Creating digitally ready nurses in general practice

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Abstract

Digital healthcare provision in England has been driven mainly by a 'top-down' approach and a focus on digital infrastructure rather than front-line delivery. This has laid the foundation, but digital care delivery still has a long way to go.

This article describes an action learning programme to create digitally ready nurses. The programme, which underpins action six of NHS England's ten-point plan for general practice nursing, shows that a 'ground-up' approach to upskill and empower front-line clinicians is central to embedding technology-enabled care services (TECS).

Following completion of the action learning sets (ALSs), 24 general practice nursing digital champions across Staffordshire have used TECS to deliver a range of benefits for their practice teams. This has informed the introduction and extension of the programme, with national funding for a further 12 regional pilot ALSs across England in 2018-19. Importantly, the active learning individualised approach provides a digitally ready workforce with the ability and support to adopt TECS in areas of clinical need. This ability is central to the next stage in the digital transformation of healthcare.

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Background

Provision of digital healthcare in England has so far been driven largely by a 'top-down' approach focusing on digital infrastructure in healthcare systems rather than front-line delivery (Chambers and Schmid 2018). This has laid the foundations for the digital delivery of care, but this still has a long way to go before its potential is realised.

In line with action six of NHS England's (2017) ten-point plan for general practice nursing and Health Education England (HEE) (2017) priorities, six action learning sets (ALSs) for upskilling digital general practice nurses (GPNs) and encouraging them to adopt technology-enabled care were set up across Staffordshire to 'embed and deliver a radical upgrade in prevention' of ill health. This involved the provision of training and resources to help GPNs develop as champions for technology-enabled care services (TECS), and thereby improve efficiency and clinical benefits. The process focused on enhancing patient engagement to increase patient concordance with their treatments and change adverse lifestyle habits, while providing viable solutions for more effective and productive working by GPNs (Topol 2019).

The main aims were:
» For GPN participants to become digital champions using at least two modes of TECS with patients for at least three months. This could involve using, for example, closed social media groups, telehealth, video consultation and trusted apps to support patients with long-term conditions (LTCs) and/or adverse lifestyle habits.
» To champion clinical engagement in the digital delivery of general practice care.

Action learning programme

In March 2018, four cohorts of GPNs were recruited from across 21 general practices in Staffordshire. A total of 27 GPNs signed up to the programme, but three left due to ill health or unexpected additional work commitments so 24 GPNs in 19 practices completed the programme. To encourage practice engagement, practice managers co-signed the GPNs' applications to participate in the programme and implement their learning in practice. This affirmed the practice team's interest and involvement with their GPNs' participation from the start. Most of the GPNs were in their fifties and band 6 practice nurses; four were advanced nurse practitioners. Registered patient population practice list sizes ranged from around 3,000 to 16,000 patients and levels of deprivation varied.

The programme involved three ALS sessions per cohort spanning four months, with content progressing from information giving to implementation. The first session introduced the project team, and the aims and scope of the programme, and connected the GPNs with one another through a closed social media group. Following the initial session, the GPNs drafted their action plans to identify the modes of TECS for the LTCs they would try. By session two they had finalised their individual action plans with the help and agreement of the

nurse and digital expert facilitators involved in the project and their practice teams. They were given access to, and practical assistance with, their chosen modes of TECS. The final session allowed participants to reflect on their learning and experiences, and plan for future development and ways to embed TECS in front-line practice.

Before session one, participants were given access to comprehensive online educational resources, including practice performance figures for delivering care to patients with specific LTCs and information on which TECS could be useful for them. The expert facilitators also made practice-based visits to provide advice and practical support in, for example, setting up TECS, protocols and relevant information governance guidance.

Another important element of the GPNs' project resources was a 7Cs tool (Table 1) for reflecting on learning and organisational needs in relation to adoption and delivery of TECS (Chambers et al 2018a). By progressing through the ALS programme the nurses could meet each of the tool's seven areas. Where changes to organisations or infrastructure were required, participants could collaborate with their practice teams to embed their preferred modes of TECS.

Further resources to support and motivate the evolving digital GPN champions included a bursary to apply the learning programme outside of work hours, a tablet with recommended apps, video-consultation options, various TECS and support equipment, including a mobile device for detecting atrial fibrillation.

A TECS code of practice with 23 elements, covering clinical indemnity, information governance, consent, quality and safety, and health and safety (Staffordshire Digital Design Authority 2017), was already in place. It had been endorsed by all health and care organisations in Staffordshire, including general practices.

Evaluation

The following information was collected from each participant in the four cohorts for project evaluation:
» Self-rated measures of competence, confidence and knowledge about TECS. This was gathered from a baseline survey at the first ALS session and was repeated at the final session.
» Progress in the programme. This was gathered through a phone survey conducted about two months after the final ALS session.

| Table 1. The 7Cs in relation to this project	
Competence	The ability to adopt of a range of modes of delivery of technology-enabled care services (TECS) for an agreed purpose and to feed in information or act on advice
Capability	Demonstrating best practice in a range of modes of delivery of TECS for an agreed purpose, and in feeding in information or acting on advice in daily professional life
Capacity	Protecting and prioritising time for initiating and participating in the remote delivery of care. Ensuring that the IT infrastructure is in place and that equipment is available and easily accessible by all service providers and users
Confidence	Ensuring that an organisational infrastructure in line with local TECS code of practice (Staffordshire Digital Design Authority 2017), including the reliability and validity of equipment and its outputs, is in place
Creativity	The ability to adopt and adapt agreed TECS for different purposes, or for patient or carer groups, in line with the Nursing and Midwifery Council (2018) code of professional standards of practice and behaviour
Communication	Sharing and disseminating digital modes of delivery and associated clinical protocols, as well as the evaluation of applications, outcomes and challenges, with other members of the team or organisation
Continuity	Interacting with patients through TECS along single pathways for long-term conditions or lifestyle habits. If the practitioner is away, cover should be arranged and agreed with patients in line with their shared care management plans

(Chambers et al 2018a)

» Individual GPN action plans that specified aims, resources required and outcomes attained. These were completed by participants after the final session and covered progress, implementation, achievements and obstacles overcome.

Figure I. Baseline survey results to question: 'To what extent do you agree with the statement: "I can see the benefit of using technology-enabled healthcare for patients, practice nurses and GPs"?'

Strongly agree ■   Somewhat agree ■
Baseline survey (*n*=27)

» Areas of change, the form(s) of TECS that can ensure such change and self-assessed progress towards making change. This information was gathered using adapted leading change adding value (LCAV) questionnaires (NHS England 2016), completed by participants after the final session.
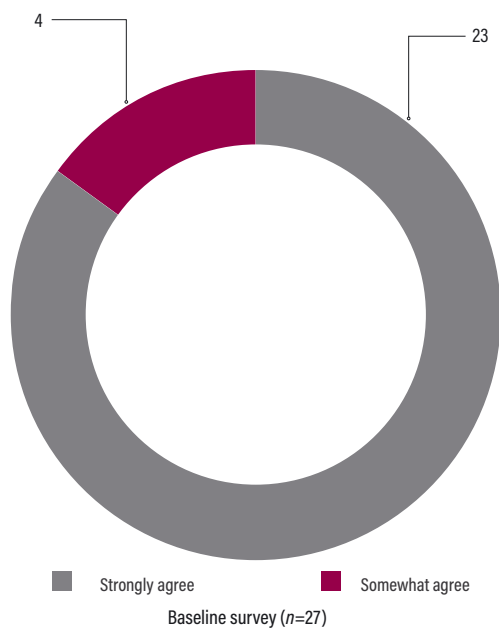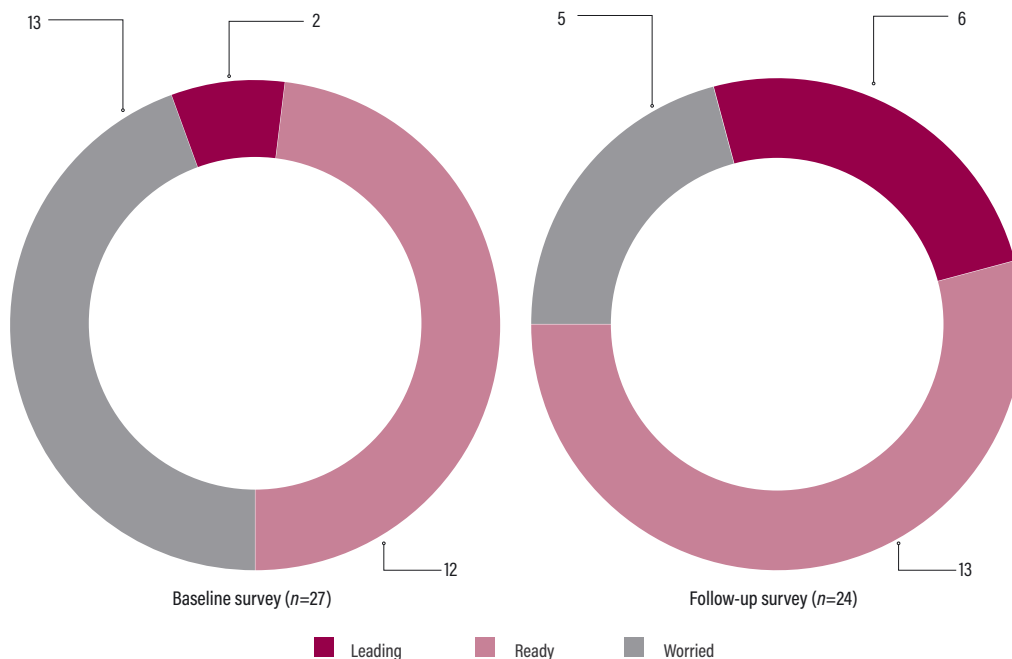
Evaluation findings

As the ALS programme progressed, GPNs self-rated their matches to statements about perceptions of using technology-enabled healthcare on the baseline survey at the first (*n*=27) and last (*n*=24) sessions. Three participants did not complete the programme due to personal issues, but they expressed determination to continue at a slower pace.

Most participants strongly agreed from the start that they could see benefits of using technology-enabled healthcare for patients (Figure 1).

GPNs were asked to rate what they thought about using digital technology by highlighting whether they were 'digitally leading', 'digitally ready', digitally worried' or 'digitally lost'. By session three, 19 of the 24 GPNs believed they were 'digitally ready' or 'digitally leading' compared with 14 out of 27 GPNs at session one (Figure 2).

The phone survey, which an independent evaluator conducted about two months after the final ALS session, identified that the 24

Key points

● **This action learning set programme shows that practical training of nurses can create digital champions with the skills and confidence to implement technology-enabled care services (TECS) in general practice**

● **By focusing on unwarranted variation and locally important long-term conditions (LTCs), clinicians can use digital technology in delivering the right care at the right time, thereby enhancing the effectiveness and efficiency of patient-centred care**

● **If patients understand and 'own' their LTCs, their compliance with technology should increase and their health outcomes improve**

● **The programme has resulted in greater patient self-management and safety, better clinician productivity and empowerment, and fewer avoidable consultations**

● **Large-scale programmes such as this could create a digitally ready workforce that prioritises TECS for the right patients according to clinical need**

Figure 2. Baseline and follow-up survey results to question: 'Which of the following statements most closely describes how you feel in relation to using digital technology as part of your practice?'

Baseline survey (*n*=27)   Follow-up survey (*n*=24)

Leading ■   Ready ■   Worried ■

GPNs who completed the course found it beneficial for themselves and their patients. Many also noted there was support for the adoption of digital modes of delivery of care from their practice colleagues. Highlights from the phone evaluations are shown in Table 2.

Figure 3 shows the modes of TECS used in participants' practices before the ALS programme, as well as the modes used by the digital GPN champions and practice team members after completing the programme.

The evidence shows that practice teams increased their TECS adoption substantially.

Before ALS completion, 11 practices used a public social media group to enable services, and three of these also used video consultation. Figure 4 shows how the adoption and variety of TECS increased substantially after completion.

In the two case studies, GPN participants illustrate their experiences of adopting TECS with their practice teams, while Table 3 shows detailed completion of the LCAV template by another participant.

Table 2. Main questions and responses from the phone survey of 24 general practice nurses conducted two months after completion of the action learning sets	
Phone survey question	**Illustrative responses from general practice nurses**
Have there been any changes in the practice team's attitudes to technology-enabled care services (TECS) since they joined the action learning set programme?	» I gave a presentation to senior clinicians and was able to alleviate their concerns about information governance » My practice was already forward-thinking but since attending the course they are all adopting the TECS I have been using » They had not realised what could be done » Given the patient response to it, they see the benefit
What factors led you to choose the TECS you selected?	» The TECS that seemed most appropriate given the isolated, tech-savvy patients we have » I was swayed by the TECS I could see how to implement » I have seen a lot of people in my age bracket being diagnosed with type 2 diabetes and wanted to do something about it » I wanted to focus on hypertension because I see so many patients with it » I chose to focus on weight management because it is the common denominator in so many of my patients' conditions
What was the most important thing you learned from the programme?	» That information governance is not a roadblock » That technology is not that bad or scary, and patients like it » TECS has a big place in consultations. I was sceptical at first, but pleasantly surprised » Everyday technology can be taught to people you would not necessarily have thought would be interested » Have a go even if you do not know a lot » That I can use the technology I use at home in my job

Figure 3. Comparison of how many technology-enabled care services were used by practices before and after the action learning set programme
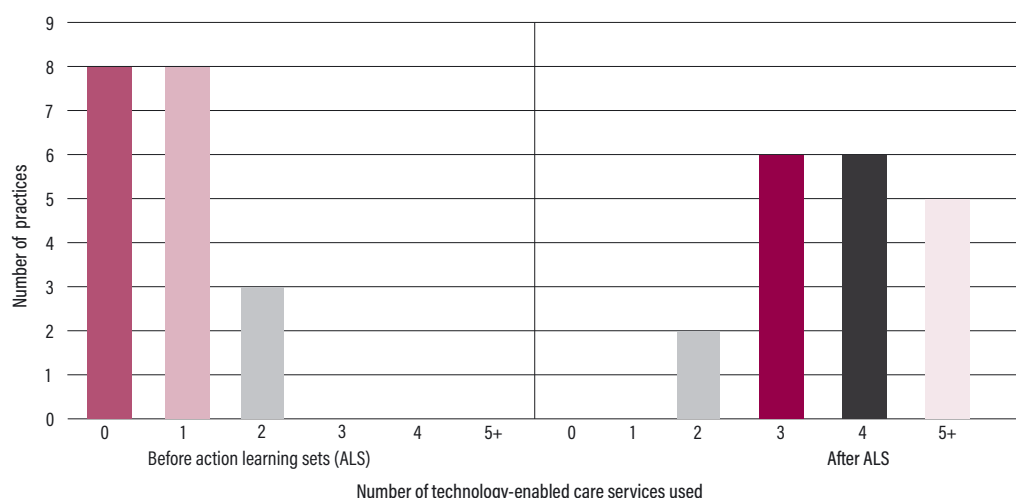
GPN participants reflected on the benefits and risks that they perceived and experienced as the ALS progressed from their own and patients' perspectives and these were collated as themes (Table 4).

Discussion
A digitally ready workforce
The NHS is at the stage of the digital revolution when many TECS are available but are not in mainstream use. In 2014, only 2% of patients reported having digitally enabled transactions of healthcare (National Information Board 2014). More recent figures from a GP survey (NHS England and Ipsos MORI 2018) show little change: 41% of patients surveyed were aware they could book appointments online but only 13% used the service.

The aim of the GPN ALS programme was to bridge this gap from the ground up rather than top down, empowering GPNs to be the agents of digital transformational change, as envisaged in the NHS Long Term Plan (NHS England 2019) and recommended in the Topol Review (2019). This approach can be adapted to varying clinical needs in different localities with a broad spectrum of priorities, where a 'one-size fits all' strategy would be unacceptable.

The disconnection between the availability and adoption of TECS is clear from the lack of TECS used in practices before the nurses started the project. Furthermore, the TECS were not used to full effect, if at all. This may be due to reticence to change, poor awareness of the range of TECS, and lack of confidence and ability of practice teams to implement change, as illustrated by GPNs' comments in the phone survey.

Enthusiasm for implementing TECS in healthcare was high among GPN participants, who could envisage the benefits for patients and practitioners despite their initial low confidence and ability in adopting the technology themselves. Following completion of the programme, and enhancement of GPNs' confidence and ability with TECS, all practices were using at least two different modes, with many using five or more, generally and for specific LTCs. This shows how individuals who are enthusiastic about TECS can embed them into their own and colleagues' everyday practice despite not being initially 'TECS savvy'. A ground-up approach was effective because, when nurses have the knowledge and support to use TECS, their confidence to drive changes followed.

A recent UK-wide consultation by the Royal College of Nursing (RCN) (2018) on the digital future of healthcare concludes that nurses in all healthcare settings need to be 'equipped to lead this change'.

One of the barriers highlighted by the consultation is the difference between the perspectives of clinical staff and those who commission digital systems. It was reported that this difference, as well as structural and infrastructural barriers, is holding back the digital revolution in UK healthcare.

Like the project participants, nurses consulted by the RCN favoured a digital future and could see the potential benefits for themselves, their patients and the health service. These findings reinforce the aim and scope of a ground-up approach to digital transformation in two ways.

Figure 4. Modes of technology-enabled care services used by practice teams two months after the completion of the action learning set programme
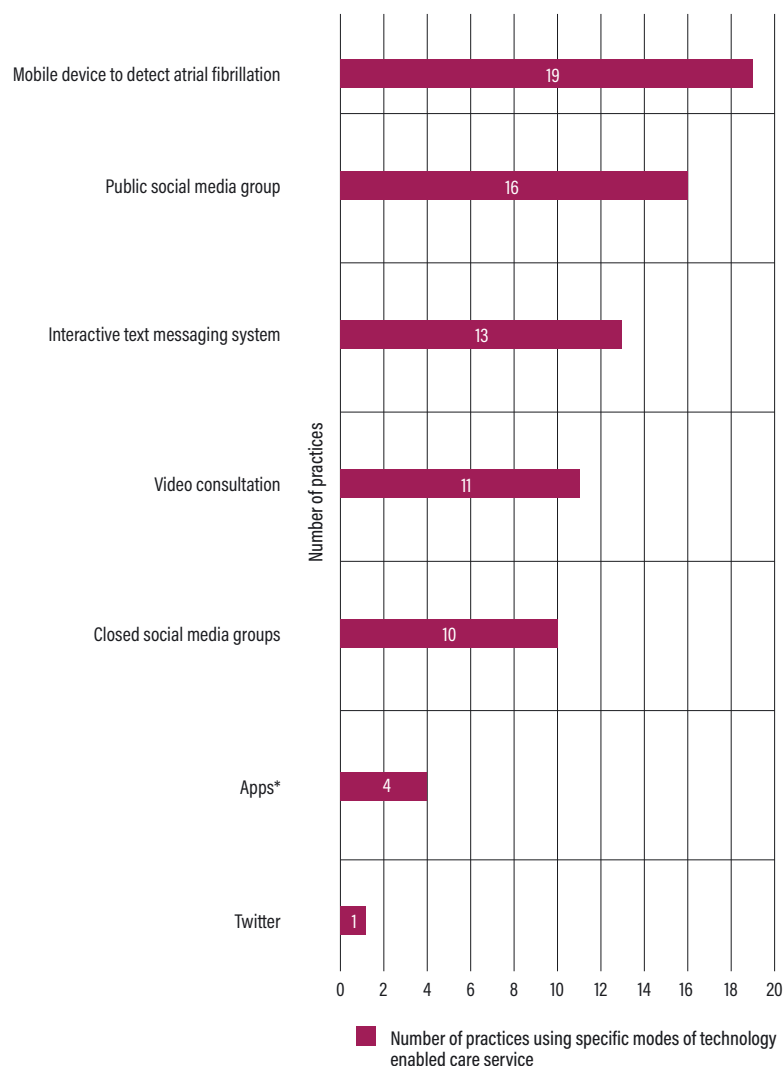
*Apps included trusted apps on the NHS Apps Library, Public Health England website or the Manage Your Health app generated by Keele University

First, nurses are ideally placed to identify the real needs and preferences of patients. As the ALS programme demonstrated, when equipped with a digital toolkit, they can select the right TECS for the right patient according to the availability of equipment and patients' or carers' skills. Second, nurses are passionate about providing good-quality care and positive about using new modes of delivery where beneficial. As the ALS programme showed, nurses make for effective digital champions in their practices.

When interviewed about why they chose specific TECS, nurses across the board described how they were influenced by practicality and day-to-day insight of clinical need rather than their general practice performance figures in certain LTC areas. This finding is supported by the modes of TECS chosen most widely for implementation, with the top three being the mobile device to detect atrial fibrillation, the public social media group and the interactive text messaging system. The mobile device and social media group were reportedly the simplest to use, while the text messaging system was deemed most versatile.

Only one of the participants reported a choice of TECS based on missed practice clinical-indicator targets. Most participants selected particular modes of TECS for pragmatic reasons, such as their benefits for patients with clinical needs and likely compliance. Essentially, the nurses had developed and expanded their delivery toolkit to address problems they saw in front of them for their perceived benefits, an agile approach that is driven by actual needs rather than targeted or organisational pressures. In other words, they had become a digitally ready workforce that could optimise productivity and minimise gaps in healthcare delivery for their patients.

Efficacy of the nurse cohorts
As champions, the digitally ready GPNs: seeded change in their practice teams; increased reported productivity, patient safety and compliance; and reduced avoidable practice face-to-face appointments and phone calls. Additionally, the results of the ALS programme provide evidence that initiatives adopted by just one member of a general practice team can evolve from a pilot to usual practice.

As an important part of the ALS process, participants were asked to identify areas for change and record best practice by completing LCAV documents. A common theme was participants' empowerment. For example, they recorded how they held meetings with senior practice GPs to educate them about adopting digital modes of delivery of care.

One, who at the beginning of the course described herself as 'not TECS-savvy' but ended it as 'TECS-happy', described how she had spread what she had learned and her 'can do' attitude to her practice colleagues. Another wrote about the challenges she faced and said that the results of her TECS use had been mixed so she was adapting her implementation approach.

When interviewed by phone about the attitudes of their practice teams towards the adoption of TECS, more than 80% of participants reported that attitudes became more positive after their interventions. Even in practice teams where engagement was already high, participants' application of learning to front-line care boosted adoption of TECS even further. As agents of change, the nurses proved themselves to be not only digitally ready, but resilient and empowered by becoming trusted practice champions for digital delivery of care.

Application to other branches of nursing
There are other branches of nursing where an individualised ALS programme would apply. For example, district nurses could

Case study 1. Advanced general practice nurse

This participant, a general practice nurse (GPN), wanted to improve her interactions with people in a local care home and reduce her travel time by introducing video consultations.

Before her action learning set (ALS), she visited the care home weekly to see a group of patients registered with her practice and selected by home staff. Through the ALS, training to set up the equipment, and the appropriate protocols and governance documentation, were provided to the GPN and the care home manager. The training was cascaded to the wider care home team, which prepared the patients for the video consultation.

The GPN now holds video consultations on alternate weeks and has halved the number of routine visits to the care home. The patients receive an equivalent level of care and support, and the reduction in travel has freed up face-to-face appointment time for an extra 20 patients a week in the GPN's clinic. She has also promoted apps to patients with specific long-term conditions.

The GPN reports that this shared management has strengthened clinical safety, improved patients' experiences and encouraged them to access their own patient records, thus enabling medication reviews or investigations to be completed instantaneously.

Case study 2. General practice matron

The main role of this participant is the care of older frail patients and those who are housebound or acutely ill. She chose to prioritise the use of apps and telehealth to improve patient engagement, and to monitor baseline observations, while assisting patients to manage their conditions independently.

She reported that using interactive text messaging reduced the need for face-to-face appointments with specific patient cohorts and found that around half could take part in follow-up consultations by remote digital delivery in line with an agreed shared management plan.

This has improved management of their conditions because they can now accurately monitor themselves and refer to their individual care plans. It has also allowed capacity for an additional ten face-to-face appointments a week.

Table 3. Example of a completed 'leading change adding value' report

Topic	Questions	Examples of responses
Where to look	» How did you identify a need for change in where or what or why you focused on technology-enabled care services (TECS)? » What prompted this focus?	» 'We identified as a practice that patients are willing to take responsibility for their own healthcare if they are given the right access to information, education and support' » 'We decided to focus on the use of apps and Facebook to engage with patients, and help them to understand their conditions. Also to use the action management plan so they have access on their mobile phone at all times' » 'We opened a Facebook page an additional way of sending health promotion and reminders for up and coming events, such as flu clinics and dementia awareness week'
What to change	» What were things like before the change? » What did you identify that needed to change? » What did the research literature/clinical evidence tell you about what you should try to achieve with TECS and selected health condition(s) or adverse lifestyle habits?	» 'It was always a challenge to cover all areas of a patient's condition and management and give support at their annual reviews in the allocated time. Using the app, we could give patients access to up-to-date and relevant information about their health conditions and needs, and management plan, saving time at the appointment'
How to change	» How did you and other staff in your practice lead the adoption of TECS and change(s) made? » What did you do differently? » What action was taken?	» 'We started to give patients the access of information on how to download the Manage Your Health app' » 'Patients found this easy to do and felt more confident about their condition, and happy that they had their management plan at hand whenever it may be needed – not just on a piece of paper somewhere' » 'Parents felt safe to know that children could also have access to information and an action plan if their condition deteriorated away from home'
Your results	» How did you measure success? What metrics were used to demonstrate success? » Describe the success of the change you made/are making based on the triple aim outcomes of LCAV	» 'We reviewed the patients that we gave the app to via telephone. We got a positive feedback from them' » 'I could spend more time listening to patient's issues during the consultation because I could direct them to the app for further education at home' » 'Patients feel empowered by education and more confident after their review'
Better outcomes, experiences or use of resources	» What has the impact been for patients? » Have you had any patient/family feedback since you introduced TECS for delivery of care?	» 'I have had a positive impact back from patients' » 'Parents have been excited about knowing their children have an action plan with them at all times. What teenager has ever not got a phone in their hand? Great way of pushing education and compliance'
Sharing the learning	» What did you learn from your experience of adopting TECS as part of your action learning? » What were some of the challenges in the change or adoption of TECS? » What advice would you give others?	» 'I was slightly apprehensive to start with because I am not TECS savvy. However, once I got into it and started to adapt my skills around TECS I felt quite confident to help others get started' » 'It was easy to understand, and using the course handbook was helpful and straightforward' » 'I have promoted the app to other nurses locally and they are keen to use it in their practices too'
What is happening now?	» What is the situation in your practice following your attempts to adopt TECS around minimising unwarranted variation, for example improving clinical management or patient empowerment of their health condition(s) or lifestyle habits?	» 'We are now TECS happy, and using Facebook, Skype and apps daily or weekly' » 'I am encouraging the GPs and the healthcare assistant to use TECS in their daily practice' » 'I would like to have more patients using apps to support them in quitting smoking, reducing alcohol intake, and to help with medication compliance issues and timing'
Additional information	» Anything else you want to add describing your learning from this action learning to become a digitally enabled practice nurse?	» 'It has been a great addition to my existing role and I am excited to continue in this way of care delivery with patients'

(Chambers et al 2018b)

find that remote access to their patients by video consultation, telehealth or social media enhances their productivity. One district nurse teacher at a recent digital nursing conference commented that this is already happening: 'We use telehealth, digital photography and video conferencing to support, enhance and empower staff.'

As the two case studies show, ALSs can offer huge boosts to productivity and improve management of patient care in the community. Further links by digitally ready GPNs are being made in community and secondary care settings, with TECS for wound care along the tissue viability delivery pathway (RCN 2018).

Table 4. Themes related to perceived benefits and risks of adopting technology-enabled care

Patient or carer – potential benefits

More convenience	» Rapid response to health issue » No travel to surgery, clinic or hospital when using telehealth or video consultation » Patient or carer has no need to take time off work for remote consultation
Enhanced self-care	» Better medication or intervention adherence and clinical outcomes » More networking, for example through social media, and reduced isolation » More confidence in shared management of health condition or lifestyle

Patient or carer – potential risks or unintended consequences

	The patient: » Does not have smartphone or technology-enabled care (TEC) equipment, which increases healthcare inequalities » Cannot afford Wi-Fi or data-download tariff » Lacks skills or confidence to use TEC » Uses app with untrustworthy content » Misinterprets TEC messages or feedback leading to unsafe self-care » Has not given explicit consent to engage with clinician in TEC or to participate in evaluation

Clinician – potential benefits

Improved productivity	» Reduced need for face-to-face appointments because patients can use telehealth or video consultation, or their self-care has increased » Fewer patients did not attend » More efficient skill mix » Easier to arrange integrated care or multidisciplinary team TEC delivery » Patients are more responsible, and more likely to pursue agreed shared care and avoid healthcare use » Prevention enhanced by risk prediction, leading to lower mortality or morbidity
Improved clinical outcomes	» Higher prevalence rates of long-term conditions as more patients diagnosed through risk prediction or screening, for example for atrial fibrillation » Patient adherence to medications or interventions improve clinical management and best-practice goals, for example in reducing hypertension
Improved patient safety	» Quicker response to patient alerts of deterioration of condition, for example by agreed automated messages » Clinician can delegate decision-making about care to patient or carer

Clinician – potential risks or unintended consequences

	The clinician: » Has limited TEC so it is difficult to demonstrate to patients » Recommends apps with untrustworthy content » Lacks the skills or confidence to use TEC » Lacks capacity to use TEC or gather evidence of, for example, changes in clinical outcomes, reduced 'did not attends' or healthcare use, for evaluation » Needs extra face-to-face appointments after remote consultations, which increases workload » Finds that patients are nervous or anxious about TEC consultation » Realises retrospectively that a patient does not fit selection criteria for TEC

Programme improvements

After the final session, five participants said they were still 'digitally worried' (Figure 2). However, by the time of the phone survey two months later, four of these had increased markedly in confidence so that only one of the 24 participants who completed the programme could still be described as 'digitally worried'. This nurse described struggling with being the only GPN in her practice and felt isolated, despite support from the ALS team's expert nurse facilitator.

Perhaps unsurprisingly, nurses tended to perform well when they initiated informal study groups using instant messaging and video consultation so that they could share learning, challenges, ideas and progress with one another. It is recommended that such instant messaging groups are encouraged in initial ALS sessions to ensure that all participants feel supported and can reach their full potential as the action learning progresses.

Although a closed social media group was created for the participants, there was little interaction and only three of the GPNs actively participated in it. The instant messaging group was regarded as much more accessible and beneficial for ongoing interactions.

Limitations

Although data demonstrate the use of TECS in practices before the start and at the end of the project, collecting more information about the uptake of TECS after the ALS sessions would have been useful to identify trends.

The project did not collect data from patients about how they felt using digital technology, so their perspectives could not be evaluated directly. Findings are limited due to the size of the project, with 27 volunteer nurses recruited from 21 practices across Staffordshire. Of these, 24 completed the programme, a small sample.

However, it is worth noting that the nurses were all volunteers, and covered a range of experience and age, and their practices had varying registered patient population size and levels of deprivation.

Conclusion

By focusing on unwarranted variation and common local LTCs where change is most possible, clinicians can endorse applicable digital technology to deliver the right care at the right time, enhancing the effectiveness and efficiency of patient-centred care. When patients understand and own their LTCs, such as COPD, they should increase compliance and so have better health outcomes and lessen their use of healthcare (Collis et al 2014).

The design of this ALS programme shows that practical hands-on training with nurses who are committed to a digital future, even though some are 'digitally worried', is an effective way to create digital champions, who can implement TECS in general practice. This has resulted in benefits for practitioners and practice management, greater self-management and patient safety, better productivity and empowerment, enthused proactive team members and fewer avoidable face-to-face consultations and phone calls. If such supported action learning were introduced on a larger scale, a digitally ready workforce could be created at scale, and could prioritise TECS for the right patients according to clinical need. This could make huge improvements in healthcare delivery nationally, not only among GPNs, but among health and social care practitioners from different care settings.

The ALS programme is being introduced in other regions and will contribute to the next stage of the digital healthcare revolution, ensuring that TECS are firmly embedded in the NHS (NHS England 2019).

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