IS HEALTHCARE DIGITAL TECHNOLOGY SPEEDING UP ITS DEPLOYMENT IN COMMUNITY HOSPITALS?

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Community hospitals have been "near to home" providers of UK healthcare for residents with ill health and frailty, for more than a century. The principle of "Step up" and "Step down" care was embedded in community hospitals' admission models long before the NHS was formed. Today "Step up" and "Step down" is highly valued as a local community service providing affectionate care and easy access to family support.

The hallmark of good community hospitals has been their committed dedicated staff often with locality connections.

Since the 1960s, when healthcare digital technology began to make a significant impact on healthcare delivery, community hospitals have observed, rather than experienced, the full benefits of technology based transformation.

The universal move to keeping patient records electronically has impacted community hospitals, but there is still visibly more retention of paper records in various community hospitals, I visit, than in leading acute hospitals. Digital aids that encouraging healthcare delivery efficiency are commonplace for tasks such as scheduling of staff and patient activity. More digital technology enhancements are arriving in community hospitals, courtesy of their implementation in a local acute hospital. An example is the electronic Prescribing and Medicines Administration system.

All such initiatives benefit patients in a general sense, but patients regularly ask me, "how will these digital initiatives improve my healthcare outcome?".

How are Community Hospitals contributing via digital health to enhancing patient outcomes?

Enabling patients to access additional clinical expertise is one such area. Online consultations of community hospital patients with specialists in other hospitals is a frequent feature. In North Wales, an on-line consultation system commenced in Dolgellau, Tremadog and Pwllheli community hospitals as long ago as 2013. It was most useful during the Covid pandemic.

Increased patient access to quality diagnosis skills is another. Many community hospitals offer diagnostic services to patients, where the analysis is supplemented over a link to a remote specialist clinician. This has long been the case with imaging such as X-ray. We now have examples of community hospitals services including echocardiology analysis, ultrasound interpretation and pacemaker remote monitoring, all performed at a distance. All remote diagnostic links benefit "step up" patients by improving their outcome prospects. Remote

diagnosis aids also benefit “step down” patients who need step down monitoring and reassurance.

But using digital technology to enhance patient outcomes is going further!

A Personal Experience

I recently benefitted from a personal experience of technology aiding a patient’s education. Unfortunately, my wife had a stroke and her right arm was effectively frozen. After a week of acute treatment, she was transferred to Eryri Community Hospital in Caernarfon for physiotherapy.

As part of her relearning programme, she was quickly trying to improve her grasp, grip, pinch and overall movement with blocks, balls and pegs, etc. Progress was painful and slow. She also expressed the view that playing with blocks, balls and pegs, etc was boring! On the second day in Eryri hospital, she was offered to join a virtual reality trial. She agreed immediately.

Virtual Reality education is not new in community hospitals. Dolgellau community hospital used it successfully in supporting the education of student nurses, who were obtaining practical nursing experience in a remote rural area.

The virtual reality learning experience offered to my wife as a patient, was an active one using a head mounted display (HMD). She was instructed to catch small blocks with either her good hand or her “frozen” one. Gradually she became more confident about using her “frozen” hand. She was unaware of her evaluation scores but as she chose to use her “frozen” arm more and more often, her positive scores increased.

The benefit from the VR exercise was greater than the gain that she enjoyed from just the actual HMD sessions. She enthusiastically described the VR exercise to her bedside visitors and as she did so, she practiced the hand and arms movements subconsciously over and over again.

It was not her view that a similar gain could have been made if she had used a “passive” VR on a “tablet” at home. Access to a HMD, and locating the aid in a community hospital where multiple patients could use it, offered a big accessibility advantage

My wife’s eyesight had not been affected by the stroke , but the VR system included colour variations which may have helped patients who experience eyesight changes. Even with VR, catching brick cubes became a little boring with time. When asked what might have made her to react faster, my wife replied, “if one of them had looked like a McDonalds!”

The evaluation of the trial will document the full extent of the benefit of VR. A Cochrane review, undertaken by clinicians in Australia, confirmed that there is a benefit for stroke victims who use VR in addition to other therapies in their hand and arm recovery.

As an informed observer rather than a clinician, my view is that she made a significant mobility recovery on the ARAT scale, much quicker than I had expected. The hand actions, that she had demonstrated frequently to visitors when describing the virtual system, in my view, were most valuable extra practice.

The trial is part of a new research programme — Basic science inspired XR gaming for upper-limb rehabilitation (https://sites.google.com/site/kfvalyear) (k.valyear@bangor.ac.uk) — led by

Dr Ken Valyear, from Bangor University's School of Psychology, in collaboration with Dr Panagiotis Ritsos and Dr Peter Butcher from the School of Computer Science and Engineering, and Mr Karl Jackson and his clinical team at Ysbyty Eryri Community Hospital. The study is currently at an early feasibility stage and is supported by an ESRC Wales DTP studentship to PhD candidate Ronan Timircan.

Where should VR in community hospital stroke physiotherapy go next? My non clinical thoughts are VR might be used for leg muscle toning. Can VR also benefit patients needing recovery from fatigue, I wonder? Leg mobility and fatigue appear to be the most challenging issues for many stroke recovery patients. To date studies indicate that VR encourages better balance but there is less evidence of it improving muscle strength.

Is Digital Transformation still a "Cinderella" in Community Hospitals?

Perhaps Community Hospitals Association members can express their views. Many parts of the NHS are now benefitting from Ambient Voice Technology (AVT). There are multiple systems in operation in primary care world wide, with well known examples of AVT systems in mental health and paediatrics.

In the UK the only AVT pilot in a community hospital, that I am aware of, was in Kent and I understand that it has now been paused. The Nuffield Trust evaluation on AVT, records A&E settings and GP surgeries as the most popular areas for usage. It sees outpatient clinics as a promising area for AVT support in community hospitals.

In community hospital settings in overseas countries, AVT is used for rehabilitation progress notes, therapy session documentation and discharge planning documentation. The opportunity for more healthcare digital technology in community hospitals still exists!