

ASSESTMENT REPORT

“DIGITAL SKILLS IN HEALTHCARE”

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My nationality makes me mention the fact that the first computer was an invention of the Bulgarian physicist, mathematician and electrical engineer – John Atanasov. This fact makes me feel proud.

John Atanasov invented the first model of an electronic digital computer with regenerative memory. It was created as a university project of an innovative calculating machine in the period from 1939 to 1942. Although the machine is not yet today's universal computer with a stored program, it implements some basic solutions that are still valid today.

Meaning of DIGITAL by the (Cambridge Dictionary)

“Involving or relating to the use of computer technology”

Health technologies have evolved very rapidly over the years.

They have created many new digital applications that help us in the healthcare system. Applications through which we can book an appointment with a doctor, to be examined by phone or web camera, to keep us inform about our health , to help us living health life, to receive prescriptions online and etc.

The most impressive for me was the uses of digital technology in healthcare by the healthcare workers. The digitization of health care has given birth to numerous tools and resources that improve healthcare services, including software that makes health information more accessible to patients, and keeps patient data secure in one place. Digital health technologies use computing platforms, connectivity, software, and sensors for health care and related uses. These technologies span a wide range of uses, from applications in general wellness to applications as a medical device.

The use of digital literacy for professional career development (teaching, e-learning and self-development)

The Internet has become an integral part of our life, a place for e-shopping, business, training and research information. As a result of this, people need skills to search, analyze, synthesize and evaluate the information.

Today the digital literacy is part of the key competences and is considered to be a key factor for development of digital culture and information society worldwide.

Digital literacy is the ability to use digital technologies, devices and social networks to find, organize, process, evaluate and communicate information in an appropriate way.

One of the first who use the term digital literacy was Paul Gilster in 1997 with his book (Gilster 1997)¹. In his book, Gilster says that digital literacy is about "mastering ideas, not keyboard shortcuts" and "partly about our awareness of others and our growing ability to communicate with them, discuss issues, and get help".

Digital literacy can be used to master ideas, communicate freely, discuss problems, create and receive support. Digital competence involves the proper use of electronic means in work, study, leisure and communication.

Digital competence is defined by the European Union as one of the eight key competences for lifelong learning, which due to its universality allows the acquisition of other key skills (eg language, mathematics, learning how to learn, creativity) and ensures active participation in society and the economy. Digital competence presupposes connection with the skills for using digital technologies, which allow the student to work with computers, software applications and databases, helping him to realize his ideas and goals. Digital literacy is very important, because it is a key enabler in delivering health and social care now and in the future.

¹ (Gilster, 1997)

The use of technology during Covid-19

Healthcare delivery has been disrupted by the COVID-19 pandemic and digitalization has become a key component transforming the healthcare landscape.

During the pandemic, the benefits of technology in medicine are obvious - getting a doctor's consultation or telemedicine examination without the risk of infection

Examples of these are :

online chat and online conversation, with the help of a camera

health apps

Track and trace app ,which help the spread the virus between the people,using their locations

Online booking for a covid test and receiving a result by email or phone

Online appointment for immunization

Digital immunization card

Technology also helps doctors through their online health digital system, where all information is in one place and protected. This way, the doctor can more quickly and easily see the patient's file, write a prescription and send it directly to a pharmacy.

Last but not least, technology helps people to connect with each other, to lead a social life, even a virtual one. To talk online with their relatives and friends no matter where in the world they are. To have fun and have fun with videos or video games. I can say that technology helps us for our mental health during the pandemic.

Modern digital technologies in healthcare give us more opportunities, help doctors and science.

At the same time, the disadvantages are also obvious - the lack of personal contact between doctor and patient, which is sometimes very important for a correct diagnosis.

The use of contemporary technology in healthcare

Medicine may be one of the oldest human activities, but it is also among the fastest changing in recent years under the influence of new technologies. New electronic healthcare platforms, mobile applications and various cellular devices for monitoring body performance appear every month and promise to change the way we treat or prevent disease.

I made my own research about the newest contemporary technology .Hereare my top 8 contemporary technology:

1.Healthy "wearable" devices

Wearable technologies include a variety of "smart" bracelets, rings, glasses, clothing and other worn on the user's body. indicators.

2.Remote monitoring of at-risk patients

Mobile technologies allow much more effective monitoring of patients at risk.Special sensors can detect the slightest changes in heart function or other critical health and life indicators and send a real-time message to your doctor.

3.Chatbots

Software robots for communication with patients and users of health services. informs consumers on important issues about their health and reminds them to conduct preventive examinations or medical examinations.

4.Smart inhalator

It helps asthma sufferers to better manage their condition, Bluetooth-enabled smart inhalers have been developed. A small device is attached to the inhaler which records the date and time of each dose and whether it was correctly administered. This data is then sent to the patients' smartphones so they can keep track of and control their condition.

5. Robotic surgery

Robotic surgery is used in minimally invasive procedures and helps to aid in precision, control and flexibility. During robotic surgery, surgeons can perform very complex procedures that are otherwise either highly difficult or impossible. While the invention raises concerns that it will eventually replace human surgeons, it is likely to be used only to assist and enhance surgeons' work in the future.

6. Wireless brain sensors

Plastic electronics that can be placed in the brain and dissolve when they are no longer needed, This medical device will aid doctors in measuring the temperature and pressure within the brain. Since the sensors are able to dissolve, they reduce the need for additional surgeries.

7. 3-D printing

3-D printers have quickly become one of the hottest technologies on the market. These printers can be used to create implants and even joints to be used during surgery. 3-D-printed made an individual's measurements down to the millimetre and allows for unprecedentedly levels of comfort and mobility.

The use of printers can create both long lasting and soluble items. For example, 3-D printing can be used to 'print' pills that contain multiple drugs, which will help patients with the organisation, timing and monitoring of multiple medications.

8. Artificial organs

Scientist have been able to create blood vessels, synthetic ovaries and even a pancreas. These artificial organs then grow within the patient's body to replace original faulty one. The ability to supply artificial organs that are not rejected by the body's immune system could be revolutionary, saving millions of patients that depend on life-saving transplants every year.

Reference: IntellectSoft article

Digital identity, well-being and safety

Digital identity is essentially any personal data existing online that can be traced back to the real you. For example, photos you've uploaded to social media, posts you've created or commented on, **your** online bank account, search engine history

Digital wellbeing considers the **impact of technologies and digital services on people's mental, physical and emotional health**" The **capacity to look after personal health, safety, relationships and work-life balance in digital settings**";

Digital security

- I understand basic rules for sharing data and data security e.g. information governance.
- I can create and use secure passwords, e.g. apply characteristics of strong passwords.
- I am aware of simple encryption and the purpose of encryption, e.g. to send sensitive data more securely.

The use of digital communication, collaboration and participation

Digital capability which focuses on digital communication, collaboration and participation looks at the way in which you interact with others. It examines how you work with people, join in and connect through digital means.

Some example of the types of digital capabilities: Communicating with others using different tools such as emails, social media, photo sharing, presentations and video.

Design different communications for different purposes: to persuade, inform, entertain and support. Work online with others on projects, to share files, work on documents and complete task lists. Take part in an online meeting or discussion forum.

Other examples podcasts:

People with more extensive skills in this area may be able to build an online community and understand how digital content and interactions can influence a person's behaviour.

Reference: University Of Derby-YouTube Video

The relevance of technical proficiency for information, data handling

The growth of technical proficiency for information and data handling has become a key component in many industries. Industries like financing and banking, healthcare and even drug detection.

Data is everywhere. It is a collection of facts. Data is information.

There is a qualitative data, which is a non-numerical data. Qualitative data can be used to classify or categorize. There is also a qualitative data that referring to a number.

Data collection is defined as the procedure of collecting, measuring and analysing accurate insights for research using standard validated techniques (Bhat, 2019)

We collect data for primary or secondary sources. Primary sources is data collected by a researchers; such as interviews, observations, questionnaires.

Secondary sources is data that already exist. Such as official statistics, web information, government reports and previously research.



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Digital Skills and Research Methods

/ BMSW4003 /

Research Report “Use of technology in GP surgery “

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Introduction

I choose to make a secondary research about the use of technology in GP surgery. The secondary research is using data that already exist. Examples of secondary research include textbooks, encyclopedias, news articles, review articles, and meta analyses. When conducting secondary research, authors may draw data from published academic papers, government documents, statistical databases, and historical records.

I choose this topic, because i wanna find out how is the GP surgery working and more details about general practice (GP). In this research I use government health services articles, because they use secure information. The objectives of my research is to show the nature of GP work, the responsibilities, the newest technology that some surgery is using and how technology can best work for GP's and patients. I use mixed methods in this research.

General practice (GP) in details

General practitioners (GPs) treat all common medical conditions and refer patients to hospitals and other medical services for urgent and specialist treatment. They focus on the health of the whole person combining physical, psychological and social aspects of care.

General practitioners have an important role in looking after patients in their homes and within the communities where they live. They are part of a much wider team whose role includes promoting, preventing and initiating treatment. GPs look after patients with chronic illness, with the aim to keep people in their own homes and ensuring they are as well as they possibly can be.

GPs are often the first point of contact for anyone with a physical or mental health problem and patients can be at their most anxious. Looking after the whole person - the physical, emotional, social, spiritual, cultural and economic aspects through patient-centred approaches is a vital part of any GP's role. This is becoming more important with terminally ill patients often choosing to stay at home.

There are over 1.3 million GP consultations every day, most of which take place in a GP surgery or within the patient's home. GPs occasionally work as part of teams attached to hospitals with roles in accident and emergency centres, discharge planning and in unscheduled care (such as urgent care centres).

Up to 40 % of a doctors consulting can now be done over the telephone, rather than in face to face encounters and the shift to using different media is likely to expand in the future.

Depending on their examination and diagnosis the GP has several management options which they will discuss with the patient as they develop a shared and agreed plan. These can include giving reassurance, giving the patient information, advising on a certain course of action or prescribing medication(now this happened online)

Alternatively they may refer the patient for further tests to confirm a diagnosis or as part of an on-going management plan. These can include x-rays, blood tests or referring on for a second opinion. They are trained to spot the signs of “red flag” symptoms, which might indicate a serious problem requiring further investigation and which needs to be acted on promptly.

Patients may occasionally attend the GP surgery with an urgent life-threatening condition, such as anaphylaxis (severe allergic reaction) or an asthma attack. In these cases the GP will provide life-saving treatment until an ambulance and further help arrives.

Another important part of the work is preventative medicine and health promotion. This can include clinics for child immunisations and smoking cessation as well as advice on lifestyle during the GP consultation. GPs also have a vital role to play in safeguarding vulnerable children and adults, and involving appropriate agencies.

GPs see patients of all ages from newborn babies to elderly people. GPs have an important role to play in the management of not just of acute problems but also of chronic diseases and the treatment of patients with multiple health conditions, particularly in an ever increasing older population. Balancing and treating multiple problems

with a patient's general health, independence and social care can be complex and challenging, but also rewarding as a GP will know these patients very well.

GPs play a significant role in cardiovascular, metabolic and respiratory diseases and mental health problems. They may run clinics at the surgery for patients with chronic conditions such as asthma, hypertension and diabetes.

Common procedures/interventions

- performing clinical examinations of patients to assess, diagnose and monitor a patient's condition – these are wide-ranging and may involve the use of specialist equipment such as a stethoscope or otoscope (an instrument for examining the ear)
- carrying out tests within the surgery such as urine sample testing to assist with diagnosis
- interpreting findings from investigations such as blood tests to help reach a diagnosis
- using basic life support skills and emergency procedures such as defibrillation where necessary

Responsibilities

As a GP, you'll need to:

- respond to patients' medical/health problems by referring to their history and carrying out diagnosis, investigation, treatment and referral as appropriate
- maintain confidentiality and impartiality
- liaise with medical professionals in the community and hospitals
- promote health education in conjunction with other health professionals
- organise preventative medical programmes for individual patients
- provide specialist clinics for specific conditions or for certain groups, e.g. diabetes, smoking cessation and new babies

- meet targets set by the government for specific treatments, such as child immunisations
- discuss the development of new pharmaceutical products with pharmaceutical sales representatives
- carry out a range of administrative work, including signing repeat prescriptions, death certificates and fitness for work statements, as well as preparing letters and reports
- attend staff meetings
- keep up to date with medical developments, new drugs, treatments and medications, including complementary medicine
- observe and assess the work of trainee GPs and medical students and teach at medical schools or hospitals.

GP partners who are in charge of running their own practices as a business will also need to:

- make decisions on the running, development and future of the practice
- keep financial records and make sure the practice runs within budget
- recruit and arrange training for staff
- carry out audits
- commission hospital services for the community.

How technology can best work for GPs and patients

GPs have always been at the forefront of adopting new technology in the NHS. Recent developments in genomics, AI, digital medicine and robotics all present opportunities to potentially revolutionise patient care.

General practice is ready to embrace these opportunities, but needs wider system change to ensure opportunities are embraced safely and sustainably. GPs and their teams must be at the heart of this system change.

General practice needs technology which enables safe patient care fit for the 21st century, makes the lives of GPs and their teams easier,

and does not line the pockets of private investors at the expense of the NHS.

The Royal College of General Practitioners is a network of over 53 000 family doctors working to improve care for patients. They work to encourage and maintain the highest standards of general medical practice and act as the voice of the GP's on education, training, research and clinical standards.

They have developed a manifesto to establish how technology can best work for GP's and patients within a system that is ready to support it. After consulting, they believe that for technology to enable the best care for patients, it needs to:

- Protect personal data and provide patients with control over who access their health records.
- Create more time for GP's and their staff, enriching the interaction they have with patients
- Help tackle health inequalities by addressing the needs of deprived communities and vulnerable groups at risk of exclusion
- Empower patients to better manage their own health and support continuity of care
- Improve care for the one in four people in England living with multiple long term conditions
- Engage GP's and GP trainees in the innovation and development process.

- Ensure patients safety and provide information which is reliable,sufficiently,comprehensive and regularly reviewed by experts
- Support GP's and the wider practice team in monitoring population health data to provide more tailored,proactive and prevative care
- Be underpinned by research and robust evidence-based evaluations.
- Be effectively integrated and scaled up to strenghten the quality and efficiency of NHS services

From RCGP thinks that every practice must have modern,digitally-enabled premises with :

- Interoprtable IT system secure broadband and IT maintenance support
- Access to a single shared electronic patients record which documents a patients interactions Across the health system.

It is essential that GPs and their teams are trained and supported to use new technology .

Patients will need support navigative new system ,with guidance for using tool such as symptom checker and self monitoring devices and knowing when they should visit a doctor.

Gps and patients should be enable to :

- Automation of administrative tasks (such as scheduling,procesing of descriptions

- Enhanced diagnostic,decision making
- Delivery of remote care and self management tools

Contemporary technology in General practice

Technology will continue to be utilised by medical practices, with a shift to the cloud by the NHS seeming like the next big step. Now, with publicly accessible technologies and services becoming more readily available, tech can help both doctors and patients. This can primarily be looked to on the ground, with tech that can potentially help GPs and patients both save time and find answers much more quickly. As such, the following technologies could be embraced by GPs.

Contemporary technology in GP are :

Mobile apps that connect patients to doctors via messaging and video conferences have existed in the United States for several years – mainly because there's so much money and so many billable expenses in the US health industry. These 'telemedicine' apps are becoming available in the UK and could help the patient-GP relationship a great deal.

TPP have developed a number of new smartphone apps for both clinicians and patients. The citizen benefits from personalised support for long-term conditions, smart symptom checking, and pre-consultation triage. The patient app integrates with both Apple HealthKit and Google Fit to incorporate wearable data into the lifetime electronic health record and supports direct messaging between patients and GPs, and video consultations.

Provided that the apps have a strong level of screening in place – such as through the use of tick-box questions on entry to determine the necessity of a call or other actions – and a schedule is

established, video calls as appointments with doctors could save both parties time. Walking to and from waiting rooms, waiting on patients to arrive, and travelling to and from surgeries could all be greatly reduced. Equally, a different team could be established to act as a helpful filter for such calls. The app Lemonaid has a [US-based medical team](#) at the ready to follow up with questions and send out medicine to users.

Then there's also the potentially game-changing NHS Track and Trace app. The app emits low-level Bluetooth signals which record an anonymous ID of anyone which they have come into close proximity with. So, if the person is diagnosed with the virus, the app will automatically send out a message to inform others that they've been close to someone with the virus and should self-isolate. This kind of technology and its necessary adoption by the public could have tremendous implications for the future of identifying the spread of contagious diseases, saving doctors a lot of time with people knowing if they've come into contact with the pathogen or not.

Uncovering the possibility of existing conditions

There's a reason why doctors ask patients if their family has a history of any diseases: because it could mean that the patient is predisposed to the condition themselves. Many need-to-know conditions can be passed down and lay all-but dormant until later life. Knowing about the potential of the condition sooner can help patients mitigate the risk of the condition developing and help GPs diagnose and treat them early on.

In light of this, services that were formerly purely for the recreational purposes of discovering one's ancestry have become potentially very useful tools for patients to use and GPs to suggest. There are many DNA testing kit services which utilise cutting-edge technologies to unlock a person's heritage. For example, according to the [in-depth review of 23 and me](#), you can get a comprehensive health and ancestry review with one of the company's DNA testing kits.

Patients willing to explore their DNA via such testing services could help GPs obtain a much clearer picture of any potentially inherited conditions that the patient may have much more quickly. This can be helpful at any stage, with it being found early on to help guide a patient's plans to mitigate the problem, or when the patient is unwell to potentially offer a quick diagnosis.

Medical technology, or rather, publicly accessible medical technology can be very helpful to patients and GPs, particularly when it comes to one of the most critical factors: time.

Telehealth

Telehealth is the use of Assistive Technology for remote health monitoring for diagnosis and treatment of long term medical conditions such as:

- High blood pressure
- Diabetes
- Breathing problems (chronic obstructive pulmonary disease or COPD) and
- Heart problems.

People enter data such as blood pressure and blood glucose levels into a device.

This data is then transmitted to a clinical or non-clinical monitoring service where the patient's health is monitored and any alerts addressed by the appropriate service.

Telehealth helps people to:

- Manage their condition
- Maintain and improve their health and well-being
- Live independently
- Improve their quality of life
- Avoid periods of illness

- Avoid unnecessary hospital visits and admissions.

The patient's role in understanding and managing their condition and care is key to achieving this.

Telehealth is not an emergency service.

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