs of people using communication, information and instructions. In telecare, sensors are positioned in the homes to monitor safety and identify the need for care or support (carersuk.org, 2022). These new technologies are enabling timely interventions and effective management of rare diseases.

The use of technology during Covid-19

Digital technologies have been used widely during the covid-19 pandemic for supporting public health response to pandemics worldwide. It was used for population surveillance, contact tracing, online interventions and consultations. A large number

of smartphones, online datasets, machine learning and connected devices were used to create awareness about health and safety and make health consultations and testing accessible during the pandemic. Notable developments in video and phone consultations were identified. The use of mobile applications for remote working increased due to safety guidelines. NHS application for patient record access and online bookings was introduced during the pandemic. The use of video conferencing software increased in healthcare organisations for professional support in clinical decision-making. AI-driven image analysis was used to monitor and diagnose the progression of covid-19 in different regions. According to a survey of technology respondents, it is identified that 73% of people used phone consultations with medical staff and 33% of people used an app for COVID tracing (health.org.uk, 2022).

Data dashboards have been used extensively during the pandemic to collate real-time public health data such as testing figures, confirmed cases and deaths. Drones and robots were used in hospitals for transporting medicines without human intervention. The use of technologies in diagnostics and clinical decision-making helped in monitoring a large number of COVID patients and managing a huge volume of pandemic related data (Nair, 2022). Online consultations ensured timely interventions without any risk of physical contact. Test reports were easily available for diagnosis and treatment. Innovation and technology in healthcare have increased the reach of medical services in society through online presence.

The use of digital communication, collaboration, and participation

Population growth, increasing chronic conditions and longevity are increasing healthcare challenges in the UK. Customer demands for quality care and patient-centred healthcare services are increasing. The use of mobile phones and the internet increasing among all age groups (deloitte.com, 2022). Therefore, Healthcare organisations are using technology for digital communication, collaboration and participation. **Digital communication** includes the exchange of ideas and information using webinars, emails and online lectures. Communication using digital tools such as websites, social media, text messages and emails are used to keep track of patient health and provide timely support to avoid major health risks. Similarly, digital communication among medical staff drives learning and growth opportunities for professionals. Online coaching, mentoring and training for healthcare staff helped in

updating skills and knowledge as per the latest trends and emerging health risks. Awareness about health and safety risks is created using digital tools on wider levels.

Digital collaboration indicates the capacity to participate in digital workgroups and teams (Learning, 2019). These collaborations have increased with the growing use of the internet, conferencing tools and smartphones. Doctors and medical staff can collaborate with other medical professionals from different parts of the world to discuss new treatments, medical tools and potential health risks. Healthcare organisations are collaborating with tech experts and media networks to develop customised tools and systems as per healthcare needs for better service quality and wider reach. **Digital participation** in healthcare means active participation in building digital networks for collaborations and communication (Learning, 2019). For instance, medical professionals can participate actively in relevant social media platforms and trends to share their learning and expand their knowledge by interacting with other professionals. Awareness about healthy habits and safety guidelines can be created through digital participation. Similarly, new collaboration opportunities can be explored by digital interactions.

Digital identity, well-being, and safety

Digital identity means the capacity to develop and project a positive identity on digital platforms. This is generally used to manage personal or organisational reputation during digital communication and collaborations (Richardson and Milovidov, 2019). The digital identity of healthcare organisations and professionals is important to gain the trust and confidence of people. Public for choosing the right healthcare services and developing healthy habits uses information shared on the digital platforms from these identities. A positive identity can be made on digital platforms by acting responsibly and safely. Online activities can be reviewed to identify any issues related to digital identity. Fake identities and misleading information can contribute to a significant loss of customer trust and market reputation.

Digital well-being means the capacity to ensure personal health and safety, work-life balance and positive relationships in digital settings. Healthcare professionals and organisations can ensure digital well-being by being responsible and accountable for their activities on digital platforms. Sharing relevant, correct and reliable information is important for harmony and positive relationships. Participation in community and social

activities can give an idea about public expectations and needs. Similarly, managing digital workload and distractions is also crucial for well-being (Burr *et al.*, 2020). A large number of trends and activities on digital platforms can distract professionals from their purpose and role. Hence, the wise use of digital identity to minimise the risk of conflicts and a negative reputation can ensure digital well-being

Digital Safety means the capacity to use digital tools and information wisely for patient and employee safety. Cyber threats are increasing with the use of unsecured digital communication platforms. Hacking, unauthorised access and fake identities are major risks related to the use of digital technologies. Healthcare organisations keep records of the personal information of patients and employees for administering treatment and performance evaluation. Misuse or leak of this information can affect the reputation of the organisation and contribute to significant health and safety consequences. Digital safety can be maintained by using authorised access, passwords and data security tools.

The use of digital literacy for employee well-being and their professional career development (Teaching, e-learning and self-development)

Digital literacy is the ability of employees to use the technology required for their roles in the organisation. It has a significant impact on employee well-being and professional career development, as it enhances the quality of communication and collaboration in digital workplace settings. Teaching and e-learning are important for employee well-being in healthcare organisations. It is used to update the skills and knowledge of the staff for a better quality of services. Digital literacy helps employees in using online tools for research and learning. Employees evaluate and question the sources during online research. It offers greater efficiency in identifying information and utilising them effectively using digital tools (Santoso *et al.*, 2019). Employees can use a wide range of digital tools for fast and effective services. Similarly, e-learning systems are based on teaching using electronic resources. Understanding digital literacy enables employees to use technology safely and responsibly. Employees in healthcare organisations can use the latest technologies safely for learning and operations. The risk of cyber threats and patient safety can be mitigated by enhancing digital literacy.

Self-development of employees depends on regular updates in skills and easy adaptation to changes. There have been regular changes in healthcare operations due to pandemic and technological developments. Digital literacy prepares employees for changes and helps them in adapting to innovation. It facilitates easy collaborations and communications with experts and industry leaders for expanding knowledge and enhancing skill sets. New career opportunities can be explored by developing technical skills. The increasing use of technologies in healthcare organisations is increasing the need for digital literacy. Efficiency in using the latest technology reduces work pressure and provides learning opportunities for employees. Hence, performance and job satisfaction improve due to digital literacy.

The relevance of technical proficiency for data and information handling

Technical proficiency is an important requirement for data and information handling in healthcare organisations due to the increasing use of technologies for data management. Computers, laptops, memory cards and drives are used to store data. It is not only related to storing and management of data, it also enables employees to understand the relevance and importance of data for organisations and services (indeed.com, 2022). Technical proficiency is also needed to maintain the integrity and security of confidential data. It helps in managing database software, data integrity, communication, data analysis, and account and file management. A large volume of patient-related data and other data are generated every day in healthcare organisations. It includes confidential data, crucial data and irrelevant data. There are also defined procedures for data management and disposal in healthcare organisations. Technology is used to store, manage and retrieve data for effective decision-making and problem-solving. Hence, technical proficiency is needed for proper data and information handling.

Information handling is a critical function in healthcare services, as small misinformation can have severe consequences. Information about patient health must be recorded, stored carefully for effective treatment. There are various factors considered in data handling such as type of data, storage requirements and accessibility to data, responsible people and data handling procedure. The use of technology has simplified the data handling procedure, as automated data

management systems are used to store, classify and retrieve data. Technical proficiency is relevant for making the right use of technologies to manage data.

Conclusion

Thus, it can be concluded from the presentation that the use of contemporary technologies is increasing in diagnostic, care support and other healthcare operations. AI enables tools and wearables to be used for health monitoring and clinical decision-making. It is also seen that technology was widely used in healthcare during the covid-19 pandemic. Online consultations and health monitoring were performed using smartphones and conferencing tools. Digital communication and collaborations in healthcare are effective ways of knowledge transferring and using expert knowledge in operations. The digital identity of healthcare organisation and professionals are crucial for ensuring digital well-being and safety. Digital literacy is important for employees' well-being, as it is used for the efficient use of technologies in operations. Technical proficiency is required for managing data properly in healthcare organisations.

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Appendix

Digital Skills and Research Methods

Student ID:



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Introduction

- ▶ The use of technology is increasing healthcare services to enhance the quality of care services and offer effective medication based on expert knowledge and wider research.
- ▶ This presentation shall discuss the use of contemporary technologies in healthcare and during covid-19.



The use of contemporary technology in healthcare

- ▶ **Diagnostics:** Technological intervention has a significant impact on diagnostic services, as it has increased transparency in services by providing patients, families and medical staff access to clinical documentation.
- ▶ Similarly, machine learning systems and AI-based tools are used for clinical analysis and optimising cognitive performance (healthmanagement.org, 2022).



Contd.

- ▶ **Administrative:** Technology is making administrative operations more efficient and effective.
- ▶ These operations play important roles in managing patient history and keeping records of medical staff and other resources.



Contd.

- ▶ **Care Support:** Technology-enabled care services (TECS) are gaining popularity due to convenience and wider reach.
- ▶ It is developed by NHS commissioners to maximise the value of care services for the health economy (England.nhs.uk, 2022).



The use of technology during Covid-19

- ▶ Digital technologies have been used widely during the covid-19 pandemic for supporting public health response to pandemics worldwide.
- ▶ A large number of smartphones, online datasets, machine learning and connected devices were used to create awareness about health and safety and make health consultations and testing accessible during the pandemic.



Contd.

- ▶ Data dashboards have been used extensively during the pandemic to collate real-time public health data such as testing figures, confirmed cases and deaths.
- ▶ Drones and robots were used in hospitals for transporting medicines without human intervention.



The use of digital communication, collaboration, and participation

- ▶ **Digital communication** includes the exchange of ideas and information using webinars, emails and online lectures.
- ▶ Communication using digital tools such as websites, social media, text messages and emails are used to keep track of patient health and provide timely support to avoid major health risks.



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- ▶ **Digital collaboration** indicates the capacity to participate in digital workgroups and teams (Learning, 2019).
- ▶ **Digital participation** in healthcare means active participation in building digital networks for collaborations and communication (Learning, 2019).



Digital identity, well-being, and safety

- ▶ **Digital identity** means the capacity to develop and project a positive identity on digital platforms.
- ▶ This is generally used to manage personal or organisational reputation during digital communication and collaborations (Richardson and Milovidov, 2019).

An infographic with a light blue background and a dashed grid pattern. The central text 'DIGITAL IDENTITY' is in large, bold, white capital letters. Surrounding this text are various digital-related terms and icons: 'AUTHENTICATION' with a checkmark, 'PERSONALIZATION', 'CYBERSPACE' with a padlock, 'UNIQUE', 'DATA', 'SYSTEM', 'INFORMATION', 'PRIVACY', 'INDIVIDUAL', 'NETWORK', 'SECURITY', 'IDENTIFICATION', 'USERNAME', 'PASSWORD', 'STORAGE', 'INTERFACE', 'DEVICE', 'CLOUD', 'SERVER', 'WIRELESS', 'MOBILE', 'DIGITAL', 'VIRTUAL', 'REALITY', 'ARTIFICIAL', 'INTELLIGENCE', 'MACHINE', 'LEARNING', 'DEEP', 'FAKE', 'NEWS', 'DISINFORMATION', 'MISINFORMATION', 'HYPER', 'TEXT', 'VIDEO', 'AUDIO', 'IMAGE', 'TEXT', 'MESSAGE', 'EMAIL', 'CHAT', 'FORUM', 'BLOG', 'SOCIAL', 'MEDIA', 'ONLINE', 'GAMING', 'E-LEARNING', 'E-BUSINESS', 'E-GOVERNANCE', 'E-HEALTHCARE', 'E-EDUCATION', 'E-ENTERTAINMENT', 'E-SPORTS', 'E-TOURISM', 'E-TRANSPORT', 'E-ENERGY', 'E-ENVIRONMENT', 'E-AGRICULTURE', 'E-FINANCE', 'E-LEGAL', 'E-MEDICINE', 'E-ARTS', 'E-SCIENCE', 'E-TECHNOLOGY', 'E-INNOVATION', 'E-RESEARCH', 'E-DEVELOPMENT', 'E-CONSTRUCTION', 'E-INDUSTRY', 'E-TRANSPORTATION', 'E-LOGISTICS', 'E-TRADE', 'E-COMMERCE', 'E-SHOPPING', 'E-SELLING', 'E-BUYING', 'E-BOOKING', 'E-TRAVEL', 'E-FLIGHT', 'E-TRAIN', 'E-BUS', 'E-CAR', 'E-BIKE', 'E-BOAT', 'E-PLANE', 'E-SHIP', 'E-TRAIN', 'E-BUS', 'E-CAR', 'E-BIKE', 'E-BOAT', 'E-PLANE', 'E-SHIP'. There are also small icons of people using devices, a fingerprint, a heart, and a key.

-
- The infographic features the central text "DIGITAL IDENTITY" in large, bold, white letters. Surrounding this text are various digital identity-related terms and icons: "AUTHENTICATION" with a red checkmark, "PERSONALIZATION", "CYBERSPACE" with a yellow padlock, "UNIQUE", "DATA", "SYSTEM", "INFORMATION", "PRIVACY", "INDIVIDUAL", and "NETWORK". There are also icons of people using devices (laptop, smartphone, tablet) and a fingerprint icon. The background is a light blue gradient with a subtle grid pattern.

Contd.

- ▶ **Digital well-being** means the capacity to ensure personal health and safety, work-life balance and positive relationships in digital settings.
- ▶ Healthcare professionals and organisations can ensure digital well-being by being responsible and accountable for their activities on digital platforms.

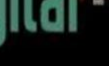
An illustration of a purple smartphone standing upright. A green heart icon is displayed on the screen. A blue stethoscope is draped around the phone, with its chest piece resting on a blue surface in the foreground. The background consists of abstract green and yellow geometric shapes.

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- A yellow diamond-shaped sign with a black border. The words "CYBER SAFETY" are written in bold, black, sans-serif capital letters. Below the text is a black silhouette of a laptop computer with a blue screen.

The use of digital literacy for employee well-being and their professional career development

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The relevance of technical proficiency for data and information handling

- Technical proficiency is an important requirement for data and information handling in healthcare organisations due to the increasing use of technologies for data management.
- Information handling is a critical function in healthcare services, as small misinformation can have severe consequences.



Conclusion

- Thus, it can be concluded from the presentation that the use of contemporary technologies is increasing in diagnostic, care support and other healthcare operations. AI enables tools and wearables to be used for health monitoring and clinical decision-making. It is also seen that technology was widely used in healthcare during the covid-19 pandemic.



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Thank You!
Any Questions?