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TELEMEDICINE AT AIREDALE NHS FOUNDATION TRUST: BETTER CARE IN THE COMMUNITY FOR ELDERLY PATIENTS

Summary

Airedale NHS Foundation Trust (ANHSFT) has used a range of digital 'telemedicine' services to help it deliver care for patients. The service enables communication between ANHSFT clinical staff and patients (and their carers) via a secure video link whilst they are in their own households or nursing/residential homes.

One of these is a 'Gold Line' service, a 24/7 dedicated helpline for 1000 patients thought to be approaching or in the last year of life. Around 30 of these patients are also supported using telemedicine via a mini iPad to provide face-to-face consultations.

It has led to a range of quantifiable benefits to ANHSFT such as a significant reduction in Emergency Department attendances and non elective admissions, as well as qualitative testimonies from patients and carers who have benefited from the system.

Key facts

- Telemedicine allows patients to get round the clock care on-screen from clinicians from care homes or their own homes
- Delivered as part of a Yorkshire and Humber (originally SHA) region wide tele-health 'hub' model in 2011/12. The aim of the tele-health hub was to offer a menu of clinical digital services within the region.
- The ANHSFT part of the project was pump primed with £500,000 from Yorkshire and the Humber SHA
- ANHSFT already had considerable experience in the area by providing Telemedicine services to prisons since 2006, and built on this expertise when expanding the service to other settings.
- Rolling out the process required engagement with clinicians so they were able to drive the design and implementation of the system.
- Set up in 2011/12 the Telehealth Hub now serves approximately 7000 people in nursing and residential care homes and has helped account for a 37%reduction in ED attendances and 45% drop in hospital admissions from nursing and residential care homes.

The issue

With a significant ageing patient population in its local health economy, ANHSFT wanted to improve its offer of care for elderly patients by minimising unnecessary admissions and by providing care closer to home, particularly for those with long term conditions.

The proposed solution

Telemedicine allows healthcare professionals to provide patient care from a remote location. It works by installing secure video connections between clinicians, patients and carers via a device (laptop, tablet or similar) in the patient's home or care home, allowing immediate senior triage by an experienced team of band 6 or 7 nurses and early clinical interventions and diagnosis.

Telemedicine was an area where ANHSFT already had proven expertise, having provided telemedicine consultations to a number of English prisons for several years. This is a remote consultant-led service including full trauma, orthopaedic and dermatology clinics, to 16 prisons across the country. In these prisons, 50% of consultations were dealt with without the need for a further traditional hospital based consultation, resulting in significant savings via a reduction in security escort and bed watch costs. ANHSFT believed similar benefits could be realised if the approach was extended to NHS patients, particularly the frail elderly and those with long term conditions; it was thought to be an innovative way of addressing rising numbers of potentially avoidable emergency admissions and emergency department attendances amongst this group. The Trust also recognised the quality of life benefits that could be realised by supporting people to remain in their own homes as far as possible.

Additionally, there was a wider initiative in 2011 by the former Strategic Health Authority (SHA) for Yorkshire and the Humber to develop digital services in health for numerous providers in the area, which gave ANHSFT an opportunity to utilise regional innovation funds to expand their telemedicine service.

How it works

Since its establishment, the service has been embedded in the hospital's existing clinical governance arrangements, and works in the following way:

An experienced senior nurse answers the video call, (receiving it in a specifically designed telemedicine hub), reviews the situation with the nursing or residential care home team and patient and then undertakes a clinical assessment. A very small number of calls received require escalation to a hospital doctor which is again undertaken via video. If required, the nursing team will organise onward care - for example a visit from a community nurse in the local area or a hospital admission. As well as inbound calls, there are also scheduled video calls where nurses, GPs, nurse specialists or others as required, can use the same system instead of home visits to provide routine check-ups on patients.

Having completed the video call a nurse completes their notes in TPP SystmOne. Airedale was the first NHS trust to use the acute module of TPP's SystmOne, which enables a single primary and secondary care record available in real time at the point of care. The Trust is using integration tools such as the MIG (medical interoperability gateway) to interface to other primary care systems as required.

The Telehealth Hub also provides the Gold Line service (which was created in November 2013) which is predominantly a telephone helpline where calls are answered 24 hours a day, seven days a week by a team of experienced nurses. It provides care for those who are in the last 12 months of their life, and aims to enhance their care, particularly out of hours, by proving one point of contact for help and advice. Currently there are more than 900 patients registered to the service across Airedale and Bradford CCGs. Around 30 of these patients are also supported using telemedicine via a mini iPad to provide face-to-face consultations.

Implementation

To help set up telemedicine at scale at ANHSFT, they took part in the Yorkshire and the Humber Regional Telehealth initiative.

This project was conceived of in 2010 with the aim of delivering the benefits of providing telehealth at scale to patients with chronic conditions. The SHA invested £900,000 from 'regional innovation funds' , with the aim of

allowing providers across the region to take advantage of a comprehensive, integrated programme of tele-technologies. From this, ANHSFT was awarded £500,000 to expand and deliver its own telemedicine services.

ANHSFT was initially contracted to deliver telemedicine services to 500 patients (via both care homes and private residences). During an initial installation period of 12 months, the Trust put 81 systems into patients' own homes and 13 systems into care homes. The system was also installed in a Hospice and two GP surgeries. Through these measures, by April 2012 Airedale had given over 400 people access to telemedicine.

At ANHSFT, creating the Telehealth Hub involved the development of a new technical infrastructure, a new staffing model to deliver a 24/7 clinical service, as well as training staff to use the system. A refurbished area on the hospital premises was created which included installation of video consultation technology and of a secure, encrypted technical infrastructure (N3 line, standard internet line and a video communication server) dedicated to telemedicine calls[1].

Since the initial pump priming provided by the SHA, the service has expanded significantly. There are now around 7000 patients served by ANHSFT's telemedicine hub across approximately 250 nursing or residential care homes throughout the country. In addition the Trust supports a prison population of around 8000.

In July 2013, a unique telemedicine joint venture called Immedicare was formed between Airedale Hospital and technology company Involve. They can now provide a full end-to-end service - clinical expertise and the technology - to nursing and residential care homes, patient homes and prisons throughout the country. Visit www.immedicare.co.uk

In March 2015, Airedale NHS Foundation Trust was the lead organisation in a local team of partners from the NHS, local authorities, care homes, technology and academia, to be selected on taking a national lead on transforming care for patients.They became a vanguard site for developing a new model of care which plans to significantly enhance health in care homes and improve patients' experiences of local healthcare by bringing home care, mental health, community nursing, GP services and hospitals together for the first time since 1948.

The local scheme will use technology, such as telemedicine, to integrate services and provide immediate access to expert opinion and diagnosis, where appropriate, as well as supporting individual independence and improving the quality of life of residents by focusing on proactive rather than responsive care and delivering more specialist services into the care home.

For patients, this will improve their experience of health and care services and could mean, for example, fewer trips to hospital; a single point of access to health and social care services and other specialist advice day or night; access to services closer to home and a tailored personal service that is more responsive and reduces duplication.

The outcomes

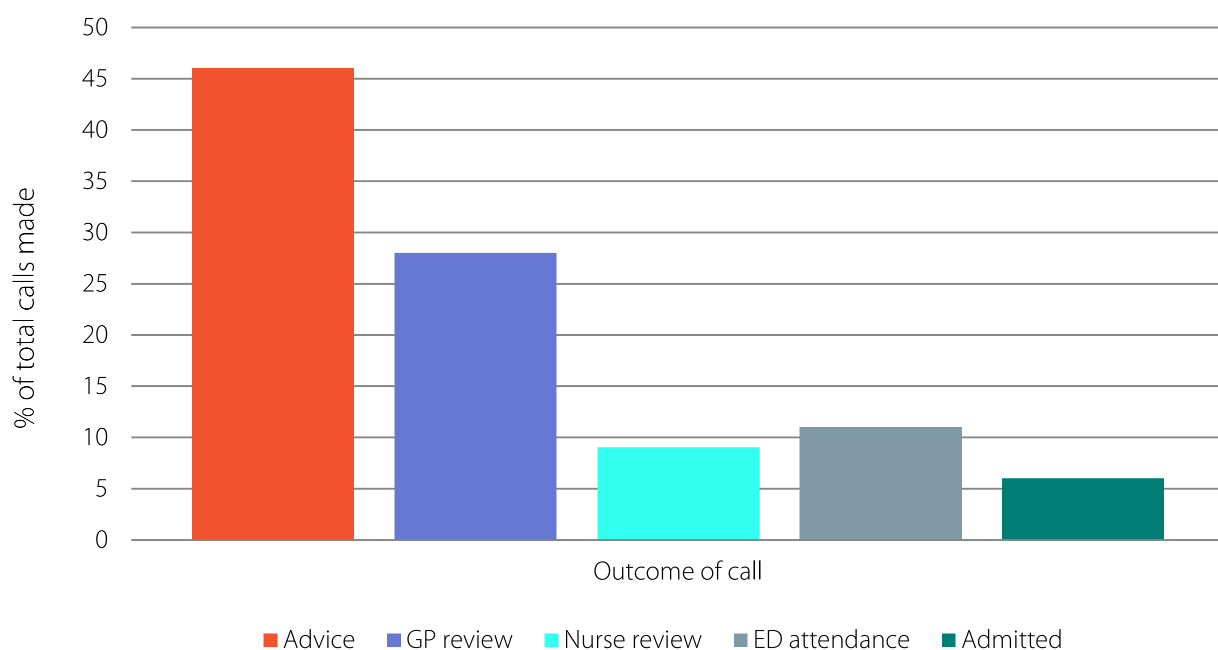
Quantitative Benefits

[1] N3 is a secure data network provider for NHS services

Since its establishment in 2011, data from the ANHSFT Telehealth Hub has shown a number of quantifiable benefits. When comparing nursing and residential care homes before and after the implementation of telemedicine (between the years 2011/12 and 2012-13) results demonstrated:

- hospital admissions dropped by 35%
- the total use of bed days dropped by 59%
- use of A&E dropped by 53%

Also for the 12 month period following installation of telemedicine during 2012/13, the outcomes of the telemedicine calls show that nearly 50% avoided the need for further clinical action:



Yorkshire Health Economics Consortium published data in winter 2014 for the period 2012-2014 where data was analysed from twenty seven care homes across Airedale, Wharfedale and Craven, comparing before and after telemedicine's deployment. This found that for care homes with telemedicine, there was a reduction in non-elective admissions of 37% in this period which equated to a 39% reduction in associated costs, while care homes with telemedicine reduced their A&E visits by 45%:

TABLE 1: COMPARISON OF NON-ELECTIVE ADMISSIONS BEFORE AND AFTER THE TELEMEDICINE

Activity			Cost		
Before	After	Diff	Before	After	Difference
4,734	3,003	-1,731	£13,341,757	£8,108,055	-£5,233,702

TABLE 2: COMPARISON OF A&E ACTIVITY BEFORE AND AFTER THE TELEMEDICINE

Activity			Cost		
Before	After	Diff	Before	After	Difference
2,295	1,266	-1,029	£262,915	£145,033	-£117,882

Also according to the Yorkshire Health Economics Consortium, based on a comparison of service use before and after deployment of the telemedicine and the average cost saving per patient per month, each telemedicine care home saves on average £66,000 per annum. Comparing users and non users of the system, there is an approximate £650 saving on average per person in a care home who uses the service, via avoided emergency department patient episode - the table below shows the difference the system has made to patients in care homes in terms of how many are admitted to emergency departments, and how long they stay in hospital (results per annum):

	Pre telemedicine	Post telemedicine	% change
Admissions	227	125	45
Length of Stay	12.4	8.7	30
Bed Days	3304	1208	60

Qualitative Benefits

Care homes:

- Very positive feedback has been gathered about the telemedicine service, with care home staff stating "it is very, very useful" and that "It's fantastic".
- Managers often request that staff use the service for "everything", with telemedicine becoming increasingly used as the first point of contact that may lead to an online consultation, an ambulance responder, an admission or a call to a GP Out of Hours service.

Patients:

- Overall satisfaction with telemedicine is very high amongst patients with feedback showing 63% report a satisfaction score of 9 or 10 out of 10. Specific areas of high satisfaction include rating of advice received, the time the consultation took and the ease and speed of contact. Patients also value the reassurance it provides, even when they do not have immediate cause to use it.
- The Gold Line has been extremely well received by patients and their carers. Its has helped keep patients' outside visits very short and to a minimum, and provided a source of easy access advice and support for carers whose partners have recently died, with one saying:

"We never had to fight or push for anything, all the services we needed were just there, it was fantastic. If they couldn't do something straight away the nurses would ring us back and let us know. For so many services to come together and make it feel totally integrated and focused on you is an incredible achievement. The Gold Line team really made a difference and I can't thank them enough."

ANHSFT staff:

- 90% of clinicians described themselves as being "very satisfied" or "satisfied" with the service.
- Rebecca Malin, deputy director of Strategy and Business Development at Airedale NHS Foundation Trust said: "It costs around £200, per month, per patient or care home to setup and look after [a patient] through telemedicine. Given that one hospital admission costs about £2,500, the service virtually pays for itself if just one admission is avoided per year."

GPs:

- Have endorsed the service with positive feedback, with one saying:
- "For follow-up consultations telemedicine is a great alternative – there's usually no need to take time off work or pay for parking and you can stay at home or be discharged home very quickly."

The lessons learnt

For the implementation, there was a range of practical and strategic enablers that helped progress the project:

Practical enablers

- ANHSFT was awarded £500,000 to pump prime this project, and given a 12 month (then extended to 18 month) period to set up and establish the system. This gave the project the backing and time to grow as a service.
- During the roll-out phase, the systems were deployed gradually and according to need. This allowed flexibility when it was first found there was more demand for the service in care homes rather than private residences.
- There was very quick adoption from carers and patients themselves once the systems were installed, with generally positive feedback received, and areas for improvement actively sought and quickly acted upon to help improve the service.
- There was reasonable early level support from both the consultant and nursing workforce at ANHSFT, and there was early engagement from the project team to grow and extend this support more widely into the workforce. As the system has grown, it has been championed by the clinical director for digital care, bringing credibility and buy in from more clinical peers.
- It was integrated with the operational environment of ANHSFT, rather than being seen as an "add on" - for example the telemedicine sessions are a part of consultant job plans and all clinical job descriptions.
- ANHSFT partnered with Involve, an organisation that specialises in the creation, design and support of visual collaboration business solutions. This partnership has formed 'Immedicare' which is the delivery vehicle for telemedicine solutions. This has meant that there is additional business expertise involved in the development and running of the service, combined with the clinical input of ANHSFT.

Strategic enablers

- There was considerable interest in this area beyond the local health economy. The potential widespread adoption of tele health was predicated on expected results from the DH's Whole System Demonstrator projects, which at that time led to the Government announcing a 3 Million Lives campaign to speed up tele-health adoption, which raised the profile of tele-health significantly.
- Similarly there was strong initial impetus from the leadership at the SHA level to drive the project forward. SHA staff helped coordinate the project, both in terms of the investment, and people's time and energy. Through this coordination, it was intended that all best practice and knowledge could be captured and shared, and made available for use around the region.

Practical challenges

During the implementation phase there were several challenges that had to be addressed.

- Although ANHSFT had a long established telemedicine capability with prisons, their 'at home' service had to be built from scratch, requiring a completely new infrastructure – technically, operationally and clinically. As a result, the set-up required more time and in recognition of this the SHA agreed to give the Airedale project a six month extension, to October 2012.
- The operational complexities of obtaining patient lists, running software to help select the right patients, gaining agreement with GPs on appropriate patients for the services and dealing with patient consent on either an opt-in or opt-out basis all took considerable resources.
- Regarding getting care homes on board with the scheme, ANHSFT found that time taken to convert interest into contracts, and then from contract to deployment, was more time consuming than anticipated.
- The design of some nursing home buildings has made it difficult to enable wireless and mobile connectivity.
- For the Gold Line service a new call handling system was needed, and a dedicated telephone number not used anywhere else in tele-health was necessary. As part of this a dedicated staff resource was required to implement the service. There was also an initial underestimation of out of hours/weekend call volumes for this cohort of patients.

Strategic challenges

- The SHA was able to provide strong leadership support initially. However, as SHA responsibilities were transitioned into the SHA cluster as part of the Health and Social Care Act reforms, the ability of the SHA to actively manage the system became harder. This was especially so with the departure of the then SHA CEO. This was compounded with the move to CCGs. The changes in commissioning structure meant that it was often difficult to identify the decision makers, as key people changed organisation - particularly when newly-formed CCGs were focusing on gaining authorisation rather than development of the Hub. This meant driving the project forward after the initial funding was the responsibility of ANHSFT.
- As a brand new service with initially low patient numbers (and therefore video calls), ANHSFT had initial concerns about demonstrating the return on investment of the scheme. CCG Commissioners wanted to see the evidence of its benefits before committing to it more fully, but patient numbers were initially too small to assess. Additionally there was no replicable scheme happening elsewhere in the UK, meaning the wider evidence base was sparse, in turn meaning there were few financial models to draw on in order to produce risk based business cases for the service. This was during the initial 12 month phase, and has now been addressed with many more patients using the service and the financial benefits clear as a result.

Conclusion

This project has delivered qualitative benefits to the local population and had dramatically reduced the amount of unnecessary admissions to the emergency department at ANHSFT, which in turn has driven substantial cost savings across the both acute and residential care sectors. This project also shows that significant drive and investment is needed to establish such a scheme through its early stages, as well as concerted efforts to embed a telemedicine system as part of the core culture and process in a local health economy.

Endnotes

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2. NRC (vol 15, no 8). August 2013
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