



# Outpatients: The future

Adding value through  
sustainability



## Acknowledgements

Case studies compiled by Jennifer Isherwood and Karen Porter, Royal College of Physicians.

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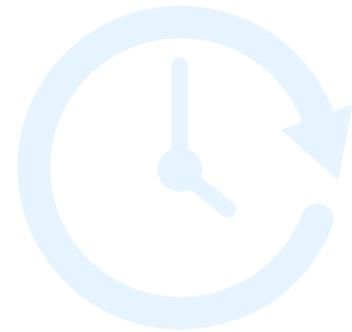
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Royal College of Physicians  
11 St Andrews Place  
Regent's Park  
London NW1 4LE  
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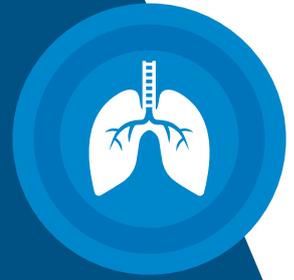
# Contents



**These case studies form a supplement to the *Outpatients: The future – Adding value through sustainability* report published by the RCP.**

We have gathered seven examples of innovative models of outpatient care with data that demonstrate environmental, financial and social benefits as well as improved patient outcomes. The case studies cover different specialties, patient populations and regions.

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# Remote home ventilator monitoring

## Project summary

Home mechanical ventilation is the treatment of patients with chronic respiratory failure or insufficiency by means of a mechanical ventilator at a patient's home. Typically a patient is issued with a home ventilator and attends regular hospital clinic appointments to assess the effectiveness of ventilation. Clinical tests are performed on the patient and ventilator use is assessed by downloading data from the ventilator. However, if patients do not attend clinics it can make follow-up assessments difficult.

The development of remote ventilator monitoring enables clinicians to access a patient's ventilator data at home without the need for them to come into hospital. The Lancashire and South Cumbria Long Term Ventilation Service (LSCLTVS) invested in a ventilator remote monitoring system in 2017. This allows the team to troubleshoot ventilator problems or make adjustments to settings as clinically indicated.

The subsequent reduction in the number of consultations and patient travel to appointments was evaluated over a 12-month period to calculate the impact on the carbon footprint.

### Benefits



#### Environmental

- > Remote monitoring within the LSCLTVS has reduced the carbon footprint of the service by on average 12.4kg CO<sub>2</sub>e per patient through reduction in clinic attendances
- > 79 patient return journeys per annum were saved, equating to 1,980 miles or 0.55 tonnes of CO<sub>2</sub>e



#### Social

- > Patients reported improved satisfaction and compliance with treatment
- > Patients saved a combined 58.6 hours in travel time across the year



#### Financial

- > Patients saved £792 in mileage costs (@40p per mile)



#### Efficiency and productivity

- > 85 ventilator review clinic visits were saved, resulting in extra clinic capacity (the equivalent of around 8 days of clinic practice)

## Background

There is strong emerging evidence on the devastating effect of anthropogenic climate change on lung health. In England, the NHS accounts for approximately 30% of the public sector carbon footprint, with patient travel accountable for 8% of overall travel (17%).

The Climate Change Act 2008 resulted in the government and NHS committing to an 80% reduction in carbon emissions by 2050. In March 2017, the British Thoracic Society (BTS) published a position statement 'The environment and lung health', which encouraged all respiratory teams to actively attempt to reduce their carbon footprint.

The effects of telemonitoring on reducing the carbon footprint within NHS services have been well documented. In 2017, the LSCLTVS invested in a remote ventilator monitoring system (Encore Anywhere™) for respiratory patients and evaluated its environmental impact. The patients had a variety of conditions including chronic obstructive pulmonary disease (COPD), neuromuscular disease (including motor neurone disease) and obesity hypoventilation syndrome. The majority of patients in this study required assistance with all activities of daily living. All were requiring non-invasive ventilation and did not have a tracheostomy.

## The study

Over a 12-month time period we analysed the telephone consultations of all 276 patients monitored remotely under the care of the LSCLTVS. Patients or carers who called reporting deterioration in a clinical condition that could not be rectified over the telephone were identified.

Without remote monitoring, the normal intervention that would follow would be a visit from the GP or community respiratory team, hospital admission, clinic visit or home visit from the ventilation team.

Based on the clinical telephone consultation a review of the home ventilator was indicated in 85 patients. This would normally necessitate either a clinic visit to Royal Preston Hospital or a consultation at home. However, as these patients had remote ventilator monitoring via the Encore Anywhere™ platform we were able to review their data and make changes remotely.

## Resources

### Funding

The remote monitoring service was added to our existing contract bundle price which is cross charged to clinical commissioning groups (CCGs; there was no additional cost to the trust, CCG or patient). Any additional data charges for the remote monitoring systems were also added into existing ventilator bundles.

### Staff

Staff involved in the service comprise:

- > consultant physiotherapist
- > two ventilation nurse specialists
- > senior medical engineer.

### Equipment

Encore Anywhere™ is a software package for gathering and sharing patients' compliance data over the internet. The Encore Anywhere™ package was purchased and set up for the LSCLTVS in 2017.

The Encore Anywhere™ website can be accessed and used by patients on their own computers or mobile devices.

Philips Respironics supplies the ventilators, which are maintained by a ventilator service engineer, senior medical engineer and ventilation nurse specialist.

### Training

The modem device fits on the back of the ventilator so patients and carers do not have to do anything at all. The ventilator staff had an hour's in-house training and had online help if needed – the system is very easy to use.

## Results

Over a period of 12 months, 79 return journeys were prevented through the use of remote monitoring. This equates to 1,980 miles or 0.55 tonnes CO<sub>2</sub>e, over 58.6 hours in patient travel time and £792 in mileage costs (@40p per mile).

It also had a positive impact on patient experience and no hospital admissions or clinic visits were necessary after remote consultation.

Forty patients (52%) required use of rescue packs including antibiotics and mucolytics as well as remote ventilator changes.

## Patient feedback

Patients were positive about remote monitoring and the time saved by not having to attend clinics.

“The best thing about the team being able to look at your ventilator at home is not having to come into hospital. I rely on hospital transport and am often out of the house for 4 hours for a 20-minute appointment. It’s so much better for me.”

**Patient**

## Lessons learnt

The use of remote monitoring within the LSCLTVS has reduced the carbon footprint of the service with an average reduction of 12.4 kg CO<sub>2</sub>e per patient.

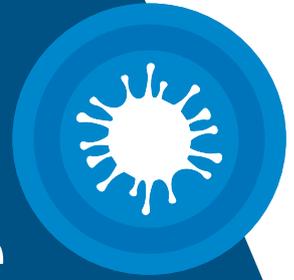
Patients also reported improved satisfaction and compliance.

Given the estimated number of people with chronic respiratory conditions using home ventilator systems in the UK, upscaling remote monitoring across the NHS has significant potential benefits both in saving carbon and freeing up clinic capacity.

### Notes on the calculations

The carbon calculator used was [www.carbonfootprint.com/calculator.aspx](http://www.carbonfootprint.com/calculator.aspx). The carbon footprint for travel was based on an average-sized car using unknown fuel.

For further information, please contact  
**Rachael Moses, consultant respiratory physiotherapist,  
Lancashire Teaching Hospitals NHS Foundation Trust**



# Self-administered immunoglobulin home therapy

## Project summary

Self-administration of immunoglobulin at home for patients with antibody deficiency is well established across the UK as a treatment option. Patient feedback highlights how home therapy improves quality of life by increasing the control that patients have over their treatment and reducing visits to hospital.

The Peninsula Immunology Service at the University Hospitals Plymouth NHS Trust looks after patients from Devon and Cornwall. The home therapy service was established there 10 years ago in recognition of the large distances travelled by patients in the region. Eighty-nine patients now self-infuse immunoglobulin at home or 44% of the total number of patients receiving replacement immunoglobulin.

Immunoglobulin home therapy is resulting in improved quality of life for patients as well as substantial environmental and financial savings.

### Benefits



#### Environmental

- > Patients travel an average of 75 miles per round trip to a hospital appointment
- > For the 89 patients now self-administering at home, avoiding 16 hospital appointments equates to a total of over 31 tonnes of CO<sub>2</sub>e per annum\*



#### Social

- > Patients save on travel time – a round trip to Derriford Hospital can take as much as 4 hours 20 minutes for some patients
- > Patients are more in control of their treatment and enjoy the independence, freedom and quality of life that it delivers as well as a reduction in time off work
- > The choice of treatment can be adapted to suit patients at different stages of life



#### Financial

- > The reduction in day case visits (at least 16 per patient per annum) equates to savings of over £400,000 per annum for 89 patients



#### Efficiency and productivity

- > For the trust, it has released space in the day case unit – some patients previously treated as inpatients are now treated as day cases and in other cases patients who previously occupied inpatient beds now infuse their immunoglobulin at home, eg seven neurology patients who previously spent up to 5 days as inpatients every 6–12 weeks

\*note that this needs to be offset by the delivery of the immunoglobulin product to people at home (deliveries are made every 3 months).

## Background

Primary immunodeficiency is rare but for patients affected, lifelong treatment with immunoglobulin replacement therapy is often required to help prevent recurrent or severe infections. Hospital-based treatment requires visits to hospital for infusions once every 3 weeks on average. Self-administration of immunoglobulin at home for patients with antibody deficiency is well established across the UK as a treatment option, saving patients regular visits to hospital for their treatment. Initially introduced over 20 years ago in a few centres, immunoglobulin home therapy is now available in immunology centres across the UK.

## Aims

Subcutaneous immunoglobulin replacement therapy gives patients the opportunity to administer treatment in the comfort of their homes, with minimal disruption to their lives.

In Plymouth, the home therapy service was established 10 years ago following the lead of other centres. The service was established to offer patients the choice of self-administration to reduce the large distances regularly travelled by many patients with primary immunodeficiency in the region, and allow patients to take control of their treatment. A recent development has been to give patients a choice whether to use a pump (once a week) or 'rapid-push' (every day or every 2 days) to administer their treatment.

## Resources

### Funding

The programme was funded through the NHS England specialised commissioning team for immunology.

Working with the commissioning team, the contract was developed with the regional specialist commissioners. It recognises the need for remote support for patients at home, incorporating a dedicated nurse available for patients to telephone or email who they can rely on for specific advice in case of problems with the infusions, prescribing, managing infections and other health issues

related to their immunodeficiency. Occasionally if patients have issues with infusions that cannot be resolved remotely the specialist nurse may ask them to come and infuse on the unit so that issues can be identified. Patients are always happy to come in to sort out any problems and the visit can also be used as an overall review of technique.

### Staff

Initially, the existing immunology specialist nurses set up the programme. However, as the numbers of patients using home therapy increased, the funding arrangement has allowed for more support to be provided.

The following staff were involved in the project: consultant immunologist, nurse consultant, specialist nurses, care group manager, care group financial advisor, trust commissioning team, and pharmacy. Externally, regional specialist commissioners were involved.

The weekly immunology multidisciplinary team (MDT) ensure that the specialist nurse has regular access to the medical team for advice.

### Equipment

The immunoglobulin product and all equipment is delivered to people's homes every 3 months by a home care delivery company. Patients are contacted 2–3 weeks prior to a delivery by the company to arrange a date and confirm what is needed.

### Training

Specialist nurses were trained to teach patients to self-administer immunoglobulin. The medical team reviewed patients regularly in clinic and used outpatient attendances as opportunities to discuss the possibility of home therapy with patients.

When the service was first established protocols were shared from other units and used to develop a training pack. Once the patient has demonstrated that they are competent to self-administer immunoglobulin in a hospital setting the specialist nurse arranges a home visit to ensure competency in the home setting.

The nurse leaves each patient with an information pack, which includes information on:

- > contact numbers and emails
- > when not to infuse
- > travel, transport and storage of the product
- > how to manage and report problems such as a power cut, infusion leak and adverse events.

This is followed up with a telephone call at 6 weeks.

“I always ask how they feel when I do the home visit and again at the 6-week telephone contact after going home. Comments include: “happy, free, convenient, my time’s my own”, and by 6 weeks they say they have settled into a routine and it’s great.”

**Specialist nurse**

## Results

### Conversion

Out of a total of 201 patients on immunoglobulin replacement, 89 have now switched from hospital-based treatment to home therapy. For each patient there is a reduction in day case visits of at least 16 per year.

### Impact on travel

Patients travel an average of 75 miles per round trip to hospital-based appointments. Based on 16 appointments per annum for 89 patients, this equates to over 31 tonnes CO<sub>2</sub>e per annum.

### Financial impact

By ensuring that the cost of nursing support is built into the contract, as the number of patients treated at home has grown, the team have been able to develop staffing to support this.

The cost of delivering the product and ancillaries to a patient’s home was negotiated by the trust’s pharmacy contracts team and a home care provider company following a tender process. The annual delivery cost depends on whether a pump is being used but the average is approximately £1,300 per patient per year.

A tariff was negotiated per person calculated to take into account the cost of supporting a patient self-administering immunoglobulin at home. Based mainly on nursing time it also takes into account medical time and was agreed at £671 per patient per year. It does not include the cost of the drug, which is the same whether patients treat themselves at home or come into hospital for day case infusions.

Overall savings to commissioners associated with the reduction in day case visits depend on a number of factors (including underlying diagnosis and comorbidities which impact on coding and tariff), but is estimated to be approximately £6,500 per patient per year. Offsetting the delivery and support costs for home treatment (£1,971 per patient) therefore gives an overall saving of £4,529 per patient per year, or over £400,000 for all 89 patients.

## Patient feedback

Patients place enormous value on how home therapy has improved their quality of life. Patients from Plymouth and other centres have said:

“Home subcutaneous therapy has been a game changer for me in terms of reducing the amount of time at hospital, and making it possible to hold down a full-time job.”

**Patient**

“I’ve been able to do home therapy for 23 years and the freedom it gives me is incredible. The fact that when I was doing intravenous I would have had to travel to hospital every 3 weeks and be there for 4 hours and now doing subcutaneous I would have been there every week. The freedom of not having to travel to clinic and infuse on a particular day is invaluable, and the time saved is well worth it as it means I can stay well and healthy and continue to live my life.”

**Patient**

Patients' worries are usually remembering what to do and what if! I write individual bullet points for any patient who struggles with the sequence, including pictures if needed. I also have easy-to-follow bullet points for the pumps. Basically it's working around any issues or problems to enable them to manage their infusions at home. This may mean a partner or buddy assisting with a certain task.'

**Specialist nurse**

## Lessons learnt

- > As a specialty, immunologists have learnt many lessons about training patients and commissioning of services, sharing best practice through a professional network (UK Primary Immunodeficiency Network) and through an accreditation scheme now managed by the RCP accreditation unit – the Quality in Primary Immunodeficiency Services (QPIDS) scheme.
- > At first some patients were not convinced that they would be able to manage the practicalities of home therapy and felt that they preferred hospital support. A presentation at a patient forum event by the first patient to be trained in Plymouth helped many to appreciate the benefits. This system recognises the importance of patient choice – with options to alter the treatment method to suit them at different times of life, eg appointments at a local community hospital are preferred by some, home therapy by others.
- > Changing traditional models of care can also be challenging for clinicians and other healthcare professionals and has at times required a tenacious approach.
- > The programme has demonstrated that asking patients to do self-directed invasive procedures is acceptable, eg subcutaneous injections, managing infusion pumps and even cannulation.

> Data from the UK PIN/RCP QPIDS 2017 census show that nationally 59% of patients receiving immunoglobulin for primary immunodeficiency self-administer at home supported by immunology centres. Patient feedback from these centres demonstrates the impact of home therapy on quality of life by enabling patients to increase the control that they have over their treatment and reducing the number of visits to hospital. The overall aim of this project was to give patients choice; the energy and efficiency savings are unanticipated additional benefits.

> The majority of patients on home therapy in the UK are under the care of immunologists. However, there is a growing cohort of patients with secondary immunodeficiency (either as a result of malignancies or immunosuppressive therapies) who require immunoglobulin treatment and may also benefit from home therapy. Others who could benefit include patients prescribed immunoglobulin for immunomodulation; some patients in this group already self-administer their immunoglobulin at home and there is scope for numbers to increase if there are suitable arrangements to develop the training and support for home therapy.

### Notes

The carbon calculator used was [www.carbonfootprint.com/calculator.aspx](http://www.carbonfootprint.com/calculator.aspx). The carbon footprint for travel was based on an average-sized car using unknown fuel.

With grateful thanks to the patient support group Primary Immunodeficiency UK (PIDUK) for providing patient feedback from immunology centres across the UK.

Recently, immunodeficiency centres have had challenges resulting from problems with the supply of the immunoglobulin products to the UK market. Clinical teams, patient groups and commissioners are working together to develop strategies to minimise the impact of these supply problems on patient care.

For further information, please contact  
**Dr Claire Bethune, University Hospitals Plymouth NHS Trust**



# Non-face-to-face delivery of an inflammatory bowel disease service

## Project summary

East Surrey Hospital (ESH) inflammatory bowel disease (IBD) service looks after approximately 4,000 patients. Stretched staff resources resulted in long waiting times for outpatient care and adverse outcomes, eg emergency admissions.

In 2014, the service was radically redesigned to provide open access through telephone and email support. This led to the introduction of a web-based patient management portal called Patients Know Best (PKB), which allows patients to record their symptoms and communicate with the IBD team remotely. It enables access to timely advice and clinical review, prompting escalation where necessary.

Alongside this, ESH introduced low-dose azathioprine combined with allopurinol (LDAA) to improve efficacy and reduce side effects. This reduced the need for clinical intervention and escalation to costlier biologic therapies and can be managed entirely remotely.

### Benefits

#### Environmental



- > The redesigned IBD service saves around 650 patient hospital attendances per annum, a carbon saving of at least 60 tonnes CO<sub>2</sub>e
- > At an average patient journey of approximately 23 miles\* this equates to around 4.4 tonnes CO<sub>2</sub>e

#### Social



- > Patients are empowered to take responsibility for their health
- > By preventing hospital admissions and lengthy outpatient appointments, patients save time and avoid stress and time off work
- > A sample of patients surveyed in 2018 showed that the majority felt that the service had a positive impact on their IBD and improved their quality of life

#### Financial



- > The service saves around £232,320 per annum by avoiding hospital admissions (average stay 5 days) and appointments
- > The introduction of LDAA has reduced the use of expensive monoclonal therapy and led to a 90% reduction in admissions and 80% reduction in operations (28 admissions in 2015, compared with 280 in 2008; 20 operations in 2015, compared with 113 in 2008)
- > This equates to potential savings of approximately £1.5 million per annum on operations alone<sup>†</sup>



### Efficiency and productivity

- > The service avoids 80 hospital admissions, 136 emergency department attendances and 440 outpatient appointments per annum
- > Patient access to specialist care at the time of a flare-up has reduced from 6 weeks to 1 week

\* based on a random sample of 50 patients  
 † based on an average of £16,226.23 per operation for ulcerative colitis

## Background

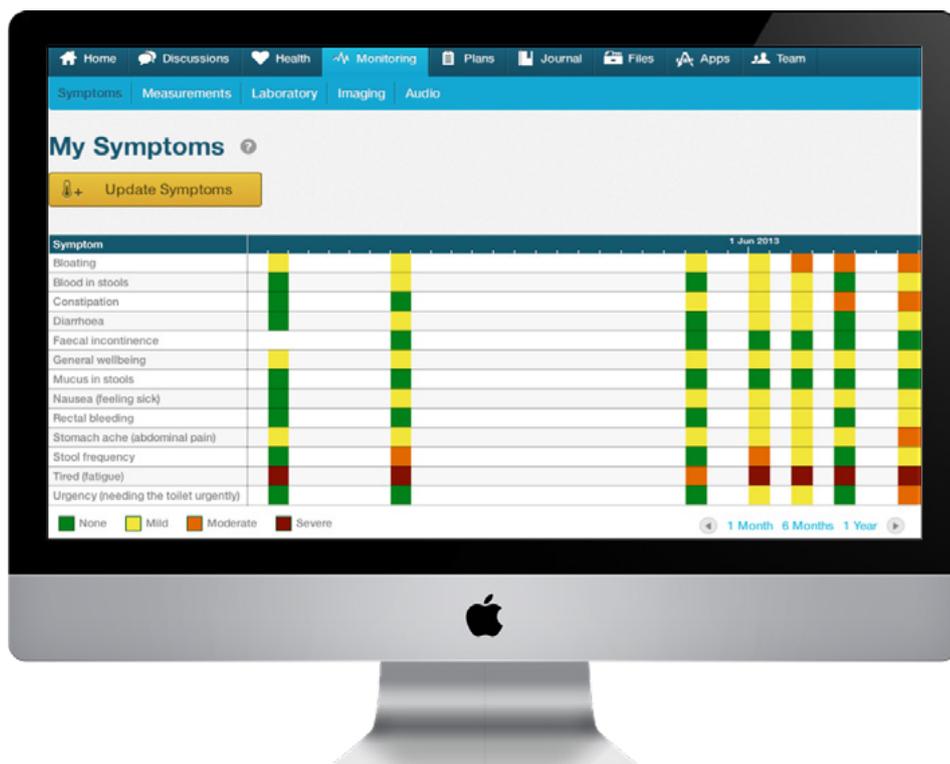
IBD is a lifelong condition with patients experiencing flare-ups that vary in frequency and severity. It is vital that patients receive treatment promptly at the time of a flare.

ESH is a large district general hospital serving a population of 535,000. The IBD service looks after approximately 4,000 patients. The service was run with 1.5 whole-time equivalent (WTE) IBD consultants and 1 WTE IBD clinical nurse specialist – well below the national minimum recommended in British Society of Gastroenterology guidance. This resulted in long waiting times for conventional outpatient care and adverse outcomes for IBD patients unable to access services when required.

## Aims

To tackle these long waiting times, open access to the IBD service through telephone and email support was offered to all known IBD patients in 2014. This led to the introduction of a web-based patient management portal called Patients Know Best (PKB). This non-face-to-face (NFTF) delivery allows patients to record their symptoms and communicate with the IBD team remotely. This accelerates access to timely advice, clinical review for flare-ups, and escalation to disease-modifying therapy where appropriate. It also offers reassurance to those who are stable without the need for a face-to-face review.

Fig 1 A screen from the PKB portal



## Resources

### Funding

Initially this was a pilot project funded by Janssen, a pharmaceutical company of Johnson & Johnson, and subsequently supported by local clinical commissioning groups (CCGs).

For the NFTF service, telephone and email was offered first and revealed the demand on the IBD service, which far exceeded the capacity of ESH. The service could not be funded through Payment by Results as the NFTF interaction remuneration is £90 less than face to face, creating a shortfall of £160,000. Work was done with local CCGs to develop a block contract for £300,000/year to meet this quantity of activity. This funds 3.5 WTE band 7 clinical nurse specialists, 1 band 4 administrator, the PKB licence and consultant physician associate time.

### Staff

The redesign was undertaken in collaboration with patients and CCGs.

The service is managed by the following staff:

- > 1.5 WTE IBD consultants
- > 2 WTE IBD clinical nurse specialists
- > 1 administrator.

A total of 3.5 clinical nurse specialists (CNSs) are required to manage the redesigned service (an additional 1.5 are currently being recruited). Their focus is on NFTF work with support and guidance from consultants. CNSs and admin staff become upskilled through this process. Previously, consultants were doing routine follow-up of stable patients and CNSs were dealing with flares. Now, CNS and admin staff are utilised more efficiently to cover routine work and become upskilled, freeing up consultant time to see complex cases/flares.

### Training

Patients do not require specific training to use the new system. They are set up with an account on PKB and directed to the website, which is self-explanatory and intuitive to use. Some patients need specific help and admin staff assist them. Our vision for the future is to have volunteer patient experts to introduce other patients to PKB to help with cascading knowledge.

## Results

The redesigned service guides those with the greatest clinical need through automated flagging of deteriorating symptoms to the clinician with the most appropriate expertise. All NFTF interactions are vetted by an IBD clinical nurse specialist with administrator support. The IBD CNS and administrator log in every working morning to review the messages from the previous day for triage and will periodically use PKB throughout the day for ongoing communication with patients.

Consultant face-to-face time in clinic has been released from routine follow-up of stable patients and diverted to those with complex disease or who are experiencing a flare-up.

Data collected in 2015 showed that there were 4,358 NFTF interactions. A total of 1,500 contacts were related to immunosuppression therapy monitoring – the number of patients started on immunosuppression would not have been possible without NFTF monitoring, leaving a large portion of IBD patients undertreated. Eighty hospital admissions, 136 emergency department attendances and 440 outpatient appointments were saved.

There were no reported breaches of clinical safety. The patient time to access specialist care at the time of a flare-up reduced from 6 weeks to 1 week. Fifty active users of PKB in 2015 increased to 700 in 2017 due to patient-led demand.

The service was evaluated in 2018 in terms of patient self-management, patient-reported outcome measures and clinical outcomes. Of a sample of 35 patients, 68% said the NFTF service had a positive impact on their IBD, 77% said it helped them feel more confident in managing their own health and 57% said it had improved their quality of life.

In terms of disease-modifying therapy, the low dose azathioprine with allopurinol (LDAA) proved to be well-tolerated, safe and effective, reduced the use of expensive monoclonal antibody (mAb) therapy by an estimated £4.5 million and led to a 90% reduction in admissions and 80% reduction in operations when we compared data from 2008 with 2015.

PKB allowed the team to undertake the mandatory monitoring of this therapy at scale without the need for face-to-face appointments. Patients can quickly flag up side effects, enabling early intervention for those who need it. The potential cost saving is huge, as the next line of treatment is mAb therapy, which costs an average of £12,500 a year per patient, while LDAA costs £200 a year, and is delivered as a daily tablet, rather than an injection or hospital-based infusion.

### Impact on patients

Using a NTF service means that patients save on travel time to appointments, don't need to take time off work for their treatment and save on travel costs.

Patients have said that this helps them to feel in control and they appreciate having someone there to answer their questions.

- ‘Made me more responsible in taking care of my health.’
- ‘Easier to take control and contact professionals for advice when needed.’
- ‘It has been a great comfort and reassurance. It helps me understand my illness and allows me to take control.’

#### Patient feedback

### Lessons learnt

The redesigned IBD service at ESH offers a low-cost technology-enhanced care delivery model that provides timely advice and treatment leading to improved patient experience and clinical outcomes.

The service is being delivered with lower than the national recommended number of consultants (65%) and clinical nurse specialists (50%) but is providing care to more patients requiring close monitoring than would have been possible without a NTF service, without compromising on safety.

There was initial resistance to change due to a number of reasons, which included: the fact that improving outcomes reduces trust income, clinician

fear of open door access, lack of a commissioning and funding model, and the investment required for IT solutions.

Early discussions with local CCGs to establish a shared understanding and responsibility over commissioning led to the block contract currently in place. Any initial increase in workload due to open access was a manifestation of the true demand on the service. Very little work was deemed unnecessary. This led to a broader understanding of the demand on the service and eventually, appropriate resourcing.

The new model of care breaks down the traditional boundaries between the service user and provider, promoting collaborative working with patients with long-term conditions.

The introduction of LDAA has reduced the number of patients being treated with costlier mAbs to 140. Other similar-sized services have approximately 500 patients on mAbs – more closely reflecting the expected rate of mAb use of 10–15% of the IBD population. There is therefore potential for substantial savings if LDAA were to be introduced more widely across the NHS.

#### Notes on the calculations

The carbon calculator used was [www.carbonfootprint.com/calculator.aspx](http://www.carbonfootprint.com/calculator.aspx). The carbon footprint for travel was based on an average-sized car using unknown fuel.

The hospital attendances CO<sub>2</sub>e was calculated using NHS Sustainable Development Unit figures from a 2010 paper on indicative carbon emissions per unit of healthcare activity.

The costs of operations, appointments and admissions were calculated using figures in Table 1 in the article ‘A UK cost of care model for inflammatory bowel disease’ from *Frontline Gastroenterol* 2015; Jul; 6(3): 169–174. [www.ncbi.nlm.nih.gov/pmc/articles/PMC5369575/#R9](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5369575/#R9)

The cost of monoclonal antibody therapy was calculated using the NICE costing statement for ulcerative colitis: [www.nice.org.uk/guidance/ta329/resources/costing-statement-pdf-428356477](http://www.nice.org.uk/guidance/ta329/resources/costing-statement-pdf-428356477)

For further information, please contact  
**Dr Azhar Ansari, Surrey and Sussex Healthcare NHS Trust**



# Connecting Care for Adults project

## Project summary

National and local data highlighted inconsistent referrals, inaccuracies of diagnosis and incorrect management of adults with long-term conditions in primary care. These were shown to be particularly the case for chronic obstructive pulmonary disease (COPD), chronic kidney disease (CKD) and heart failure.

The Connecting Care for Adults (CC4A) project at Imperial College Healthcare NHS Trust in London was set up in 2017.

This project aims to improve the specialist support and care for these patients by enhancing local education with primary care teams and putting a consultant into primary care services. This is leading to increased knowledge and confidence for GPs, a reduction in outpatient and other hospital attendances, and improved patient outcomes.

### Benefits



#### Environmental

- > We have reduced travel for patients by avoiding the need for conventional outpatient clinics (72 patients or 12% of those reviewed in the first 9 months of the project). However, since this is central London, environmental savings from car miles are unlikely to be significant as most people travel by public transport.
- > A reduction in hospital admissions and emergency department (ED) attendances – so far three major hospital admissions of 2 weeks each have been avoided, equivalent to at least 3.5 tonnes CO<sub>2</sub>
- > A reduction in the use of inhalers (metered-dose inhalers have a carbon footprint of 20 kg CO<sub>2</sub>e per inhaler – this is significantly higher than that of dry powder inhalers)



#### Social

- > We have helped support the care of older and frail patients in their homes/ community settings
- > The reduction in clinics and hospital attendances has benefited patients by reducing stress and saving time



#### Financial

- > We estimate savings of ~£230,000 per annum for COPD patients, based on reductions in drug costs, hospital admissions and emergency department attendances
- > Savings for patients with CKD are ~£55,000 per annum, based on reductions in outpatient and ED attendance and reducing episodes of acute kidney injury
- > We have not yet been able to cost savings for heart failure patients



## Efficiency and productivity

- > Avoided referral into secondary care in 12% of cases (72 patients)
- > Increased the use of community pulmonary nurse-led clinics and rehabilitation
- > Reduced dose or withdrew steroid inhalers in >70% (179) of patients with COPD/asthma with fixed obstruction
- > Reduced frequency of blood testing in frail older patients with CKD
- > Optimised blood pressure control in 10% of patients with CKD
- > Avoided harm by stopping potential nephrotoxins in 16% of patients with CKD
- > Improved diagnosis and treatment in 30% of patients with heart failure
- > Avoided catastrophic acute admissions for at least two patients
- > Significantly enhanced learning and understanding of GPs around CKD, COPD and heart failure (84% felt more confident in managing these conditions)
- > Produced educational materials specifically for GPs more widely across north-west London based on the virtual clinics
- > Reviewed referrals to improve direct access to appropriate diagnostics prior to referral. This has expedited referral significantly and avoided unnecessary referrals to the community cardiologist

## Background

GPs and patients across north-west London have requested more specialist support in managing adults with long-term conditions (LTCs) locally, many with multiple comorbidities. However, hospital specialists are inconsistent, sometimes reluctant, and do not have models or training to organise joint management of adults with LTCs in primary care. Email advice services are available for some LTCs but variably used.

National and local data suggested suboptimal management and diagnosis of LTCs. The National COPD audit reports a third of patients registered with COPD having lung function tests inconsistent with this diagnosis; reviews have consistently highlighted the inaccuracy of diagnosing heart failure in primary care with incorrect management; the UK Renal Registry report ongoing late presentation of patients with end-stage kidney disease with initiation of dialysis as an emergency. Local data from outpatients and inpatient non-elective emergency admissions from Imperial College Healthcare NHS Trust confirms this.

Local data on prevalence, outpatient attendance and emergency admissions revealed that there was substantial scope for better management of LTCs, which could lead to huge savings in costs and patient time. Areas with high rates of emergency admissions for acute exacerbations and prevalence rates inconsistent with national averages were some of those targeted.

## Aims

This project placed consultant cardiologists, renal and respiratory physicians into primary care to review lists of patients with long-term conditions, especially COPD, heart failure and CKD. The reviews occurred jointly with GPs, GP trainees, practice nurses and practice pharmacists. The aims were to improve patient care for long-term conditions; improve confidence, skills and knowledge of GPs; and reduce the need for conventional outpatient attendance especially for older comorbid patients.

## The redesign

We held multiple engagement events with GPs in local practices to inform the project design, and a larger event with GPs, clinical commissioning group (CCG) leads, specialists and senior NHS trust managers, which highlighted the need for education/support in primary care for patients with COPD, CKD and heart failure. We explored the views of local patient representatives and anecdotal evidence of dissatisfaction with multiple appointments at different centres often with conflicting advice, and anxiety over GPs' skills in managing long-term conditions. We worked closely with, and with full support of, GP federations, three CCGs and the evolving integrated care programme in our inner north-west London trust.

We initiated three workstreams: (1) Registry case reviews of pre-identified patients with CKD, COPD and heart failure by hospital consultants in person with primary care teams; (2) Evaluation of a digital patient self-management tool for COPD; (3) Designing novel sustainable educational resources based directly on GP referral patterns and registry reviews.

The registry case reviews have been the mainstay of the work. Key aims include: upskilling primary care teams knowledge and skills around chronic disease; undertaking virtual registry reviews to enhance patient care in the community without an outpatient appointment being needed; promoting an active role for patients in managing LTCs; reviewing anomalies in LTC incidence and variation of care; providing an excellent interface between primary and secondary care; establishing supportive clinical relationships; and limiting need for unplanned care.

The process involved individual consultants visiting larger GP practices 1–3 times over the course of 3 months and spending 90–120 minutes on each occasion. The consultant time was funded on a fixed rate for each review.

Lists of patients (registries) were drawn up in advance by the practice, eg patients coded with COPD, CKD 4, heart failure, or a measured GFR (glomerular filtration rate) of <30 ml/min.

The review itself engaged as many GPs as could attend, GP registrars, practice nurses, pharmacists, medical students and diabetes nurse specialists. The electronic record of each patient was discussed focusing on: accuracy of long-term condition diagnosis; optimisation of medicines, optimisation of clinical monitoring, diagnostic tests; need for referral to other healthcare professionals; and advance care planning.

Additional questions or patients raised by the primary care team were also discussed. An entry was recorded into the patient's record. Learning outcomes from each session were fed back to the practice and then more widely across eight north-west London CCGs through an educational newsletter.

For COPD patients we ensured correct diagnosis; reviewed spirometry, medications, use of rescue packs, need for pulmonary rehabilitation; checked the need for high dose inhaled steroid combinations (Seretide 500); if no asthma – recommended changing to a lower dose inhaler (less risk of pneumonia); checked triple inhaled therapy (inhaled corticosteroids / long-acting beta-adrenoceptor agonist / long-acting muscarinic antagonist) – truly needed?

For heart failure we reviewed all patients diagnosed with heart failure / elevated B-type natriuretic peptide (BNP); ensured correct diagnosis, reviewed echo / BNP symptoms; reviewed medications. We advised on annual reviews and discussed individual complex patients – giving further advice regarding investigations (echocardiograms), medication changes, onward referral (eg for devices / intravenous iron).

For CKD we reviewed patients with CKD 4 and 3b: checked coding (does the patient really have CKD?); drug lists (dosing/nephrotoxins/omeprazole/ anticoagulation); blood pressure control (especially in frail elderly); frequency of blood testing; cardiovascular risks (eg lipids); measurement of proteinuria (urine albumin:creatinine ratio); need for referral into secondary care (eg glomerular filtration rate very low); advance care planning.

## Resources

### Funding

We have undertaken this with initial funding through Health Education England (HEE) London but with close working with the local CCGs and primary care GP federations. A total of £200,000 was allocated overall. Funding has paid for consultant time for each review, and admin support (which included extensive data analysis and production of learning materials) but we have not negotiated a tariff for the work undertaken per patient, and GPs did not require payment for this activity.

We spent £139,000 in the first 9 months. This allowed for set up, review of >650 patients, upskilling of 20 GP practices, and 74 individual healthcare practitioners. It also covered the production of learning materials sent to 392 GP practices and the creation of 20 videos (bitesize learning). By month 11 we had reviewed more than 1,000 patients. Our current ongoing costs are just under £10,000 per month. This covers 16 registry reviews of approximately 250 patients, equating to approximately £40 per patient.

### Staff

Staff involved in the project include:

- > consultant nephrologist
- > consultant respiratory physician
- > consultant cardiologist
- > dietician
- > project administrator/coordinator/analyst
- > director of integrated care.

External to the trust, we involved local GP leads and GP federation leads.

### Equipment

No additional equipment was needed. We commissioned a videographer to make our educational videos. We created our other learning materials ourselves.

### Training

Based directly on the questions asked by GPs we produced a learning newsletter which has been sent to all 392 practices in north-west London on several occasions, 20 bite-sized videos, and new referral algorithms embedded into primary care IT locally.

We have also run workshops to spread learning among hospital-based consultants and specialty registrars within our trust. We have shared the learning of integrated work through trust grand rounds. We explicitly sought the advice of GPs after the initial reviews to ensure this was meeting their needs and the consultants were providing appropriate interventions, discussion etc. The initial consultants involved were experienced educationalists with an interest in integrated care and very experienced trainers, and did not require training.

## Results

By May 2018 (7 months into the project) we had reviewed over 600 patients through the registry reviews in primary care. This increased to >1,000 patients by month 11. We identified significant problems in diagnosis especially for patients with heart failure and COPD. For all patients care had either been enhanced or GPs had confidence that care had already been optimal.

We estimate that we have made savings of ~£230,000 (per annum) for COPD. This is made up of reductions in drug costs, predicted reductions in hospital admissions (for pneumonia in the elderly) and other ED attendances. Savings for patients with CKD are ~£55,000 per annum, based on reductions in outpatient department and ED attendance, and reducing episodes of acute kidney injury which would have required hospital admission.

We have not yet been able to cost savings in heart failure patients.

Our intervention led to:

- > avoiding referral into secondary care in 72 patients or 12% of cases
- > increased use of community pulmonary nurse-led clinics and rehabilitation
- > reduced dosage or withdrew steroid inhalers in 179 patients (>70% of patients) with COPD\*
- > reduced frequency of blood testing in frail older patients with CKD
- > optimised blood pressure control in 10% of patients reviewed with CKD

- > avoided harm by stopping potential nephrotoxins in 16 % of patients with CKD
- > improved diagnosis and treatment in 30 % of patients with heart failure
- > avoiding catastrophic acute admissions for at least two patients.

GP feedback has been exceptionally positive around confidence, skills, learning, and enhanced communication; 84 % GPs stated their confidence in managing long-term conditions had been improved through the process. Feedback from GPs has included:

‘We are learning with, from and about each other [secondary care].’

The clinical gems discussed are outstanding and impact on patients I see now and later.’

...as an educational intervention, and what they are doing with primary care, CC4A is outstanding.’

#### GP feedback

We have run a patient focus group to understand their views on this programme (August 2018). Patients remain concerned about whether their GPs are truly expert in managing chronic disease and can be as skilled as ‘specialists’, but are very happy to see the two working more obviously closely together.

‘It’s great that a personal/designated GP is under a specialist’s umbrella’ and ‘my specialists are brilliant specialists and my GPs brilliant GPs. Lemons will never be oranges. Both are lovely’.

#### Patient feedback

## Lessons learnt

Some barriers needed to be overcome: colleagues had some concern that we would be reviewing patients virtually through a registry and making decisions without seeing the patients face-to-face. This has been mostly resolved through feedback to consultant colleagues about the decisions made, and by collecting data on future events in patients reviewed virtually, and showing no adverse outcomes, eg on admissions.

The trust had concerns that this activity would reduce income from outpatient attendances. This remains a focus of discussion across the wider healthcare environment locally.

At each patient review we collected data about changes made to management, learning discussions, drug changes, and further reviews needed or avoided.

#### Notes on the calculations

The hospital attendances CO<sub>2</sub>e was calculated using NHS Sustainable Development Unit figures from a 2010 paper on indicative carbon emissions per unit of healthcare activity.

\* Inhaler prescriptions account for approximately 8 % of the NHS’ total carbon footprint. Metered-dose inhalers account for over 70 % of prescriptions and have a carbon footprint of 20 kg CO<sub>2</sub>e per inhaler. See: [www.sduhealth.org.uk/news/213/inhaled-drugs-and-global-warming-time-to-shift-to-dry-powder-inhalers/](http://www.sduhealth.org.uk/news/213/inhaled-drugs-and-global-warming-time-to-shift-to-dry-powder-inhalers/)

For further information, please contact  
**Professor Jeremy Levy or Dr Sarah Elkin,**  
**Imperial College Healthcare NHS Trust**



# Telemedicine for geriatric services

## Project summary

Telemedicine clinics were set up to give frail and older patients access to specialist geriatric services closer to home in rural north Wales. The clinics targeted patients aged over 75 with multiple comorbidities and living more than 30 miles from the district general hospital or attending several different specialty outpatient clinics. Patients were offered follow-up appointments via video consultation at their local community hospital or GP surgery.

The clinics reduced the number and duration of consultations, as well as patient and consultant travel time and costs. Patient feedback was positive and the concept proved to be a viable option for outpatient consultations in frail older individuals. The use of telemedicine clinics later expanded to other specialties, including rheumatology, gastroenterology and neuroscience.

### Benefits



#### Environmental

- > The distance travelled by patients was reduced by an average of 40 miles per patient per clinic. Based on around 90 patients (the number who took up the telemedicine clinics in an average year) this equates to 1.06 tonnes CO<sub>2</sub>e
- > The distance travelled by the consultant was reduced by 80 miles per clinic, equivalent to approximately 1 tonne CO<sub>2</sub>e per annum



#### Social

- > Reduced stress and time for patients travelling a long distance to their district general hospital
- > Travel time for the consultant was reduced by 1.5 hours per clinic



#### Financial

- > Patients saved an average of approximately £14 per return journey (based on travel by car)
- > The consultant's reduction in travel equated to a £1,411 saving per annum (based on travel expenses being remunerated at 42p per mile)
- > An average outpatient follow-up appointment is budgeted at £170.98 while virtual appointments start at £34.20 per patient\*

\*Although this provides a saving for the overall health economy there may be implications at trust or board level for a loss of remuneration, while delivering the same clinical value.



### Efficiency and productivity

- > 20% of outpatient department follow-up consultations (96 consultations) were converted to telemedicine
- > Appointment lengths were reduced to an average of 14 minutes compared with 20 minutes for face-to-face
- > A reduction of 50% in the number of consultations per patient as most were discharged to follow-up, and less movement of patient notes

### Aims

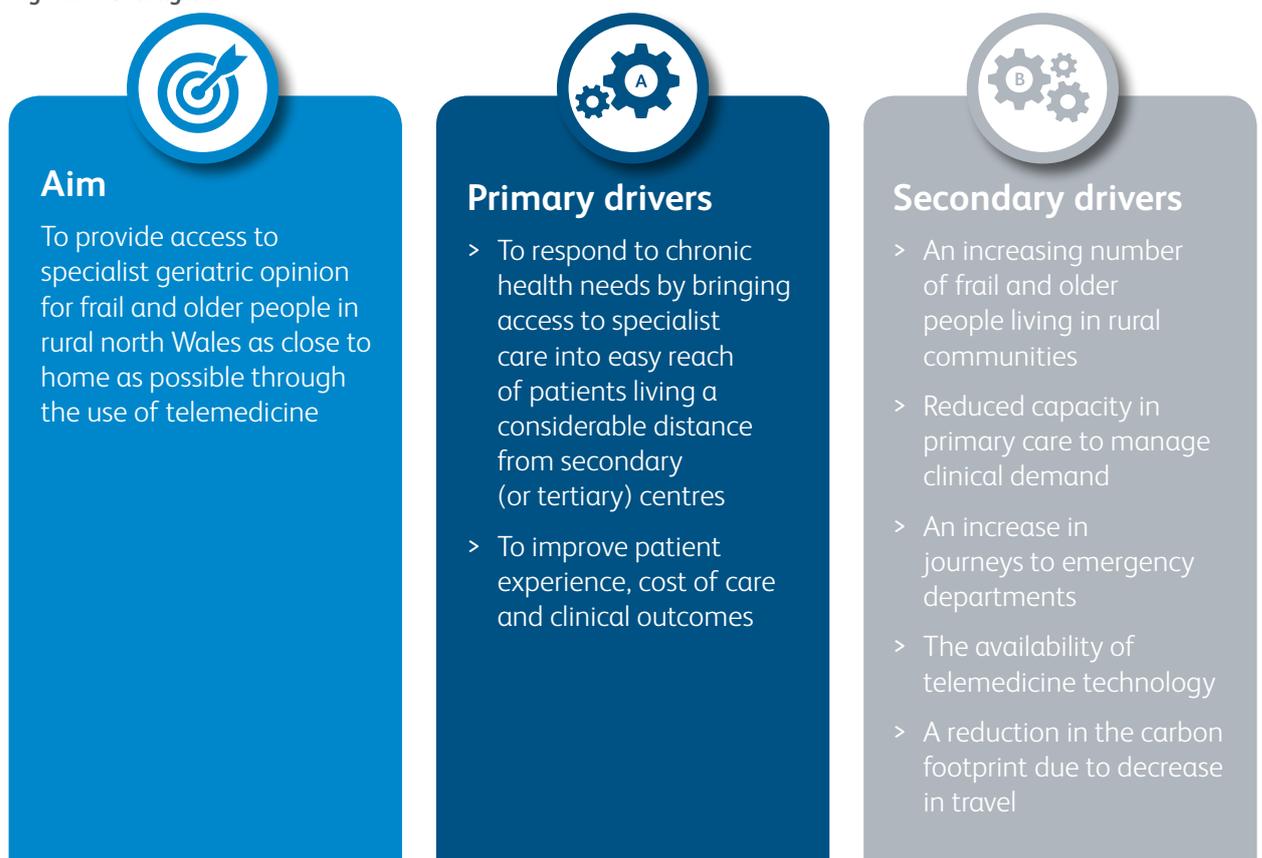
Betsi Cadwaladr University Health Board provides health services for a population of around 694,000 people in north Wales. The catchment area for this project was Dwyfor Primary Care Cluster in the county of Gwynedd with a population of 25,000; 27% aged over 65 and 4% over 85.

Patients within this area were selected on the basis of: progressive degenerative disease, more than five medications, aged 75 or over and more than three outpatient visits per month within general internal medicine.

Known as the CARTREF project – CARE delivered with Telemedicine to support Rural Elderly and Frail patients – the Betsi team set out to:

- > reduce waiting times by releasing review appointment slots for specialty patients
- > reduce patient travel by providing older people’s follow-up appointments close to home
- > reduce the burden on Welsh ambulance services transporting patients
- > improve specialist support for the management of chronic diseases in primary care
- > increase patient satisfaction
- > test the acceptability of telemedicine.

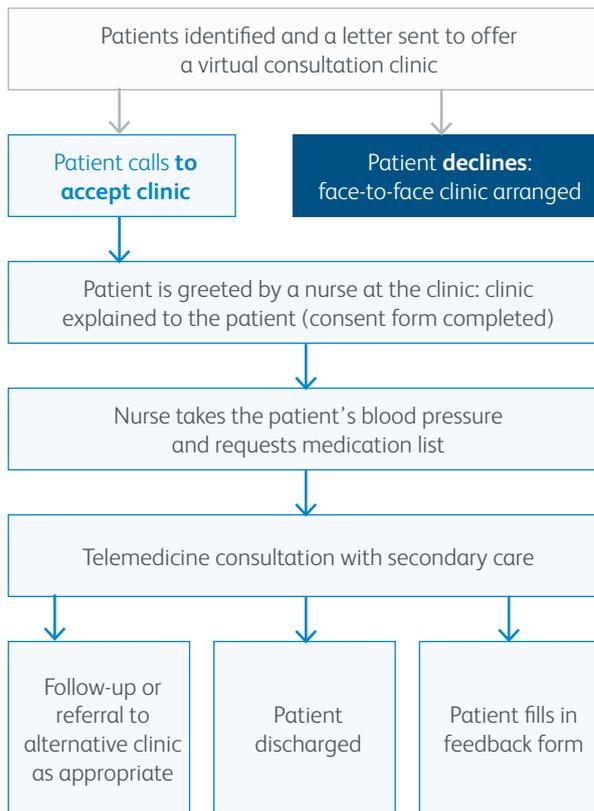
Fig 1 Driver diagram



## Telemedicine clinics

Bimonthly virtual general medicine consultation clinics are facilitated by a consultant in the community hospital Ysbyty Bryn Beryl.

Fig 2 Process map



## Resources

### Funding

Funding of £430,000 for the IT equipment for the project was secured through the Welsh Government Health Technology and Telehealth (HTTF) Fund, awarded in May 2014. Part of the HTTF 'Developing Community Services' bid aimed to provide high-definition videoconferencing technology in order to develop new ways of working which would reduce travel for staff and patients. The rest of the project was delivered without any additional funding. A trainee graduate manager provided part-time project management.

## Staff

At different stages of the project, the CARTREF team involved:

- > clinical lead/lead physician
- > two consultant physicians
- > four project managers
- > two data specialists
- > information and improvement manager
- > two IT specialists
- > nursing lead
- > patient experience lead
- > RCP Patient and Carer Network member
- > telemedicine consultant
- > questionnaire developer
- > wellbeing and resilience coach.

A digital inclusion officer (DIO) was appointed to collect patient feedback and provide essential patient advocacy and support throughout the project rollout, to inform patients how the consultations would work and explain the benefits.

## Equipment

A combination of technologies was identified to support the telemedicine clinics. The health board was awarded £430,000, which was divided equally across three district general hospitals. At the patient end, a high-definition monitor with a Polycom Group 500 series video conference (VC) system and a 4K EagleEye camera was specified as a minimum. The equipment was trolley-mounted and Wi-Fi enabled to allow flexibility of location. Alternatively, clinicians could choose to use a VC-enabled laptop with a Polycom VC client or Microsoft Lync. Digital auscultation (3M Littmann electronic stethoscopes) and digital spirometry (Vitalograph) devices were purchased to provide additional scope for the remote clinics. The team felt that additional bandwidth and wireless router upgrades were required to support the new ways of working. Alterations to the size of the VC screen were made following patient suggestions – with a minimum 42 cm screen for best clarity.

## Training

A 2-day in-house quality improvement training was undertaken by all members of the team. In addition, a resilience and wellbeing programme was brought in to facilitate team working and resilience during a time of organisational change.

## Results

### Conversion to telemedicine

The service converted 20% of follow-up consultations to telemedicine over a 24-month period, with, on average, 8 of the 11 patients fitting the criteria per month being seen via telemedicine. Of the 196/250 individuals where data are available, 69% (109) have been transferred back to the GP for onward care. The remaining 87 have had their care escalated, including reversion to a face-to-face consultation, inpatient admission and alteration of medication (30%). All patients have previously had multiple outpatient consultations with the specialties.

### Impact on travel time and costs

Telemedicine clinics reduced travel, number of consultations per patient, movement of patient notes, and travel time for patients with associated cost savings.

The impact on consultants was also significant. One reduced their travel time by 1.5 hours per clinic and mileage by 80 miles per clinic. This equates to £1,411 saving per annum (based on travel expenses being remunerated at 42p per mile).

### Duration of consultations

Telemedicine clinics were associated with a shorter duration of consultation. At the outset, the allocated time with a consultant was 30 minutes, however, with growing confidence in the system, the time was reduced to, on average, 14 minutes compared with a conventional outpatient consultation of 20 minutes.

## Patient feedback

Patient experience was positive. A sample of 88 patients aged 75–104 over a 2-year period said:

- > 88.6% (78/88) would recommend the virtual consultations to family and friends.
- > 100% would prefer the telemedicine clinic in comparison with travelling to the hospital clinic.

‘... this clinic has saved me driving all the way to Bangor [which is] over an hour’s drive and takes forever to park. Coming to Bryn Beryl is a lifesaver in terms of time and travel.’

### Patient feedback

## Lessons learnt

- > Telemedicine is a viable option for outpatient consultations in frail older individuals.
- > Patient stories are powerful tools to help reduce clinician anxiety around adopting digital technology.
- > Organisational buy-in and support are essential for delivery and success of a quality improvement project.
- > Supporting staff through change is essential – coaching and mentoring help to build resilient teams able to deal with significant organisational pressures.
- > A dedicated project manager is essential.
- > The success led to a spread of telemedicine to additional specialties, including:
  - rheumatology consultations and Parkinson’s clinics between Ysbyty Llandudno and two community hospitals
  - gastroenterology services
  - neuroscience network
  - the majority of specialties at Wrexham Maelor Hospital for follow-up appointments at HMP Berwyn – a prison with 2,000 men.

- > Scaling-up virtual outpatient clinics could achieve significant cost savings to the wider health economy. An average outpatient follow-up appointment is currently budgeted at £170.98. The cost of alternatives such as video appointments, Skype calls, telephone calls, emails or simple letters, currently start from £34.20 per patient (not taking into account additional savings in real estate usage). Therefore, converting appointments from face-to-face to an alternative method could have a major effect on budget and/or waiting lists under the current payment by results commissioning structure.
  - > Project team changes due to the health board restructuring led to a lack of continuity.
  - > In summer 2016 there was a drop in telemedicine clinics due to a decreased ability to recruit eligible individuals as the consultant was discharging as many patients as possible from follow up. The service was subsequently run on alternate weeks.
  - > Unable to appoint a replacement DIO after the initial set-up phase of project as it relied on charitable funding. This role was essential for community engagement and buy-in, and helped to raise media attention.
  - > Recognising that telemedicine may not suit everyone: 10 patients said they would not recommend it; their issues included dissatisfaction of accompanying person, sensory issues, and difficulty with communication.
- Read the full report from Betsi Cadwaldr's development site team at [www.rcplondon.ac.uk/delivering-the-future-hospital](http://www.rcplondon.ac.uk/delivering-the-future-hospital)
- Note on the calculations**  
The carbon calculator used was [www.carbonfootprint.com/calculator.aspx](http://www.carbonfootprint.com/calculator.aspx). The carbon footprint for travel was based on an average-sized car using unknown fuel.

For further information, please contact  
**Dr Olwen Williams, Betsi Cadwaladr University Health Board**



# Integrating care for people with diabetes

## Project summary

Adults with type 2 diabetes (and some with type 1 diabetes) are largely managed in primary care. However, complications associated with the diabetes and variable glucose control often results in hospital attendance.

Care of people with diabetes in Oxfordshire is variable. Mortality is high, achievement of NICE treatment targets is worse than the national average, and primary care targets are variably met.

This project aims to address this variability by developing and implementing an integrated service model for diabetes care in Oxfordshire. The overall vision is to provide high-quality, consistent and sustainable care to a growing population of people with diabetes. The model includes person-centred care, integrated IT systems, aligned finances and responsibility, clinical engagement and partnership together with robust shared clinical governance.

This case study covers the North East Locality in Oxfordshire – the pilot region and leading locality in integration of diabetes care. This is an ongoing project.

### Benefits



#### Environmental

- > Reduced patient travel to hospital to seek specialist opinion
- > Reduced patient travel associated with emergency admissions



#### Social

- > Patients report positively on education sessions giving them a better sense of understanding and control of their diabetes. It is expected that this translates into improved confidence in self management and fewer consultations in primary care
- > Patients appreciate both the improvement in their health and the convenience of having had therapeutic advice, which may have come from an multidisciplinary team (MDT) meeting or a virtual outpatient appointment



#### Financial

- > Early results are showing improvements in delivering eight care processes and meeting treatment targets. Improving achievement of the NICE triple treatment targets across Oxfordshire from 40% to 46% of patients would save £450,000 over 5 years; increasing to £750,000 if improved to 50%
- > £949,905 could be saved over 3 years by reducing the amputation rate from the current 1.9 to 0.6 per thousand (the lowest in the country)



## Efficiency and productivity

- > Concentrating on actively finding cases and improving care is allowing us to identify patients who would benefit from specialist input, but are not currently receiving it, and similarly prevent unnecessary referrals through use of the new solutions. Testing and refining of the proposed interventions is key in the context of the increasing number of people with diabetes; encouraged by the positive feedback from the proof of concept stage, the project continues

## Background

The integrated diabetes care project in Oxfordshire was established in autumn 2014 and is an ongoing programme of work. The North East Locality volunteered in 2015 to pilot some of the elements of the new service model. The North East Locality provides for more than 83,000 people (practice size list), including 350 patients with type 1 diabetes and 4,200 patients with type 2 diabetes.

Data used for the project included: the National Diabetes Audit, DOVE indicators (diabetes outcomes versus expenditure), and Right Care indicators.

Compared with other clinical commissioning groups (CCGs) in England, Oxfordshire is in the highest quintile for additional risk of mortality among people with type 1 and type 2 diabetes compared with the general population.

There is wide variation in achievement within primary care in Oxfordshire (28–60%) against the eight care processes which are key to managing patients with diabetes and their risk of complications.

Improving patient outcomes would also lead to financial savings. Achievement of the three NICE treatment targets (blood pressure, cholesterol and glycaemic control) for type 2 diabetes patients across Oxfordshire is 40.2% (below the national average of 40.4%). If this were improved to 46% of patients (matching the highest achieving CCG in the Thames Valley region) this would save approximately £450,000 over 5 years based on reduced cost of treating complications. This would further increase to £750,000 if 50% of patients met the treatment target.

The amputation rate in Oxfordshire is 1.9 per thousand. The lowest rate in the country is 0.6 per thousand. Achieving this would save £949,905 over 3 years.

## Aims

The overall aims are:

- > improvements in completing the processes and achieving treatment targets (the National Diabetes Audit)
- > more patients attending patient education
- > more patients supported in primary care with input from specialists (avoiding unnecessary referrals and disrupting continuity of care)
- > improvements in waiting times for patients referred to secondary care
- > reduced variation in delivery of care
- > reduced cost of medication.

## Changes introduced

### Community multidisciplinary team meetings

Primary care teams (GPs, primary care nurses, practice managers), specialist diabetes nurses and consultants in diabetes meet regularly to discuss:

- > patients at risk of developing complications from diabetes (patients were identified in pre-defined searches)
- > practice performance in the National Diabetes Audit and strategies of improving care
- > patient education referrals and attendance.

Mental health specialists join the team to discuss the psychological aspects of diabetes care and provide a link with local mental health services.

## Diabetes dashboard

This monitors on a monthly basis the quality of care and variation in diabetes indicators between GP practices. It is based on an automated upload from 67 out of the 70 GP practices in Oxfordshire.

## Skype outpatient clinic appointments

Virtual appointments enable primary care staff to obtain specialist advice in a timely manner.

## Resources

### Funding

Funding for the community multidisciplinary team meetings and the diabetes dashboard has come from a combination of CCG funds augmented by money from the Diabetes Transformation Fund.

Resources required include: healthcare professionals' time at the project meetings, data, dedicated project management teams, input from technology specialists (eg development of dashboard, development of Skype clinics), changing ways of working and additional time (eg MDT meetings and preparation of patients to be discussed), cost of Skype for Business, cost of joining health records (this is part of a bigger IT development funded by organisations involved).

There is no new tariff yet. There are additional payments for the delivery of new services. The team work closely with Oxfordshire CCG and all discussions happen at the stakeholder meetings with the representatives from the Oxfordshire CCG (project manager, GP lead for long-term conditions).

### Staff

The core team includes consultants and a wider team of managers (chief executive, medical director, director of clinical services, chief information and digital officer, operational director, data analysts, service transformation and improvement department, programme director, programme manager, podiatry).

CCG (project manager, long-term condition lead, operational director, finance director), Oxford Health NHS Foundation Trust (diabetes specialist nurses, psychological services, team manager, operational director, chief executive), plus other diabetes relevant services (eg dietetics, podiatry, sport), Diabetes UK and patient representatives.

CSU (Commissioning Support Unit).

## Equipment

There was investment in the diabetes dashboard and the Skype for Business software (for virtual outpatient appointments). The development of both solutions involved the funding of approximately £42,000 but the exact figure is difficult to calculate as work involved input from a MDT. The annual maintenance is approximately £5,000. This was money that the acute trust was already investing for better communication across healthcare providers.

## Training

Education of the GPs and primary care nurses was an integral part of the community multidisciplinary team meetings. Education included management of diabetes in primary care, availability and referrals to specialist services, and availability and referrals to patient education. Further training organised locally by the specialists was further recommended if needed.

## Results

Early analysis of the period May 2017 to January 2018 has shown an improvement in the achievement of eight care processes from 50.1% to 57.6% and an improvement in the achievement of the NICE triple target from 39.5% to 40.3%. The most recent dashboard (Aug 2018) shows that the eight key care processes for type 2 patients has risen further to 62.87% and the treatment target to 40.98%.

Feedback from clinicians on the community MDT meetings included:

- > positive feedback on the usefulness and format of the clinics
- > the primary care healthcare professionals and practice managers reported an increase in knowledge and confidence related to management of diabetes in primary care
- > improvements in the management of diabetes at practice level followed
- > communication between primary care and specialists has improved.

### Impact on travel time and costs

The telemedicine virtual outpatient appointments and community MDT meetings have reduced the need to travel for specialist advice. The virtual outpatient appointments save travel time for patients and primary care staff. The MDT meetings require travel time of a specialist (to provide advice about many patients) but save the travel time of patients.

The virtual outpatient appointments are saving either the GP or patient travelling a 25–35 mile round trip for specialist advice. The telemedicine virtual outpatient appointments and the community MDT meetings are saving either the emergency medical services or patients travelling approximately 25–35 miles per round trip for preventable hospital admissions.

### Feedback

Patients are reporting to the GPs positively on education sessions giving them a better sense of understanding and control of their diabetes. It is expected that this translates into improved confidence in self management and fewer consultations. Patients appreciate both the improvement in their health and the convenience of having had therapeutic advice, which may have come from an MDT meeting or a virtual outpatient appointment.

The feedback on the community MDT meetings was collected in a survey with responses from GPs, practice nurses and practice managers, and was positive. The clinical meetings were described as ‘a well worthwhile initiative’, ‘good value’, ‘very useful on a personal and practice level’, ‘superbly useful’, and ‘providing benefits’. The perception was that the clinics had an educational value, improved confidence in primary care in managing diabetes, and improved communication between primary care and specialists. It was felt that the initiative made diabetes care more cohesive in the piloted area. Positive feedback from one of the GPs using the virtual outpatient appointments was that an outpatient appointment or email advice would not have the same impact in terms of timeliness and continuity of care.

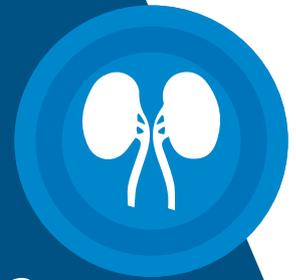
### Lessons learnt

Overall, the proposed project was well received and the stakeholders involved supported the idea in principle. Concerns raised included:

- > the cost of the project – there was an expectation that transformation would be delivered within the existing budget without any additional funding
- > how quickly the project will show improvement – the expectation for the project to bring savings and better outcomes within a short timeframe (difficult to achieve in long-term conditions care)
- > shifting the workload to primary care – some primary care colleagues were concerned about increasing workload due to care of patients moved from secondary care
- > consultants’ hospital time – some secondary care managers were concerned about the amount of consultants’ time committed to deliver out-of-hospital care.

For further information, please contact:

**Dr Rustam Rea, Oxford University Hospitals NHS Foundation Trust**



# Putting patients first in their kidney disease care

## Project summary

To improve the outcomes of patients with kidney disease in Berkshire West, multiple improvement initiatives have been undertaken to embed NICE guidelines in acute kidney injury (AKI) and chronic kidney disease (CKD) over the past 4 years across the local healthcare system. This project focuses particularly on how new referrals are triaged so a patient is seen in the right way in the right clinic, or may be better managed in primary care with the right support to avoid an unnecessary clinic visit.

Our aim is to provide a more accessible and responsive service for patients and their GPs in managing AKI and CKD. Recognising that a more holistic system of support for complex renal patients was needed, we are implementing new ways of working with GPs and other specialties.

In the first 7 months this has resulted in a third of new outpatient appointments being avoided and identified a further 40% that could be managed differently, freeing up consultant time and making substantial environmental and financial savings.

### Benefits



#### Environmental

- > A saving on patient and consultant travel for fewer renal referrals of over 4 tonnes CO<sub>2</sub>e in 7 months



#### Social

- > More patients are managed in the community and only referred when necessary, saving time and absence from work
- > Waiting times for first appointments are reducing
- > Care is organised around the patient rather than the healthcare system
- > Patients like it: 'This feels like it is the patient and not processes that matter'
- > GPs like it: 'There is lot of energy and research into getting to the core of what the patient actually needs in the way of treatment'



#### Financial

- > Based on reduced outpatient activity, there was an estimated £18,000 system saving in the first 7 months



## Efficiency and productivity

- > Over 7 months, 30% of new outpatient appointments have been avoided (161/525) by managing these patients differently with their GP
- > Waiting times for first appointments are reducing (by 20 working days currently)
- > Triage took 60 hours of consultant time (the equivalent of 15 outpatient clinics); 20 face-to-face outpatient clinics have been saved as a result
- > 40% of new referrals were recognised as presenting potential new ways of working with other specialties, eg a cardio-renal multidisciplinary team (MDT), one-stop clinics for young hypertensive patients and new renal/urology pathways are all improving efficiencies and patient experience
- > Less time is wasted – for both patients and healthcare services

## Background

Berkshire West Integrated Care System serves a population of 500,000 and is covered by four clinical commissioning groups.

The starting point for this project was 2,674 complex renal patients (those with diabetes and one other system condition such as COPD, persistent asthma or hypertension) who were interacting with multiple services creating multiple outpatient visits for each of their conditions. We recognised that the focus was on the condition rather than the patient and collaboration between specialties was variable, often impacting negatively on patients.

These patients incurred a total spend of £5.7 million (mostly non-pharmacy) and accounted for 18,802 GP contacts, 16,623 outpatient attendances and 1,052 A&E attendances per annum.

The tipping point was the realisation that we needed to do better by these patients and improve their experience and introduce sustainable changes.

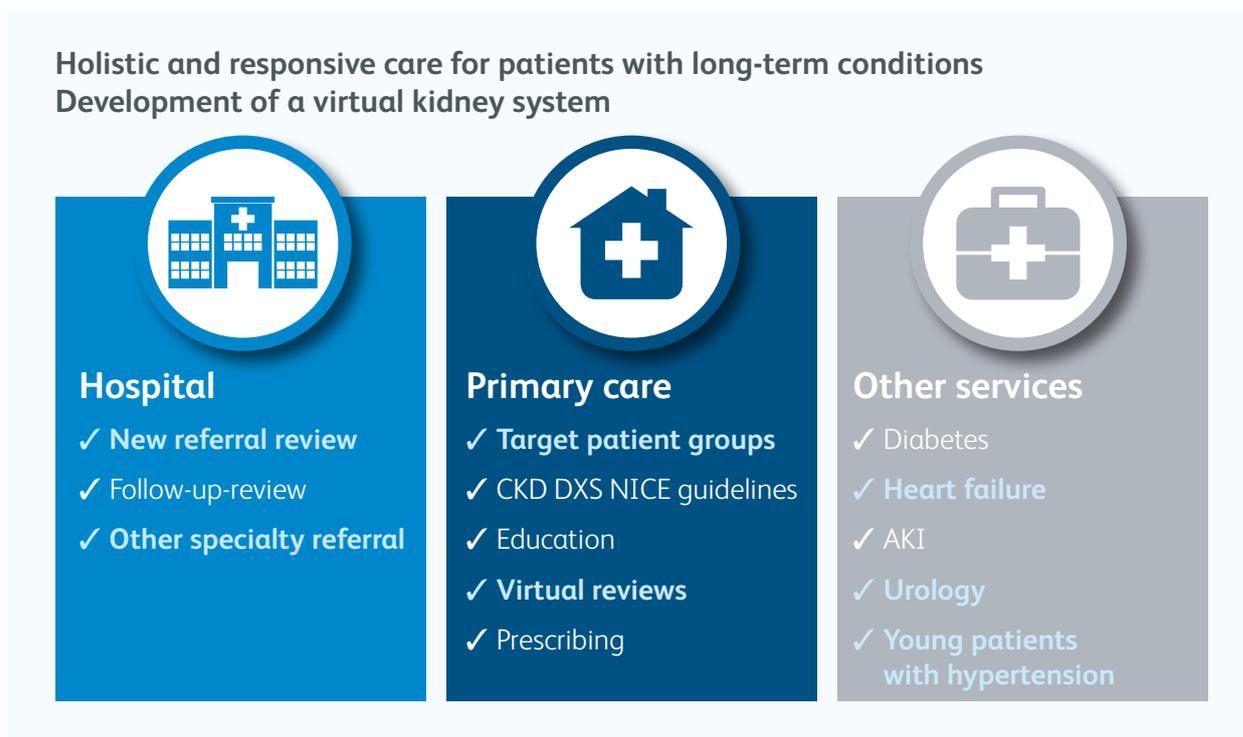
## Aims

The overall aim of the project is to design a 'virtual hug' of holistic support for renal patients to enable them to have the best care possible in the way that they want it. We aim to facilitate and support sustainable changes in practice to improve outcomes and patient experience.

Fig 1 shows the areas for improvement. This project focuses particularly on the areas in blue (other areas have already been worked on previously).

We are using an improvement approach involving identifying patient needs, and generating ideas to meet those needs with repeated testing, analysis and refinement.

Fig 1 Areas for improvement (shown in blue text)



## What we are doing

A wide range of different ways of working have been introduced from 2017.

Area of work	Action	Approach
<b>Access for new patients</b>	Referral triage and actions	<ul style="list-style-type: none"> <li>&gt; Responsive new referral reviews</li> <li>&gt; Skype GP clinical conversations</li> <li>&gt; Advice and guidance</li> <li>&gt; Face-to-face in GP practices</li> <li>&gt; Face-to-face outpatient clinics</li> </ul>
<b>Response to patient needs for follow-up</b>	Working differently	<ul style="list-style-type: none"> <li>&gt; Cardio-renal MDT virtual clinic</li> <li>&gt; Urology/renal pathways</li> <li>&gt; Virtual diabetes CKD clinics</li> <li>&gt; One-stop-shop for young hypertensive patients</li> <li>&gt; Remote monitoring blood tests</li> <li>&gt; Telephone clinics</li> </ul>
<b>Targeting patients and prevention</b>	Know your population	<ul style="list-style-type: none"> <li>&gt; Find and code CKD cases</li> <li>&gt; Target high risk groups</li> <li>&gt; Identify and address unwanted variation</li> <li>&gt; GP champions</li> </ul>

## Resources

### Funding

There was no additional funding for this project (although £75,000 allocated by Thames Valley Strategic Clinical Network (TVSCN) supported some of our earlier work on AKI in 2014).

### Engagement

We are placing huge emphasis and the importance of time in engaging with GPs, practice managers, community staff and other specialties. Every new referral is now reviewed by the renal consultant. One GP said that this was ‘the best admission avoidance work we have ever done’.

## Results

The results shown here focus on the impact of looking at new referrals in a different way. We have seen a significant drop in the number of new patient renal referrals seen face to face in the outpatient setting (Fig 2). Triage of new referrals was introduced in September 2017 and in the first 7 months, 30–35% of referrals were ‘rejected’ (Choose and Book service terminology!) and advice given to the GP on how the patient can be managed in primary care instead. Waiting times for new patients are reducing following the introduction of different approaches to new referrals in September 2017 (Fig 3).

**Fig 2 GP referrals for CKD following the introduction of new system**



**Fig 3 Waiting times for first appointments for new patients**



## Consultations

Time for triage of new referrals by a consultant in the first 7 months was 60 hours (the equivalent of 15 outpatient clinics); 20 face-to-face outpatient clinics have been saved as a result.

- > 30% of new outpatient appointments have been avoided.
- > 35–40% of new outpatient appointments have been recognised as able to be managed differently.
- > We are now turning our attention to remote monitoring with an estimated one-third of our general nephrology patients to be managed in this way.

However, this is not about saving time overall but how we use that time more effectively to improve patient experience and outcomes and bring sustainable value to our services.

## Feedback

“This feels like it is the patient and not processes that matter.”  
**Patient**

“There has been a lot of energy and research into getting to the core of what the patient actually needs in the way of treatment.”  
**GP**

## Lessons learnt

The *main challenges* are:

- > time, supporting resource (people and financial), different IT systems, breaking down historical barriers of silo working, cynicism regarding change, realising the long-term commitment and vision, and system resilience to new ways of working.

The *key benefits* are:

- > it’s all about the patient, strengthening and building new relationships and connections, changing the clinical conversation, a focus on outcomes.

For further information, please contact **Dr Emma Vaux, Royal Berkshire Hospitals**

Royal College of Physicians  
11 St Andrews Place  
Regent's Park  
London NW1 4LE

[www.rcplondon.ac.uk](http://www.rcplondon.ac.uk)



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of Physicians

