Service Innovation and Advanced Nursing Practice: Digital Solutions in Health and Social Care

Outline proposals from a workshop held 29th February 2016

1. Introduction

The [Cumbria Rural Health Forum](#)[1] has developed the [Cumbria Strategy for Digital Technologies in Health and Social Care](#)[2] and is conducting a number of digital implementation workshops, between October 2015 and March 2016, with the aim of proposing specific ways in which digital technologies should be implemented within a pathway, place or around a particular group of individuals. As with all our activities, workshops bring together professionals from the public, private and third sectors, linking to suitable technology providers as needed. The [scope for our work on digital technologies](#) includes telemedicine, telehealth, telecare and assistive technologies, e-health products and services that are commercially available[3] .

This fourth digital implementation workshop focused on Service Innovation and Advanced practice: Digital Solutions in Health and Social Care, with contributions from [Advanced Nurse Practitioners](#)[4] currently employed within the health economy of Cumbria. They were asked the question "How can you use digital technology to improve health and social care in Cumbria in your practice?"

The objectives described and reported here are:

- Discuss key themes in practice where service innovation or improvement is needed.
- Share examples of existing innovation, technology use and good practice across the region and wider, highlighting successful implementation.
- Brainstorm and propose opportunities for implementing digital technologies to address barriers to improving health and social care in their respective roles.
- Agree actions for -for the group to influence change.

2. Identifying the key themes

Prior to the workshop activity, the participants had met to discuss common issues, not specifically digital, which limit successful care delivery. This activity was an agenda item on a CPD workshop led by Dr Tilly Read, Senior Lecturer, University of Cumbria, supported by Angie Reynolds, Clinical Matron and Senior Advanced Practitioner, Cumbria Partnership NHS Foundation Trust. This forum for discussion identified a number of themes:

- Geography – The rural nature of Cumbria dictates extended travelling time for both patients and community based health and social care staff with associated costs.
- Organisation – Primary, secondary, tertiary and third sector services are not always connected and standardised in their approach to service user interaction. This can be compounded when working outside of normal office hours.
- Clinical – Access for clinicians for advice and guidance, in particularly out of hours, can be difficult but could reduce unnecessary future consultations and clinic visits.
- Staff – The Cumbrian health economy is experiencing difficulty retaining and recruiting health and social care staff, which is exacerbated in more rural areas and the western part of the county.
- Information – Service user records and history are not always available and accessible.

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[1] See www.ruralhealthlink.co.uk
[2] See http://www.ruralhealthlink.co.uk/about-us/cumbria-strategy-for-digital-technologies-in-health-and-social-care/
[3] See http://www.ruralhealthlink.co.uk/assets/uploads/reports/Briefing_paper_Digital_technologies.pdf for a fuller discussion
[4] See http://www.nursinginpractice.com/article/role-advanced-nurse-practitioners

- Broadband access – fast internet access in Cumbria is not available in all areas, with many premises having less than 2Mbps or less.
- IT – Infrastructure, hardware and software utilised by the diverse range of services is not always on a standardised and shared platform.

3. Sharing examples of existing technology

The Cumbria Rural Health Forum undertook a mapping exercise[5], between July 2014 and May 2015, to identify existing digital health and social care projects within and adjacent to Cumbria. Two mature projects identified were:

- Patient Memoirs[6] – An online community of patients, care givers and health professionals created to educate and assist patients in leading a healthy life. This resource provides a platform for patients to upload a video blog detailing how their particular condition has affected them and how they cope with its affects. Evidence indicates that empowering patients to discuss their conditions, problems and solutions with their peers has positive effects on their quality of life.
- Out of hours stroke assessment and consultation[7] – A telemedicine service delivered through collaboration between North Cumbria University Hospitals NHS Trust and North West Shared Infrastructure Services since July 2012.

Many of the innovations identified in the Cumbria Rural Health Forum mapping exercise were nurse-led and therefore particularly relevant to the Advanced Nurse Practitioners. Three examples discussed were:

- Telehealth pilot for COPD and cardiac monitoring[8]
- The Florence telemonitoring system using SMS[9]
- Renal home dialysis in South Cumbria[10]

Further reading on digital activities in Cumbria can be found here[11].

3.1 Telemedicine pilots, services and developments

The participants were also given a brief overview of pilot projects being undertaken in Cumbria and further afield. These included:

- Telemedicine in North and West Cumbria
    - Telestroke[12] – operational across Cumbria and North Lancashire
    - Fetal telemedicine pilot[13] – between West Cumberland Hospital and Newcastle Upon Tyne Hospitals NHS Foundation Trust. Funded by Academic Health Science Network-NENC for pilot, equipment investment and evaluation.

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[5] See http://www.ruralhealthlink.co.uk/activities
[6] See http://www.patientmemoirs.com/
[7] See http://www.csnlc.nhs.uk/uploads/files/stroke/training/Stroke_Thrombolysis_across_Lancashire_and_Cumbria_v2.pdf
[8] See http://www.ruralhealthlink.co.uk/activities/list/telehealth-monitoring-for-copd-heart-failure
[9] See http://www.ruralhealthlink.co.uk/activities/list/telehealth-monitoring-by-florencetm
[10] See http://www.ruralhealthlink.co.uk/activities/list/renal-home-dialysis
[11] See http://www.ruralhealthlink.co.uk/assets/uploads/reports/Report_Digital_Activities_in_Cumbria.pdf
[12] See http://www.ruralhealthlink.co.uk/activities/list/telestroke

- Telemedicine elsewhere
  - [Renal telemedicine](#)[14] – home dialysis – operational in Lancashire and South Cumbria
  - [Teleswallowing](#)[15] - remote swallowing assessments to nursing homes in Blackpool
  - [Airedale Hospital](#)[16] - 'clinical telehub' with care homes
  - [International evidence of use in rural contexts](#)[17]

- Data and information sharing
  - E-referrals and resource matching – a project led by Cumbria Clinical Commissioning Group using [Strata](#)[18] software initially to link health and social care providers. Now extended to include palliative care and hospice organisations across Cumbria.
  - [Patient Knows Best](#)[19] – an electronic patient-controlled record that is hosted within the NHS N3 network. It allows patients to securely access their own health information, provides them with the ability to connect to health professionals and enables them to take control of their own health.
  - [Microsoft Health Vault](#)[20] - Health Vault is a leading consumer product, a trusted place for people to gather, store, use, and share health information online.

- Symptoms management and apps
  - [Florence](#)[21] – a mobile app with a structure that can be defined by the professional team to receive alerts and data summaries which can support sufferers of long term illness.
  - [Whzan](#)[22] – a cloud based service for the connection and monitoring of remote devices and sensors, with the ability to send alerts via web, email, texts and social media.
  - [In Health Care](#)[23] – a digital platform connecting NHS clinical applications enabling the sharing of data from clinical applications to GP patient records.

A useful report on technologies set to change healthcare in the future from the King's Fund can be found [here](#)[24]. Cumbria County Council and British Telecom are collaborating on the - [Connecting Cumbria](#)[25] project, to bring superfast broadband to 93% of homes and businesses in the county by the end of 2015.

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[13] See http://www.ruralhealthlink.co.uk/activities/list/fetal-telemedicine-improving-prenatal-diagnosis-and-management-in-cumbria
[14] See http://www.ruralhealthlink.co.uk/activities/list/renal-home-dialysis
[15] See http://www.kingsfund.org.uk/sites/files/kf/media/EBidmead%20Teleswallowing-Presentation%2017062015.pdf
[16] See http://www.airedale-trust.nhs.uk/services/telemedicine/
[17] See http://www.ruralhealthlink.co.uk/assets/uploads/reports/Report_on_international_learning.pdf
[18] See http://stratahealth.co.uk/
[19] See https://www.patientsknowbest.com/
[20] See https://www.healthvault.com/gb/en
[21] See https://www.getflorence.co.uk/
[22] See http://intro.whzan.com/tour/telecare
[23] See http://www.inhealthcare.co.uk/digital-health-platform/
[24] See http://www.kingsfund.org.uk/publications/articles/eight-technologies-will-change-health-and-care
[25] See http://www.connectingcumbria.org.uk/home

3.2 Current Trends and Issues in Service Innovation

Angie Reynolds, Clinical Matron and Senior Advanced Practitioner, Cumbria Partnership NHS Foundation Trust discussed the changing face of the role as an Advanced Practice Nurse. Advanced practitioners should be part of the change agents and collaborate to influence the future innovations within the health economy.

With a changing demographic increasing the number of mobile devices and subsequent increase in digital engagement there will be an ever increasing expectation of service users to play an integral role in their own health and social care management. As a professional, the Advanced Practice Nurse, will be required to think digitally and engage wholeheartedly in the development of, and utilisation of, digital solutions.

Six future trends and their associated technological solutions were identified as significant and a priority for innovative investment in future.

- Focus on prevention – wellbeing, fitness, predictive tools, preventative measures, healthcare wearables, smart pharmacy and mobile applications.
- Promoting patient independence – podcasts and behavioural therapy.
- Minimising avoidable service use – Babylon projects, digital consultations, mobile community and telehealth.
- Diagnostic assistance – istscope, monitors, sensors, smart assisted technology.
- Improved communication – headsets and connecting communities.
- Improved outcomes – study data sharing, Ipee, online health services, sensor technology and Chameleon plastercasts.

Whilst the introduction of digital health and social care is ever increasing, there remain a number of barriers, actual or perceived, to engagement and adoption. The most common which Advanced Practice Nurses will face as drivers of innovation are outlined below.

- Trust – not all stakeholders trust technology.
- Governance – as health and social care becomes more autonomous with a more significant contribution from the service user themselves, there is a perceived lack of clarity of accountability and safeguarding responsibilities.
- Security – in a digital world where many aspects of daily life, such as banking and shopping, are managed digitally there is an ever increasing need to ensure data security. Recent high profile hacking and data loss have identified vulnerabilities in even the most sophisticated security systems which have in turn increased apprehensions of both service users and providers.
- Patient self-diagnosis – the prolific amount of information available online has seen an increase in knowledge of health conditions which could encourage individuals to negate professional support and advice.
- Finance – technology requires investment, therefore there is a need to insure that innovative solutions have a clearly defined cost benefit and patient outcome(s) for a positive return on investment.
- Time – historically many staff are resistant to changes in process or procedure due to a lack of time. There is a need to involve all stakeholders within the development process to ensure consistent engagement.
- Change is difficult – stakeholders may have undertaken a particular service for many years, and the adoption of new methods requiring new skills can be daunting.

- Knowledge – the development and implementation of technology can overtake the groups who will ultimately adopt it, subsequently leaving them with a deficit in knowledge, understanding and the skillset to work effectively.
- Data – is fragmented and not aligned around the patient.

4. Opportunities for implementing digital technologies in Advanced Practice Nursing

Delegates worked in two groups to identify new ideas that could be developed and implemented into their advanced practice regimes. The discussion identified seven ideas.

4.1 Idea 1: Mental health admissions (children)

Concept	Benefits	Barriers
Children presenting with mental health problems may have to wait over the weekend to be seen by a consultant. This is a growing problem with a reducing workforce. Delegates suggested: Access to planning/contingency records to better manage a re-admission (mental health, social services and school nurse records). Access to an advisory specialist re advice/resources to manage patient. Provide patients with tablet device preloaded with software/apps which promote wellbeing in a fun/game format whilst awaiting assessment. This would have benefits to their mental health but also give them an activity to fill the time waiting to be assessed. A central "hub" which could operate out of hours, could even be a national resource, which would allow clinicians to access support for their initial assessment.	To patients, carers and clinicians. These resources could facilitate the reduction in admissions and reduce acute care bed shortages.	Specialists unlikely to discharge patient via video link. Limited resources.

4.2 Idea 2: Outpatient appointment triage (paediatric)

Concept	Benefits	Barriers
Patients can wait up to 6 months for an appointment with a consultant. Delegates suggested: A triage system which would allow them to identify priority patients needing a consultation and other interventions for those who do not need an immediate consultation. Access to a consultant via a video link would support the clinicians to do this effectively.	To patient and carer. The triage system would allow the most urgent cases to be seen as a priority and allow the less urgent to benefit from other support. This would free up consultants time and allow focus on priority cases, resulting in reduced waiting times and improved patient care.	Limited resources.

4.3 Idea 3: Rapid access services

Concept	Benefits	Barriers
Clinicians working in the GP surgery have access to the consultants "clinic list" to allow patients identified as needing urgent review to be added. Delegates suggested: Making this service available out of hours from the CHOC, would be a great benefit.	To patient and clinician. Faster referral. Increased continuity. Fewer staff required.	Record sharing. Access from Cumbria Health on Call (CHOC). IT Systems. Organisational.

4.4 Idea 4: Access to consultants via video link

Concept	Benefits	Barriers
Patients often travel great distance for a follow-up consultation. Delegates suggested: Availability of video/telephone access for patients' follow-up appointments (rather than a face to face consultation).	To patient and clinician. Reduced travel time. Increased continuity.	Limited resources.

4.5 Idea 5: Single point of access – under care of community services

Concept	Benefits	Barriers
Currently calls from patients/GP's come in and are entered onto EMIS system (often by a non-qualified person). Delegates suggested: A single point of access for all referrals (patients already known to community services or will need community services input). This system would allow a face to face conversation via video link (for those already under care of community services); others would be automatically diverted to the 111 service. This would also give access to second opinions.	To patient, carer and clinician. Reduction in travel time. Easier access to information and expertise.	Requires training Equipment required

4.6 Idea 6: Data entry

Concept	Benefits	Barriers
Current need to write (by hand) notes to then duplicate electronically to add to the EMIS system. Delegates suggested: Provision of a hand held device to allow information to be entered when in the community which would then synchronise when back in the clinical environment. The device would also allow access from other systems (and share to other systems) such as private providers of private care.	To patient, carer and clinician. Information more secure digitally than on paper. Reduction in paper/printing costs. Consistency of records/data format. Cross organisational access/sharing. Reduction in storage (archives). Data moves onward to referrals.	Governance. Sharing. Ownership of the "issue"; who and where? Cost.

4.7 Idea 7: Inhaler techniques improvement

Concept	Benefits	Barriers
Many patients use inhalers incorrectly. Delegates suggested: Every care worker interaction should include a review of patient technique and appropriate advice/demonstration. "Make every contact count". Patient access of videos demonstrating good techniques should be made available online via social media.	To patient, carer and clinician. More effective drug delivery. Reduced waste. Better patient outcomes.	Awareness of clinicians and care workers. Sharing of data.

5. Actions to be followed up

Two of the ideas discussed were identified as specific opportunities for short term follow up. Access for the delegates to more general information was also agreed as an action.

Actions:
Idea 2: Outpatient appointment triage (paediatric) Stakeholders intend to return to their respective organisations and raise the concept with the Paediatric Consultant(s) and clinical leads for further investigation.
Idea 3: Rapid access services Stakeholders intend to return to their practices (GP and CHOC) and raise both the issue and the suggested solution. This idea was also discussed with the CCG for advice. Strata is now available to Cumbria Partnership NHS Foundation Trust (CPFT) and North Cumbria University Hospitals NHS Trust (NCUHT), but not yet CHOC (awaiting ability to integrate with Adastra). Organisational leads for CPFT and NCUTH were identified for ease of contact. The CCG lead on STRATA has been forwarded the names of the delegates to allow their engagement in the development of the project to ensure its capabilities meet their needs.
General (a theme across all of the ideas) Several delegates mentioned issues around referrals and finding out what services are available. Delegates were made aware of Strata, which provides e-referrals and resource matching between most health and social care providers. Useful links have been sent to all as listed below: Strata case study[26] Strata presentation[27]

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[26] See http://ahsn-nenc.org.uk/?post_type=article&p=2156
[27] See http://ahsn-nenc.org.uk/wp-content/uploads/2016/03/John-Roebuck-AHSN-NENC-Carlisle-Presentation.pdf

6. Authors and affiliations

The workshop was led and co-ordinated by Andrew Sullivan, University of Cumbria. It was hosted at the University of Cumbria Energus Campus in Workington, Cumbria. This report is produced jointly by all the attendees of the workshop, listed in alphabetical order:

Tom Bell	Cumbria Partnership NHS Foundation Trust
Tracey Bowman	Cumbria Partnership NHS Foundation Trust
Tanya Coates	Cumbria Partnership NHS Foundation Trust
Nichola Hewitson	North Cumbria University Hospitals NHS Trust
Helen Jackson	Queens Street Medical Practice
Gillian Lockhart	Cumbria Partnership NHS Foundation Trust
Alison Marshall	University of Cumbria
Sharon Pavey	Cumbria Partnership NHS Foundation Trust
Tilly Reid	University of Cumbria
Angela Reynolds	Cumbria Partnership NHS Foundation Trust
Nicola Stanaway	North Cumbria University Hospitals NHS Trust
Andrew Sullivan	University of Cumbria

Questions and requests for further information can be co-ordinated by email to alison.marshall@cumbria.ac.uk.