LESSON 1 SCOPE AND NATURE OF TELEHEALTH SERVICING

Aim

Determine how telehealth services can provide an alternative to face-to-face consultations for a variety of different health practitioners.

Introduction

Many professionals and organisations have awoken to the enormous potential for service delivery through technology. This need to develop and use technology developed even further due to the COVID-19 pandemic.

Suggested Tasks: ▼

Throughout this course you will be provided with suggested tasks and reading to aid with your understanding. These will appear in the right hand column. Remember: these tasks are optional. The more you complete, the more you will learn, but in order to complete the course in 20 hours you will need to manage your time well. We suggest you spend about 10 minutes on each task you attempt, and no more than 20 minutes.

'Telehealth' as an umbrella term for a range of services known as TECS (Technology Enabled Care Services). It is a generic term used to describe different technologies provided to meet the health needs of individuals, as well as training of healthcare workers, and meetings of healthcare professionals and administration staff. Components of telehealth can include:

- **Telecare** – remote care for less able people or vulnerable people e.g. elderly, disabled, learning disabilities, etc. It is aimed at helping to keep these people living in their homes and to maintain independent living. It can include the use of pull cords in sheltered housing/care homes, 24/7 alarm services, etc. It also includes services such as smoke detectors, carbon monoxide detectors, increased or decreased temperature, passive infrared, movement sensors, enuresis sensors, epilepsy sensors, medication reminders, etc.

- **Telehealth for people with chronic conditions** – enabling individuals with long-term conditions to self-manage e.g. blood pressure, blood glucose monitors, people with COPD, diabetes, heart disease, etc.

- **mHealth** – services accessed by mobile phone or computer apps. This is aimed at younger people or those with increased flexibility. It can be used for people with dementia e.g. GPS walking services.

- **Assistive technologies (environmental controls)** – services that allow people to carry out daily activities such as opening curtains, turning on lights or TV, using computers, etc. These are aimed at people with severe disabilities to enable them to function more independently.

- **Telemedicine** – a branch of telehealth concerned with the use of different types of technology and telecommunications to enable doctors to support patients, provide remote care, and share information with other professionals typically by video call. It may be used for diagnoses, prescriptions, discussing x-rays and other acute health services. Unlike telehealth it does not include training, teaching or meetings with non-healthcare personnel.

- **Telenursing** – enables nursing staff to provide remote services, etc.

Telesurgery

In the field of surgery, telehealth is used for medical education, diagnostic or therapeutic assistance and consultations with remote patients. Telesurgery can also include a scenario in which a surgeon at a primary operating site consults with a colleague when he or she encounters a complex or unexpected problem during surgery. Advanced technological tools have also demonstrated the potential to assist surgeons with preoperative training and planning through using three-dimensional virtual images replicating a specific patient's case. Future possibilities for this area of telehealth include the use of remote robotic arms that can perform precise surgical procedures directed by a practitioner from a distant site.

Telesurgery requires a network with high reliability and the ability to transfer large amounts of data without delay and error. Fortunately, telecommunication technology is advancing at an exponential rate and with the development of both satellite and inexpensive broadband capabilities, the future of telesurgery is very promising. This has the potential to improve patient outcomes, surgical training, and confidence during complex procedures.

Virtual Reality

The application of virtual reality (VR) in medicine has the potential to refine many different areas of telehealth, such as 3D visualisation of anatomy, surgical stimulators, virtual clinic rooms, and so on. For example, VR psychotherapy is proving to be a useful tool to help treat psychological disorders such as panic disorder, agoraphobia, and fear of flying through virtual exposure therapy. VR head-mounted displays can immerse the patient in a simulated situation. Application of VR systems can offer new opportunities for practitioners and patients to simulate real-life situations in a controlled and safe environment.

However, reports of patient experiences using virtual reality have suggested that the use of this technology can result in adverse health effects, such as nausea, disorientation, general discomfort, and blurred vision. This can become particularly problematic for patients with severe symptoms, so before virtual reality headsets can be implemented as a permanent tool in telehealth, these issues must be resolved.

Additional technological tools that have the potential to be beneficial in connecting the patient to the health professional, as well as reduce adverse health effects experienced in virtual reality, include augmented reality and mixed reality. Augmented reality and mixed reality are platforms that also deliver virtual images to the user however they are superimposed onto the real environment. Besides being beneficial for patient care, these modes of health delivery can also provide an education service. These approaches can inform both chronic disease patients and carers and promote patient treatment adherence.

Remote Education

Technology has also been a beneficial tool to bridge the gap for remote student learning. This provides students who cannot access resources with the same opportunity as students close to university. Education in the medical fields needs to be readily available, three-dimensional, and interactive for optimal engagement and high-quality training of future health professionals. The range of diseases and disorders taught in medical education is complex and continually increasing. Therefore, the methods used in telehealth are also vital for optimal learning.

Advantages and Disadvantages of Telehealth

There are pros and cons of telehealth, many of which are highlighted as follows:

Advantages

- **Improved access** – easier accessibility to health care and more frequent clinical interaction with service providers. This can enable services to reach more people. It can also enable people to access specialists in under-represented locations where there may be few, or none.

- **Convenience** - for people working, disabled, lack of transport, rural communities, comfort of own home, etc.

- **More cost efficiency** - for service provider (if public funded e.g. NHS, etc.) or for the patient if paying privately.

- **Sharing of information** - easier to get second opinion e.g. x-rays can be sent to another specialist.

- **Privacy/confidentiality** – patients can discuss their health problems without having to provide information to a receptionist or other third party.

- **Time saving for practitioners** – can organise time slots more efficiently. Can find replacements for missing appointments more easily. If part of a consultation is automated, it allows a health professional to deal with more patients.

- **Time saving for patients** – can access specialists sooner from anywhere; rather than being limited to who they can physically get to and when they can get to them. Less waiting time in waiting room, and less travel time and time out of work.

- **Better patient & practitioner protection** – patients are less likely to be exposed to infectious diseases and pandemics through travel, visiting clinics. Practitioners have less face-to-face risk.

- **Better patient involvement** – telehealth options can make it easier for patients to access services and therefore they may become engaged in their healthcare.

- **Improvements in technology** – technology is always improving so the type and extent of services provided can also improve with it.

Disadvantages

- **Unreliable technology** – technology services can be impaired by environmental disasters, weather, service provider problems, war, cyberattacks, etc.

- **Unequal accessibility** - not accessible for people who are not IT literate; or at least do not have an IT literate person to help. Some remote areas may not have access to internet. Some people may also not have suitable technology to access online services, such as smart phones, computers or tablets. This automatically reduces their access to services in some cases.

- **Resistance from health staff** - though this may subside as it becomes more widely used, clinicians may fear a loss of rapport with patients through technology or be concerned about inaccuracies in information. There may be a reluctance to use new technology.

- **Resistance from patients** – security and privacy concerns of personal health information may cause patients to lose faith in the technology. They may feel that telehealth services affect the relationship they have with an existing practitioner.

- **Expenses** - training and maintaining staff in new areas of technology can be expensive and time consuming. The technology required (i.e. software, equipment, utility costs, etc.) can be an expensive investment.