

DIGITAL SKILLS AND RESEARCH METHODS IN HEALTH AND SOCIAL CARE

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MODULE CODE:

RESEARCH TOPIC: THE USE OF
MODERN TECHNOLOGY IN
HOSPITAL

WORD COUNT: 1847

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INTRODUCTION

Technology can play many important roles in the operation of the modern hospital. Technology can improve the efficiency of a hospital and improve the quality of care delivered to patients. Some medical technology, however, is quite expensive. Further, the process of integrating new

technology is complex and has a far-reaching impact for administrators and doctors. This chapter presents an innovative analytic framework to identify and analyse the key factors — administrative, legal, and medical — which should be examined to prepare for and facilitate technology integration by hospitals and physicians.

What are the Different Types of Technology in Healthcare (hospital)?

As mentioned, the types of technology in health and social care are numerous. They include artificial intelligence, wearable technologies, mobile applications and websites and various clinical data storing and sharing systems.

Virtual reality (VR) and augmented reality (AR) are an interesting type of technology to use within the sector, most notably as a way of delivering staff training, as it gets as close to a real-life scenario as possible. This technology can also be used as a way of relieving pain and anxiety in patients, or as an aid to psychological treatments like exposure therapy.



Websites Used in Health and Social Care

Websites are a great way to share up to date information. Within the health and social care sector there are many official bodies who are responsible for providing accessible and up to date guidance, legislation and regulations on health and social care practices. They can offer advice and resources for the general public or detail important knowledge needed for professionals working in the industry. Examples of organisations whose websites provide key information include:

- National Health Service (NHS).
- Health and Safety Executive (HSE).
- Care Quality Commission (CQC).
- Skills for Care (SfC).
- Skills for Health (SfH).
- Department of Health and Social Care.
- World Health Organisation (WHO).

There are also websites available that allow patients to access some of their medical records. For example, Patient View, a website initially intended for use by renal patients to access their own test results and correspondence, which has since become widely accessible. Websites such as those for GP practices are also available and allow patients to log on and access certain services, for example booking appointments or ordering medications.

App what is means for Healthcare

Apps accessible to the public are continuously evolving, varied and numerous. They range from mental health support and health trackers to image analysis such as mole-checking apps. Whilst some apps lack credibility, there are many out there that can be used and synched to reputable medical devices and help a person monitor and manage their medical conditions more effectively. There are also those that allow an individual to access their own medical records amongst other services. We refer here to the NHS app, which allows access to information, such as your health record, prescription ordering, appointment booking, health advice, your COVID pass and organ donation decisions.

The NHS and NHS COVID-19 apps, along with those sync able to medical devices and those used to help a patient manage their medical condition, have certainly been the most notably widespread examples of technology in the sector. However, there is potential for advancements for this technology in the future as there are many new services available, such as new image analysis apps like those used for measuring the surface of a wound.



Wearables in Healthcare

Whilst wearable technology has been around for a while, with continual advancements they have become much more prevalent with changes in design, functionality and a reduction in size. This is particularly true in items such as smartwatches and fitness trackers. As with apps, there is new technology on the market that is not widely used in practice within health and social care settings, such

as infant patches designed to link to a mobile device via Bluetooth. This is intended to notify parents of their child's temperature without them having to manually take it.

Wearables that act as sensors can be a simple, yet effective, item to be used in a variety of circumstances. Pendants that automatically call for assistance if triggered by a fall are quite commonly worn by people in their own homes who pose a fall risk.

With dehydration in the elderly being such an area of concern in health and social care, technologies such as drinking cups with sensors to monitor how much a person has had to drink have increased in recent times. There is more technology being developed to measure hydration levels via a wearable device. However, at present, this mainly seems to be aimed at athletes for use during physical activity.

How is Technology Used in Healthcare?

As time goes on and steps are put in place to try to relieve the burden on the sector's staff, resources and services, improving efficiency will become a

focus. Technology will play its part in this, with talk of providing patients with the option to choose remote care when accessing certain primary care services, such as GPs. This option would be supported using technology to enable specialist advice to be provided at a distance.

Top Healthcare Technology Trends and Innovations

Availability of Information and big data

The accessibility of data and the means to store and process it is a hallmark of the technological age. The Internet, data capture systems, search features and the ability for healthcare professionals to rapidly share information have enhanced the synthesis and analysis of data.

“Big data” in healthcare allows the entire field to benefit from comprehensive research studies. They can access larger and more diverse population groups than ever before. They can also draw from existing studies for comprehensive meta-analyses.

This innovation allows medical professionals to stay on top of health care trends, techniques and technologies. This can be used to automatically identify risk factors and recommend the right preventative treatment by comparing patient data with data from thousands of other patients, while also reducing costs and improving quality of life in general.

On a smaller scale, data can assist in many ways to improve operations and patient care. For example, Intel **worked together** with the largest University hospital in Europe to build a solution to predict how many patients are expected to be at their hospitals daily and hourly, using data from four emergency departments. Being able to plan for patient loads allows hospital administration staff effectively organise and allocate resources, helping to reduce patient wait times and improve patient care.

More and more medical professionals are also accessing online business intelligence platforms that help them make more data driven decisions. These platforms house a patient's medical history and use predictive tools to provide

recommendations such as those who are at risk of a particular disease and what preventative steps are needed.

Improved communication

Like all other organisations, healthcare organisations are challenged with ineffective communication between departments, teams and locations. Staff often work in specialised teams with each playing a role in patient care.

Technological innovations in healthcare have facilitated much smoother communication within healthcare organisations. Medical professionals can now use media such as video, online discussion platforms and real-time meeting capacities to communicate and advance the spread of knowledge in the field. Electronic medical records in-house are accessible by all relevant departments and care providers. This results in improved case management, treatments and patient recovery.

Communication between medical and non-medical staff members, particularly those who

work in different locations has also benefited significantly from technology mentioned previously.

In addition, there are tools aimed directly at this group, such as staff directories which display contact information as well as areas of expertise so colleagues can easily find each other despite working across various sites and in the community.

Integrated medical records

Previously, medical information from visits to the General Practitioner (GP), medical specialist, allied health professionals and the dentists were held in separate locations with different health practitioners and hospitals.

Electronic medical records allow all patient histories, test results, diagnoses and relevant information to be stored centrally in an online location. The data allows for more focused and accurate care as well as the ability to see health trends for everyone. Medical billing systems allow hospitals, clinics and medical practices to run

much more smoothly.

A McKinsey report on big data healthcare **found that** “The integrated system has improved outcomes in cardiovascular disease and achieved an estimated \$1 billion in savings from reduced office visits and lab tests.”

Increased mobility

Mobile software applications (aka mobile apps) are key to improving accessibility for patients and healthcare professionals. Mobile apps enable people to easily manage their health and wellbeing; everything from prompting them to get check-ups, to finding general medical information or accessing their test results securely online 24/7 without having to book in an appointment with their GP and wait days for results.

Healthcare professionals on the other hand are rarely in one fixed location. Enabling them to access the intranet from their mobile device or a

shared tablet ensures they can quickly access information relating to diseases and drugs, images for clinical matters, continued education activities and so other resources that support their daily work.

Automated processes

Healthcare organisations operate within a highly regulated industry. There are countless internal medical and non-medical administration processes and procedures that need to be followed.

Introducing improved workflows for daily processes can save significant time in having staff find or perform what they need to, as well as administration staff who need to maintain and action these. For example, forms can be filled in online by patients. Automated workflows can then be triggered so forms are automatically sent

to the appropriate person or people to view, approve and/or process.

Training for new medication or equipment, new organisation-wide processes and procedures or even inductions, can now be delivered online via a learning management system or online training software. This way staff can gain new knowledge and skills they need without having to travel on-site, freeing up travel time so they can focus on their roles.

In Conclusion,

Electronically recording your health report

As of 2009, only 16 percent of hospitals across the United States were using [Electronic Health Record](#) or HER for short. As of 2013, the number has increased exponentially, and currently, about 80 per cent of the hospitals across the United

States employ this technology on a regular basis. EHR has created big strides in the medical industry by centralizing all the patient information and thereby increasing its efficiency. This has a long-term effect as well, because the data that is being collected today can be used even 1,000 years from now for any number of scientific and statistical use.

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