Innovating for Improvement

Pharmacy Anywhere

NHS Highland

The
Health
Foundation

About the project

Project title:

Pharmacy Anywhere

Lead organisation:

NHS Highland

Partner organisation(s):

Project lead(s):

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Contents

Part 1: Abstract

Pharmacy Anywhere tested whether clinical pharmacy services could be provided remotely using telehealth.

The aim of Pharmacy Anywhere was simple. We had already developed a clinical pharmacy service for dispensing GP practices that worked. The problem was that providing that service across NHS Highland was impossible due to our challenging geography and recruitment difficulties in remote locations. Pharmacy Anywhere used two forms of telehealth to enable pharmacists to provide patient care remotely: remote access to medical records and video consulting.

Overall, Pharmacy Anywhere worked. The clinical pharmacy service was delivered safely and effectively by telehealth, and, crucially, patients liked it. This short animation summarises the project:

However, there was an important barrier. That barrier was the lack of internet connectivity in patients' homes in rural areas which largely prevented use of video consulting. Although we resolved this by using telephone consultations, we believe video consulting offers the advantage of seeing non-verbal signals. While urban areas across the UK have good internet connection, rural areas have been left behind. This inequity must be addressed, particularly because telehealth offers the greatest benefits in rural locations.

Pharmacy Anywhere has already become integrated into our pharmacy service. As a result, our service is more responsive and sustainable, and has delivered improved quality of life for pharmacists (who spend a lot less time driving).

Moreover, Pharmacy Anywhere has had a much bigger impact beyond pharmacy: it has led to the creation of NHS Near Me which aims to deliver telehealth at scale across NHS Highland.

Part 2: Progress and outcomes

Pharmacy Anywhere works, and works well. This project has demonstrated that clinical pharmacy services can be provided using telehealth. And that means we can provide a sustainable pharmacy service in rural locations.

The problem

The starting point was a problem: NHS Highland covers a large geographical area roughly the size of Belgium, but its population is small and sparsely distributed. We struggle to recruit health professionals in rural areas, and all of our clinicians spend a lot of time driving to reach remote locations. Not only is this a waste of clinical time, but travelling can be difficult because of the rugged terrain of the Highlands and limited transport infrastructure.

Yet we still need to provide services in our remote locations. Specifically, NHS Boards in Scotland have a duty to ensure patients of dispensing GP practices receive appropriate pharmaceutical care from a clinical pharmacist. Without this, there is a risk that patients won't get maximum benefit from their medicines or may even be exposed to harm due to unaddressed side effects or continuation of medicines that are no longer appropriate. We had already demonstrated this could be addressed by pharmacists visiting practices to provide medication reviews, but geographical and recruitment challenges meant we could not deliver this to all dispensing practices.

Pharmacy Anywhere tested whether we could deliver the same service – pharmacist-provided medication reviews – by telehealth and, in doing so, reduce the need for anyone to travel.

The intervention

In Pharmacy Anywhere, we needed our pharmacists to be able to work at sites remote from dispensing practices. We used two forms of telehealth to achieve this:

- Remote access to medical records so the pharmacists had the clinical information required to review medicines effectively. This was achieved through Vision Anywhere.

- Video consulting system so the pharmacists could speak to patients remotely, with the patient in their own home. This was achieved using Attend Anywhere. Although video was our preferred method of communication, we recognised that internet connectivity is limited in rural locations and furthermore not every person has a computer/smartphone for video calling, so we offered telephone consultations too.

Neither of these interventions had been used before in Scotland. Vision Anywhere

had been launched as a product for GPs to take medical notes on home visits, but our use of the system as the sole way to access and update patients' medical records was new. Attend Anywhere had been available in Australia for a number of years but had not yet been used in the UK when we started this project.

Pharmacy Anywhere involved three clinical pharmacists working part-time with three rural dispensing practices. The practices were: Canisbay & Castletown in Caithness, Assynt in Sutherland, and Torridon in Ross-shire. The pharmacists were: Lucy Dixon, Yvonne MacRae and Patricia Hannam.

The experience

Pharmacy Anywhere was set up between January and March 2017, with initial testing of the telehealth in April. This phase involved defining the process for medication reviews, and developing patient materials with patient input (leaflets and website), available at: http://nhsh.scot/pharmacyanywhere
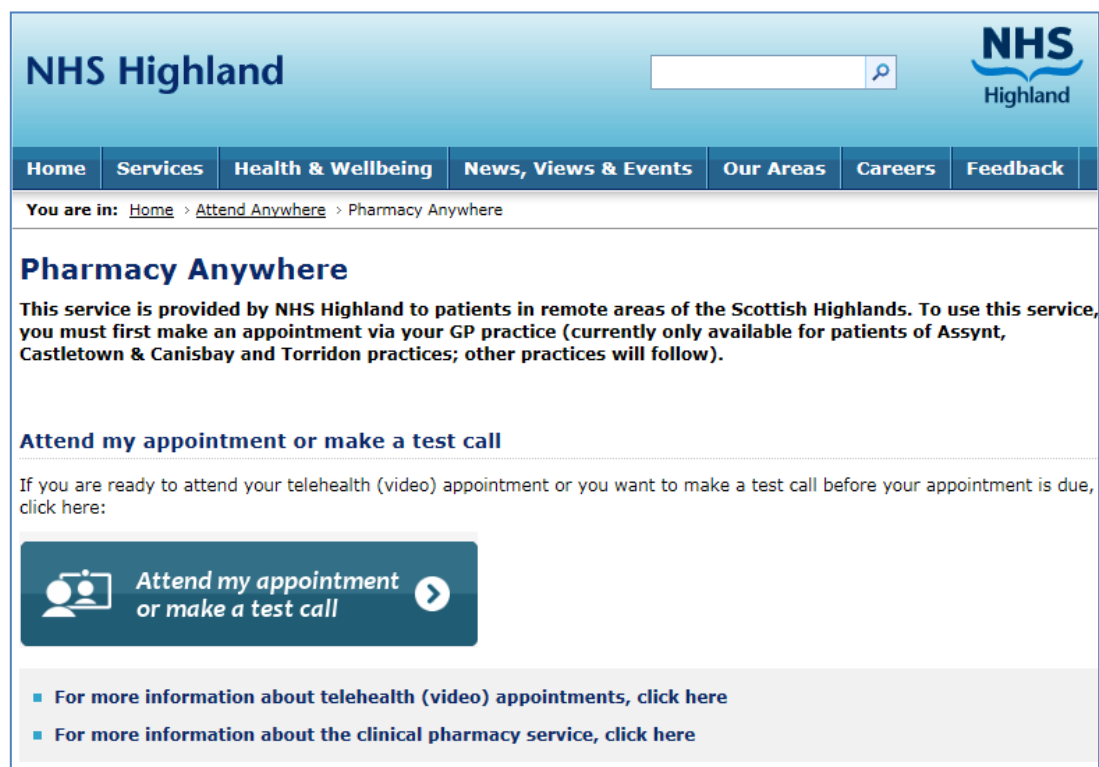
In May 2017, a handful of patients were seen. This was crucial to test on a small scale that the telehealth worked. Following this, the service went live.

In the initial months, a significant number of improvements were made to Vision Anywhere. A technical team at Vision worked with us to make changes as we identified problems. The key issue was enabling all aspects of prescribing. Initially, it had not been possible to stop, amend and re-authorise existing repeat medicines. There were also issues with freezing and timing out, and access to certain

documents. By August, this part of our telehealth system was working well.

The other part was more challenging. There was no problem with the video consulting platform itself. Attend Anywhere works perfectly: it is straightforward to use and provides high quality video calls. The challenge is that it is a web-based system so depends on internet connectivity. Our pilot sites are in rural areas where internet connection is extremely poor. Where patients had access to good bandwidth, video calls were successful. However, for many patients it was not even an option to try. Therefore, we largely depended on telephone consultations which had only been included in our original project plan as a back-up.

Data collection

The following data were collected:

Data type	Method of collection
Appointment uptake	GP practice staff recorded the number of appointments made each month, including the number of refusals
Appointment success	At the time of the appointment, pharmacists recorded whether the consultation had gone ahead, whether there was a technical failure or whether the patient did not attend
Clinical outcomes	During appointments, pharmacists recorded clinical interventions in patients' medical records. A different pharmacist later accessed the records to identify clinical outcomes, typically 3-6 months after the initial consultation (range 2-9 months)
Patient experience	A questionnaire was sent to every patient who had an appointment, and 10 patient interviews were completed. This part of the evaluation was undertaken by Robert Gordon University to ensure objectivity
Health care professional experience	Participating pharmacists and GPs were interviewed by Robert Gordon University

Appointment uptake and success

Fig 1: Acceptance rate: 85% patients accepted an appointment

Fig 2: Appointment delivery: technical success 94% of the time

Fig 3: Appointment method: 96% patients chose telephone

Clinical outcomes

We had previously demonstrated a clinical need for medication reviews, so Pharmacy Anywhere was not designed to evaluate this. However, we checked that pharmacists were still able to successfully complete medication reviews using telehealth and it did not result in GPs having to provide additional input after the pharmacist's appointment.

Fig 4: Intervention rate: pharmacist made an intervention (eg, change a medicine, advise on how to take a medicine safely) in 70% of consultations
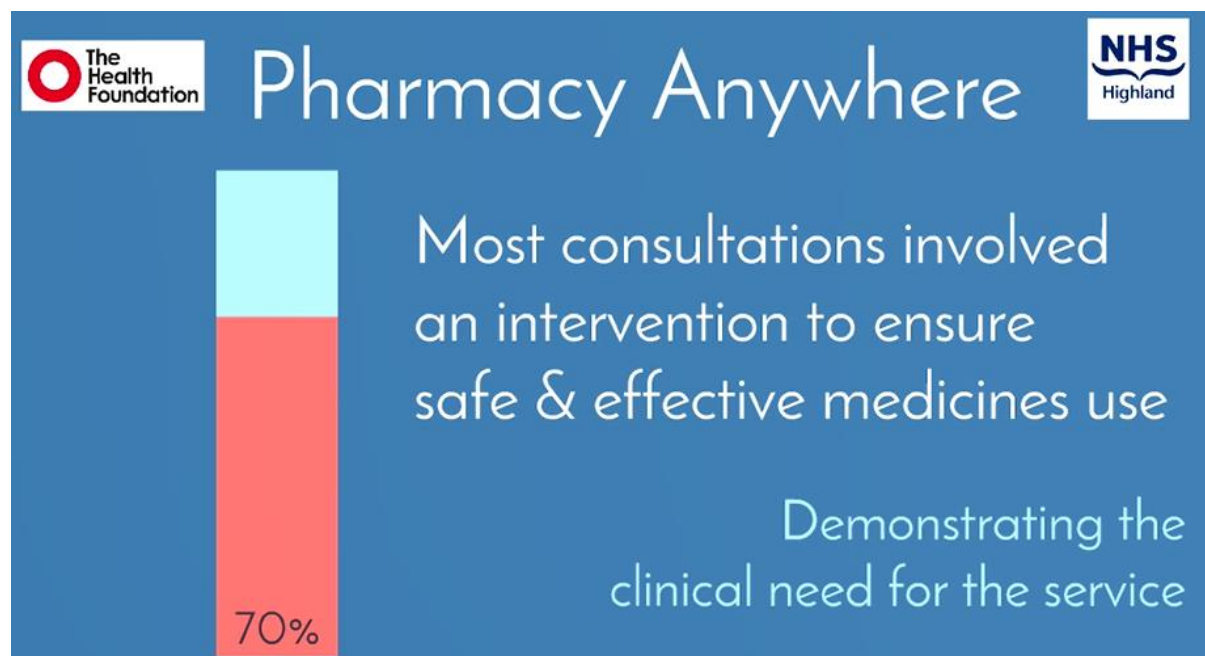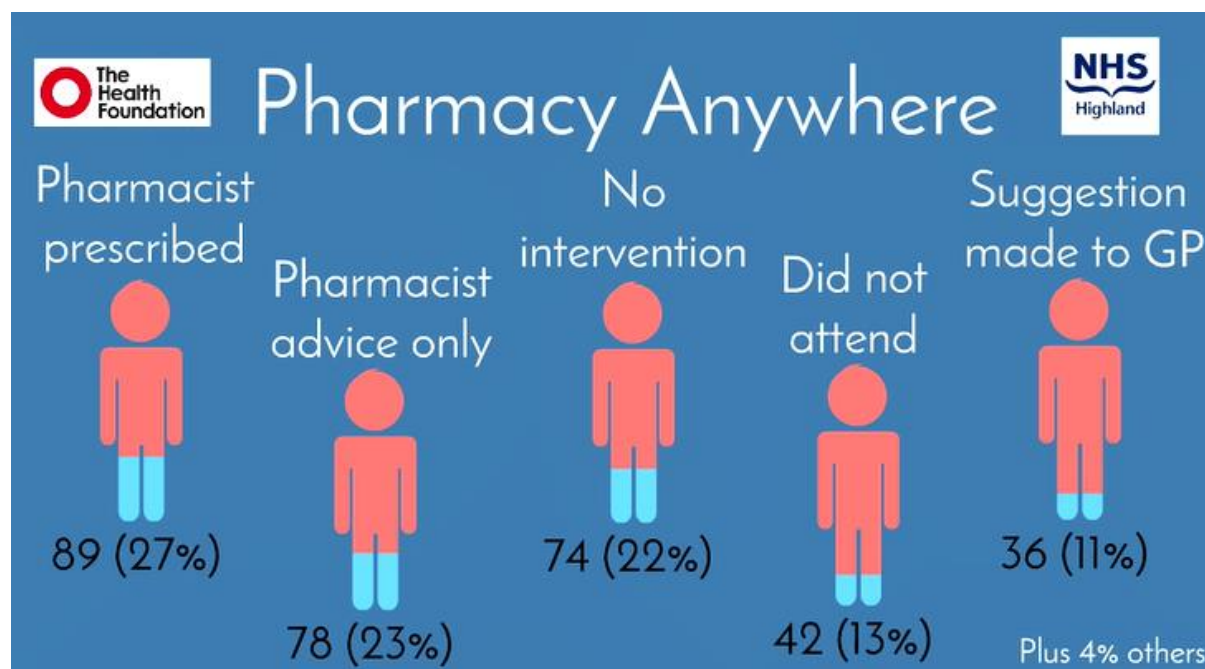

Fig 5: Interventions made by pharmacist

Note: advice was also given as part of other consultations (eg, prescribed)

Fig 6: Outcomes: interventions required by GP after the pharmacist appointment

All four interventions were due to symptoms returning after a medicine had been stopped by the pharmacist, something which could have happened regardless of how the consultation was provided.

Patient experience

Pharmacy Anywhere was valued by patients, with patients identifying reduced travel and not having to arrange care for relatives as particular advantages.

Fig 7&8: Patients' comments

The main barrier in Pharmacy Anywhere was the lack of internet connectivity which prevented use of video consultations.

Figs 9&10: Patients' comments on technology

Health professional experience

Overall, health professionals were very positive about Pharmacy Anywhere.

Figs 11&12: Health professionals' comments

Summary

Fig 13: Patient summary

Part 3: Cost impact

The aim of Pharmacy Anywhere was to test whether a clinical pharmacy service could be delivered using telehealth. We found that using telehealth, instead of providing the service in person, is cost-saving.

Costs

Initial investment was required for the equipment that enabled use of the telehealth systems (updated computers, webcams and internet connectivity). This was funded by the project and is now in place for long-term use. As the model is spread, investment in this equipment will be needed. However, the costs are relatively small (approximately £800 per pharmacist).

Pharmacy Anywhere also requires an ongoing annual licence fee for the telehealth system for remote access to medical records. Finally, the video consulting platform is currently funded centrally in NHS Scotland, it is unknown if this funding will continue indefinitely.

Savings

These are the locations of the Pharmacy Anywhere service pharmacists and GP practices they supported, with the round trip mileage:
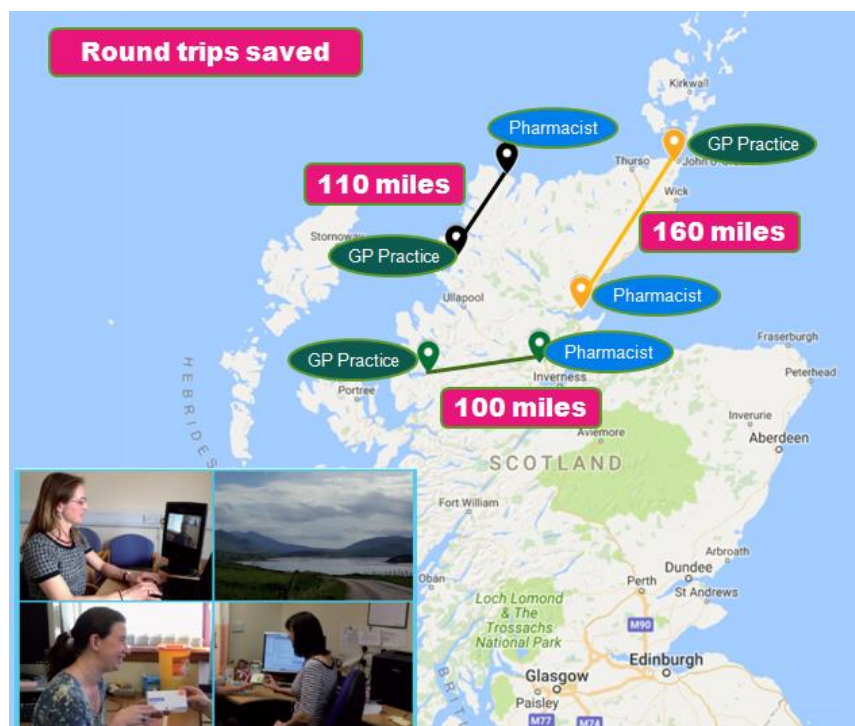
If the pharmacists had travelled to the practices to provide appointments in person, the additional cost would have been as follows (these calculations do not include the time/cost for the consultation itself, as that would be the same regardless of whether

the pharmacist saw the patient in person or by telehealth):

Table 1: Visits to practice required

Practice	Mileage (round trip)	Journey time (round trip)	Consulting hours*	Number of 20-minute appointments per visit**	Number of appointments provided in project***	Number of visits required
Practice 1	110	2 hrs 34 mins	4.5 hours	13	82	7
Practice 2	160	3 hrs 48 mins	3.25 hours	10	197	20
Practice 3	100	2 hrs 24 mins	4.5 hours	13	52	4

*Calculated as 7.5 hour working day, minus journey time, minus 30 minutes preparation/set-up in the practice
**This calculation is based on a service delivery model and ignores the additional time involved in the project for testing and evaluation.
***Actual numbers of appointments provided in Pharmacy Anywhere. Practice 2 is much larger than practices 1 and 3, so had more pharmacist time allocated.

Table 2: Estimated costs of visits to practice

Practice	Number of visits required	Total mileage	Travel costs (56p per mile)	Pharmacist hours time on travel	Pharmacist cost on travel (£27ph)
Practice 1	7	770 miles	£431	17.5 hours	£473
Practice 2	20	3,200 miles	£1,792	75 hours	£2,025
Practice 3	4	400 miles	£224	10 hours	£270
Total		**4,370 miles**	**£2,447**	**102.5 hours**	**£2,767**

Therefore, the additional cost to provide the clinical pharmacy service in person to the three practices for six months would have been £5,214 (£10,428 per annum).

The ongoing telehealth licence fee for these three practices is £1,980 per annum. Therefore, providing the Pharmacy Anywhere service by telehealth instead of in person saves £8,448 per annum.

It should be noted that the aim of Pharmacy Anywhere was to find a solution that enabled NHS Highland to provide a clinical pharmacy service to all dispensing GP practices, something we had been previously unable to do. Therefore, as the service was not previously being delivered to all practices, the potential saving above is theoretical. Provision of this service will now be part of new GP contract Pharmacotherapy Service. In the meantime, the Pharmacy Anywhere model has been implemented for the existing NHS Highland rural pharmacy team with the ongoing telehealth costs funded from actual savings on travel.

Part 4: Learning from your project

Pharmacy Anywhere achieved everything it set out to achieve, and much more.

The project was designed to test whether an existing clinical pharmacy service could be provided by telehealth, in order to overcome barriers with geography and recruitment in remote areas. The simple answer to this question is yes: telehealth works.

But what was never anticipated was just how much interest Pharmacy Anywhere would generate, and how quickly it would spread within pharmacy and beyond to NHS Highland services in general.

Key enablers

System readiness in Scotland

Pharmacy Anywhere was launched at a time where there was a bigger focus in NHS Scotland on developing telehealth services, not least because of the arrival of Attend Anywhere in Scotland in early 2017. In addition, pharmacy itself was in the spotlight because of the Pharmacotherapy Service within the new GP contract announced in Scotland in 2017 which generated a national interest in different ways to deliver new services.

Culture of improvement

Quality improvement methodology is embedded in the NHS Highland rural pharmacy team: the team has a six-year history of developing innovative pharmacy services by using a series of small tests of change which eventually lead to a standardised process for spread. This meant that creating the Pharmacy Anywhere service model, the detail of which went through many change cycles, was a natural process. The pharmacists – those doing the front-line work – really led this process, so they had a sense of ownership of the service throughout the testing period and beyond.

Established relationships and support

Pharmacy Anywhere involved many more teams than just pharmacy. First of all, the three GP practices were essential, two of which had previously worked with the

pharmacy team on developing other services, which undoubtedly meant that engaging them in developing Pharmacy Anywhere was far easier than it would have been if we were starting from scratch. Without the GP practice teams' role in speaking to patients about Pharmacy Anywhere, and encouraging them to make appointments with the pharmacists, no service could have been provided.

Also essential was NHS Highland's eHealth department. The eHealth team was incredibly supportive in providing advice and helping us overcome technical barriers in the early months of the project, along with creating a website and providing advice throughout the project.

Externally, we could not have developed Pharmacy Anywhere without two key organisations. The Scottish Centre for Telehealth and Telecare was crucial in the provision of and support for the video consulting platform. And Vision (GP system provider) was essential in the provision of Vision Anywhere. Although we purchased this system, Vision went above and beyond the call of duty to make Vision Anywhere work for our service. This included providing technical teams who at one point worked over a weekend to fix some early glitches with the system.

Meeting patients' needs

An external evaluation of Pharmacy Anywhere was provided by Robert Gordon University. The researchers were fantastic in participating in a quality improvement approach by actively providing us with feedback from patients throughout the project rather than in a single evaluation at the end. This enabled us to learn from unbiased feedback from patients so we could make improvements as the service developed. We also learnt from informal feedback from patients during consultations and via practice staff. We were extremely fortunate that so many patients were willing to try this new service, and tell us what they thought of it.

And patients told us things we did not know. Before Pharmacy Anywhere, we thought telehealth was a second best option: better than no service at all but not as good as in-person. But during Pharmacy Anywhere, many patients said they actively preferred telehealth for their own convenience. Key benefits patients identified included: reduced travel (especially important in icy winter weather), avoided the need to arrange care for a family member while they attended an appointment, and allowed them to be more comfortable during appointments.

One patient described how she normally spent the first few minutes of each appointment catching her breath so she missed what was said, with telehealth she was able to focus on the appointment from the beginning. Another told us that she had travelled to hospital many times with her husband to attend appointments in the last few months of his life; telehealth would have given them a better quality of life. The number of positive reactions to telehealth surprised us.

The challenge: internet connectivity

On the negative side, we did not foresee just how challenging internet connectivity in rural locations would be. Internet connectivity is improving across the Highlands, but the current lack of connectivity is a significant barrier that needs to be addressed at a national level. Telehealth is a positive, real solution to the challenges of providing health services in rural locations, but it requires an internet connection. As large towns and cities across the UK are connected to faster and faster bandwidth, the rural areas that can benefit most from telehealth are getting left behind. This inequity must be addressed.

Within our next telehealth service development, we are overcoming this barrier by creating hubs at which patients can attend video clinics (see section 5). Internet connectivity needs serious consideration by any other service planning telehealth developments.

Within Pharmacy Anywhere, we fell back on the simplest form of telehealth: the telephone. This meant we were still able to provide remote consultations between pharmacists and patients, but we would have preferred to use video consulting. From a clinical perspective, we believe that if we could see patients via video, patients could show us their medicines so we would pick up on non-verbal signals about how they are getting on with and handling their medicines. A next step for us is to evaluate whether this belief is demonstrated in practice.

The other part of our telehealth solution – providing the pharmacists with remote access to medical records – was not affected by the poor internet connection in the remote areas, since our pharmacists and the GP practices themselves both had reliable NHS internet connections.

Part 5: Sustainability and spread

Pharmacy Anywhere has already been spread, and there are clear plans for its future use. This spread is not just within pharmacy: learning from this project has also led to much wider organisational spread.

Spread of Pharmacy Anywhere

Within the rural NHS Highland pharmacy team, the Pharmacy Anywhere model has already become part of our pharmacists' roles.

Not only has it created a model that enables us to provide a pharmaceutical care service across a remote and rural area, but it has also made our existing service much more responsive. For example, we can now respond to referrals more quickly than if we had had to travel to see a patient. All patients who have had a fall in the community are referred to our pharmacists to assess whether there were any medication-related factors that could be tackled to reduce future falls risk. Previously, this assessment happened the next time the pharmacist travelled to the patient's GP practice, which might have been several weeks later. Now, the pharmacist can check the patient's medication history on the same day using telehealth to remotely access the GP system.

Pharmacotherapy service

The Pharmacy Anywhere model was originally created for rural dispensing GP practices, but we have started to use it in non-dispensing practices too. This is especially important as NHS Scotland moves forward with the new Pharmacotherapy Service in the GP contract. Many GP practices are already using pharmacists for medicines management roles, and in NHS Highland this has seen the creation of an Advanced Pharmacist Practitioner who provides medication reviews, medicines reconciliation, acute medicine requests and dose titration clinics within a GP practice. One of our existing pharmacists in this role has started to test whether this role can be provided remotely, using the Pharmacy Anywhere model. This is extremely important for the Pharmacotherapy Service for two reasons. First, we have difficulty recruiting pharmacists in some geographical locations. Second, we need to ensure this new service is sustainable, which means providing cover if a pharmacist is on leave or there is a vacancy. Our early testing suggests that the Pharmacy Anywhere model could overcome both of these challenges.

Rural recruitment

Pharmacy Anywhere is a real winner when it comes to recruitment. Not only does it remove the barrier of hard-to-recruit locations, but it also means that health professionals can live and work where they choose. The Scottish Highlands is full of beautiful remote locations where senior clinical roles did not previously exist due to the small population and therefore volume of work being minimal. With Pharmacy Anywhere, a pharmacist can work full time in a remote location, providing

consultations for patients many miles away. This is the opposite of centralisation. Offering good employment opportunities in rural locations is not only beneficial for an individual pharmacist, but also makes a positive contribution to rural economies.

NHS Near Me

The learning from Pharmacy Anywhere has led to the launch of a much wider service in NHS Highland: NHS Near Me.

Some patients in Pharmacy Anywhere told us we should be using the telehealth model for other NHS services. This, combined with public demand to reduce patient travel from remote areas to the urban centre of NHS Highland, led to the creation of NHS Near Me.

NHS Near Me aims to provide NHS care close to patients' homes and avoid any unnecessary travel. It is initially focused on hospital outpatient appointments. Historically patients have had to travel from rural locations to the urban hospital in Inverness for outpatient appointments, a journey of up to three hours each way (and generally longer by public transport). Through NHS Near Me, appointments will be offered by telehealth wherever clinically appropriate – this means when appointments do not involve hands-on care, access to specialist equipment or if the consultant otherwise needs to see the patient in person.

An important learning point from Pharmacy Anywhere is the limited internet connectivity to enable video consulting in rural locations. Therefore NHS Near Me is taking a phased approach. To start with, NHS Near Me hubs are being created in rural locations across NHS Highland. These clinics have high quality video consulting equipment installed and guaranteed internet connectivity. Patients can attend these clinics and see their clinician by video, without having to worry about the connection itself. The clinics are staffed by a health care support worker who helps connect the calls and can also provide clinical assistance (eg, take blood samples). Once patients and clinicians have become more confident in the video consulting method, and when internet connectivity improves, NHS Near Me will be expanded to patients' homes.

The key difference between NHS Near Me and earlier uses of video consulting is that it is introducing telehealth at scale. The learning from Pharmacy Anywhere taught us that by developing the appropriate supporting processes and

infrastructure, telehealth can become a normal way in which appointments are delivered. For NHS Near Me, this means adapting key NHS systems like appointment booking, reception check-in and authorising blood tests to a remote telehealth model.

NHS Near Me can also reduce the requirement for clinician travel and provide resilience to services, for example, during winter weather or to cover short-term vacancies in remote locations.

The Pharmacy Anywhere project was a crucial starting point for the creation of NHS Near Me.

Interest and recognition

Pharmacy Anywhere has attracted significant interest.

In August 2017, the Scottish Government's national pharmacy strategy "Achieving Excellence in Pharmaceutical Care" highlighted Pharmacy Anywhere in a section about enhancing pharmaceutical care to remote and rural locations. It said:

NHS Highland technology enabled project

A team from NHS Highland has been awarded funding from the Health Foundation to test an innovative technology enabled project designed to help improve people's access to pharmaceutical care in remote and rural areas across the region. The project involves pharmacists providing medication reviews and advice on taking medicines to people registered with dispensing medical practices. The pharmacists work closely with the dispensing practices but are located remotely from them. People are able to speak to the pharmacist from their own home, workplace or medical practice via a secure video link. A face-to-face version of this service, in which a pharmacist visits dispensing practices, has already been developed by NHS Highland in a pilot involving four practices.

Pharmacy Anywhere has been presented at a number of conferences, including the Scottish Centre for Telehealth and Telecare's national learning event in Edinburgh in May 2017, the Scotland Policy Conference in Edinburgh in January 2018, and the European Hospital Pharmacists' Association congress in Gothenburg in March 2018.

A blog about Pharmacy Anywhere has been published by the Royal Pharmaceutical Society, available here. Furthermore, a feature is planned by the Pharmaceutical Journal (UK-wide publication for pharmacists) this summer.