

Early experiences of telehealth monitoring for patients with COPD and implementation of person-centred care plans

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The NHS Long-Term Plan (2019) advocates integrated community services, which provide care at the optimal time and setting, while promoting active patient involvement. There has been a steady increase in the number of patients with long-term health conditions (NHS England, 2020). It is estimated that 26 million people in England have at least one long-term health condition, and healthcare costs have increased threefold among frail, older adults.

Chronic obstructive pulmonary disease (COPD) is a long-term health condition, which can be defined as:

'A common, preventable, and treatable disease, characterised by persistent respiratory symptoms and airflow limitation, ... Due to airway and/or alveolar abnormalities caused by significant exposure to noxious particles or gases.' (The Global Initiative for Chronic Obstructive Lung Disease, 2020)

Prevalence of chronic obstructive pulmonary disease

In 2019, COPD was found to be the third leading cause of death worldwide, resulting in 6% of all deaths (World Health Organization (WHO), 2020). Lung disease is the fourth most costly disease in the UK, costing £11 billion a year, while COPD accounts for £1.9 billion of the total figures (British Lung Foundation, 2016). A further cost of £1.2 billion then falls on the wider economy through lost workdays.

Historically, the care of these patients was undertaken as face-to-face visits, in clinics or at home. However, recently, and especially since the pandemic, there has been a rapid reorganisation of care embracing remote monitoring (Wu et al, 2021; Sculley et al, 2022).

Method Initial service plan

In the northwest of England, the authors' local care community team has observed a significantly higher COPD population. There are more older adults in this area, with 1 in 5 individuals aged over 65 years. The demographic is a socially mixed population, encompassing patients from a wide variety of socioeconomic backgrounds. However, variations in

Abstract

Aims: The authors share their early experiences of developing and implementing a telehealth service for patients with chronic obstructive pulmonary disease (COPD), through a collaborative approach. The article will explore the process of implementing telehealth service in a local care community team, identifying opportunities for improving care delivery and person-centred care. **Discussion:** The initial feedback and thoughts of both patients and healthcare professionals were obtained. Such feedback included patient's health insights, which helped improve risk assessment and personalised parameter settings. **Conclusions:** To-date, there has been a lack of robust evidence for the clinical benefits of telehealth. However, the feedback from staff and patients using telehealth was positive in several areas. Person-centred care plans also helped provide greater insight into patient's health goals, thereby streamlining care.

Keywords: Long-term plan • telehealth • chronic obstructive pulmonary disease • person-centred care plans • community respiratory team

deprivation are lower than the England national average (NHS England, 2020).

A decision was made by the team to pilot a telehealth system with a maximum of 20 patients for 16 weeks, to monitor their observations and symptoms. The chosen group was prioritised, as it included some of the most vulnerable COPD patients on the community respiratory team's caseload. During this time, informal conversations captured general feedback themes from patients and staff about telehealth, their thoughts, observations and ideas for service improvement. Throughout this implementation period it was agreed to keep patient numbers at a minimum.

Discussion

NHS digital transformation advocates wider use of technology to support care in a multitude of settings, including telephone monitoring, telehealth, wearable devices, and virtual wards (NHS England, 2019). This approach offers greater accessibility, closer monitoring, less environmental impact and recently, the ability to stay connected while remaining safe at home (Hanlon et al, 2017; Jiang et al, 2022). Those not engaging with the digital world are at risk of being left behind, giving rise to inequalities with respect to access to services.

A comprehensive systematic literature review from the last 10 years discovered that, due to the heterogenous nature of care settings, the evidence for remote home monitoring was found to consist of 'low-quality evidence' (Nagase et al, 2022). While satisfaction rates with providers and patients were positive, there was no robust evidence to support significant improvements with clinical findings, such as quality of life (QoL) and lung function (Nagase et al, 2022).

A 3-year study in Germany indicated mixed findings, with healthcare interventions, costs, hospitalisations and prescriptions increasing in the telemonitoring group (Hofer et al, 2022). However, survival rates were significantly improved (Hofer et al, 2022). These findings could suggest that the active and regular monitoring of these patients may enable early intervention, with vigorous proactive management to exacerbations (Hofer et al, 2022).

Telehealth and chronic obstructive pulmonary disease caseload

Previously, support for COPD patients at a local level included case management, education on self-management and living well. In her literature review, Boyer (2021) discussed the benefits of such plans in supporting patients to manage their health condition. These include lifestyle interventions, such as smoking cessation, concordance with pharmacotherapy, access to pulmonary rehabilitation, symptom recognition and self-management. As the number of patients with COPD is increasing locally, alternative means of providing support and detecting early exacerbations to prevent hospital admissions was sought through telehealth monitoring.

As the system was new, there were no legacy issues to overcome. Telehealth equipment, education and support

were commissioned alongside clinical pathways and locally agreed arrangements within the integrated care group. The telehealth system required patients to put their own recordings into the app or website. Information received by the telehealth team would be automatically triaged and graded using a traffic light system:

- Red: clinical alert where one or more readings exceeded pre-determined measurements
- Amber alert: minor deviation in pre-determined measurements
- Green: within normal pre-determined parameters.

Recordings were taken weekly to establish a baseline, with patients also having the option of putting in additional readings when they felt unwell.

Telehealth team

The telehealth service needed to recruit an entirely new team. Recruitment and interest in the telehealth job vacancies was positive, with secondment opportunities available for existing staff to try dual roles. The team consisted of registered nurses, allied health professionals and healthcare support workers. Feedback suggested that the success of recruitment was, in part, due to the hybrid home/office-based working and flexibility of hours that these posts offered:

'The transition from face-to-face community working to remote working required some adaptation. However, the ease and flexibility of being able to successfully work from home or office has been beneficial. It has improved my work/home relationship and has enabled me to work more closely and on a differing level with outside agencies and colleagues, and enhanced my communication and time management skills.'
(Telehealth nurse)

Staff recruitment and retention is an ongoing concern within all health and social care areas, and flexible work opportunities have provided greater accessibility and freedom for staff, with many feeling more productive (NHS England, 2020).

Staff experiences

Initially, it was challenging for the community respiratory team to encourage patients to consider this new way of care. The discussions introducing the concept of telehealth to a patient was often time-consuming and technically difficult. Concerns raised by patients included the speed of change from face-to-face care to virtual monitoring, issues with access to equipment and ease of use of equipment. Similar challenges have been noted previously by other authors (Wu et al, 2021; Jiang et al, 2022). To overcome these, patients were given time to process the change and discuss the opportunities it offered them. Access to the telehealth system was via an app or through a website. Smart phones were available as part of the package to ensure all patients were given equal opportunity to the

Table 1. Example case scenario

Respiratory team feedback	A 75-year-old patient with severe COPD. Housebound, lives alone, has a dog, carers three times a day. Multiple acute courses of treatment for COPD in past 12 months. <ul style="list-style-type: none"> • Previously missed two oxygen appointments due to ill health, referred to telehealth for monitoring, pulse oximetry recording permanently low 83–87% room air • Partner recently died in hospital, previously made decision to not be admitted if unwell (as no one to look after dog)
Situation	Reviewed by general practitioner (GP), treated for chest infection as pulse oximetry low and scattered wheeze heard
Background	Forced expiratory volume in 1 second (Fev1) 28% (very severe COPD) Four exacerbations in 12 months and coronavirus infection (1 hospital admission) Global initiative for chronic obstructive lung disease (GOLD) classification 4D <ul style="list-style-type: none"> • On triple therapy and salamol inhaler via spacers • News²=5 (respiration 20, oxygen saturation 83% r/a, blood pressure: 108 systolic, pulse 110, alert, temp 37.4°C) • Respiratory assessment: some nasal flaring, short of breath on minimal movement, audible wheeze
Observations	<ul style="list-style-type: none"> • Discussed risk versus benefit of starting antibiotics with GP and patient—patient did not feel they had a chest infection, declined acute treatment • Agreed to trial with salbutamol nebuliser for wheeze
Recommendations	<ul style="list-style-type: none"> • Working together with patient and GP care was co-ordinated • Person centred care: patient’s wishes observed. Admission avoided, and no antibiotics or steroids taken, made aware of local dog-sitting services for patients in hospital. Made aware of bereavement support available. Healthier lifestyle advice given, including chest clearance • Wheeze improved with salbutamol nebuliser four times a day • Oxygen assessment brought forward by a week under caution—partial pressure of oxygen in the arterial blood 6.0 kpa, completed a trial of oxygen
Discussion	<ul style="list-style-type: none"> • Through telehealth, the authors were able to show the patient maintained low oxygen levels and did not exacerbate • Had antibiotics been started, it would have delayed oxygen assessment by a further 8 weeks • The benefits of having telehealth helped to improve patient outcomes and reduced risk of antibiotic resistance

service, thereby reducing any digital inequalities.

Locally, we have identified high morbidity and symptom burden of COPD exacerbation as factors in willingness to participate in the project. Many patients reported that they would ‘try anything’ they can, to improve their QoL.

Staff also had their own challenges: adapting to new healthcare practices/policies, using new pathways, and learning new technical skills. Upskilling the telehealth staff on COPD management had a twofold outcome. This helped extend their personal clinical knowledge, which they were then able to disseminate to the wider community nursing team, as part of their dual roles. This also improved the core knowledge of the community care teams, which helped them provide better care for patients.

‘Multi-disciplinary working is a key part of the role of a community nurse; however, being part of the telehealth services appears to allow for a more integrated relationship between specialists such as the respiratory nurses. The ease of being able to access the respiratory team allows for prompt patient management and reassurance.’ (Telehealth nurse)

Many patients only contact a healthcare professional when they are unwell. Telehealth monitoring, especially with pulse oximetry, gave a rare insight into patients’ lives when they were stable, with often surprisingly high pulse oximetry readings, far greater than would have been anticipated. This enabled higher preemptive parameters to be set on telehealth system, ensuring that, as soon as an

exacerbation or deterioration began, it would be detected and treated. In addition, the system allowed us to monitor patients who were unwell and improve their outcomes without the need for intensive measures (Table 1).

Overall, patients have reported positive experiences and some general feedback themes included: ‘don’t feel as alone anymore’; ‘reassured that someone is watching and responding quickly’; and feeling ‘grateful for the service and well cared for’. Lundell et al (2020) also suggested that remote monitoring over time offers a more confident approach in self-management. Priority is increasingly being placed on empowering patients, especially those with long-term conditions to take active roles for both self-care and self-efficacy (NHS England, 2019). However, to achieve this, adequate support needs to be in place. Yet, evidence on self-efficacy relating to telehealth is still lacking (Chalfont et al, 2021).

‘I have noted that patients appear to have a good awareness of their long-term condition, introducing the Telehealth monitoring appears to enhance their awareness and empower self-management.’ (Telehealth Nurse)

Person-centred care plan

Introduction of telehealth led to a more person-centred care plan approach for patients, ensuring staff actively tried to understand the patient’s views. Implementing telehealth helped initiate this process, resulting in a shared document

between both patient and staff.

This approach focuses on the individual, identifying and understanding their own unique desires and goals. Healthcare professionals may not agree with this strategy when planning intervention and treatment plans. However, care can be significantly improved by ensuring a person-centred approach to care planning. This can also boost relationships, empower individuals, achieve high quality outcomes and promote independence. This approach in community nursing enhances holistic assessments by valuing the lived experiences of a patient, and working in collaboration with service users, their families and carers.

Person-centred care planning is described as co-production with patients—co-designing care in collaboration with them, for them. There are several national drivers that support this, such as NHS England (2015), The King's Fund (2018), NHS Long Term Plan (2019). While planning care for our complex caseloads, it should be recognised that one size does not fit all. Not every condition and patient pathway will be the same. Respecting individuality and people's choices will boost and improve professional relationships (The Health Foundation, 2014).

Patients identified for the local Telehealth service have person-centred care plans in collaboration with their specialised teams. The format and templates of such plans can vary and should be devised or chosen to best suit each individual person. These documents have been adapted into sections, clearly identifying unique and important patient goals and wishes, which will promote stability and general well-being. They may include what is working, what is not working, what they want to change, their strengths, how they could stay in control, who currently supports them and additionally, where to get support from. This vital information is held in both patient records and in the person's home; this helps complement assessments, while supporting necessary intervention and individualised management of people living with long-term conditions:

'Through time, we have also been able to build professional relationships remotely with individuals, allowing us as a team to ascertain a greater knowledge and understanding of the individual and tailor care.' (Telehealth nurse)

Present day

Telehealth fits with future digital technology, offering remote monitoring to patients in their home. Internet access needs to be considered when utilising telehealth, as issues with connectivity, especially in rural areas can be frustrating for patients and increase workload for staff.

Conclusion

Further research is needed about telehealth. After initial set up and support from the telehealth system, the general feedback themes from staff and patients have been positive. During the pilot, it was noted that regular and remote monitoring has enabled timely intervention for COPD exacerbations. This has allowed patients to be treated at home, delivering a proactive, person-centred approach to care.

Telehealth offered a more flexible and inclusive way of working for staff, which may support retention, future recruitment and career development. Following success of the initial pilot, the service has now rapidly expanded, and an evaluation aims to be undertaken in 12 months' time.

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Key points

- Telehealth appears to support care for patients with COPD in their own homes
- Utilisation of telehealth requires a collaborative approach to patient care
- It ensures care is person-centred and patients' views are reflected in care plans and incorporated into the care provided
- It empowers patients with support to self-care to help manage condition
- Flexible/ hybrid working appears to have positive feedback from staff and aid recruitment

CPD reflective questions

- Do you feel prepared for remote monitoring of patients?
- What factors do you need to consider if implementing telehealth in your area?
- How can we ensure our care is person-centred?

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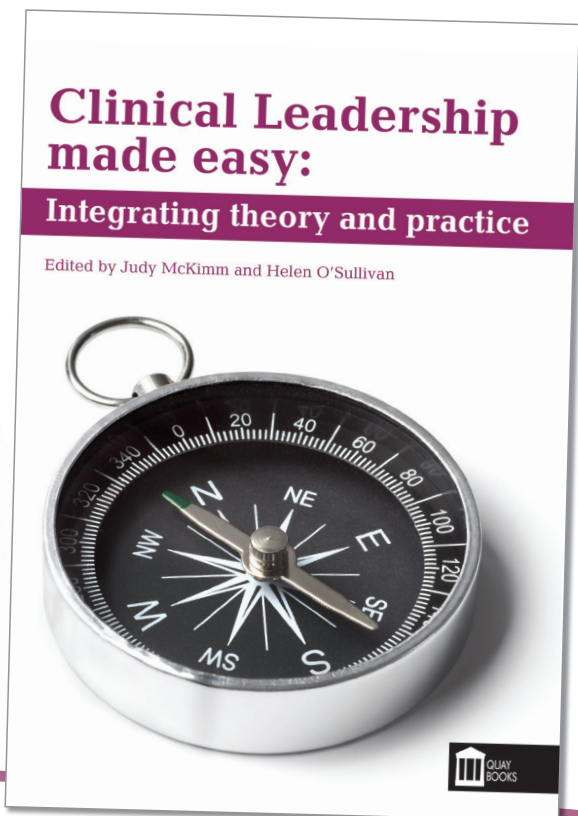
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