Multidisciplinary working to develop teletriage and streaming services

Overcrowding in emergency departments (EDs) is a known global problem (Morley et al, 2018), putting patients at risk of nosocomial infection (Royal College of Emergency Medicine (RCEM), 2020a; Schechter-Perkins et al, 2011) and creating delays in care. Although most people who seek urgent or emergency care need help, many do not necessarily require immediate care (O’Keefe et al, 2018). Some patients may need primary or social care, or have underlying problems (such as frailty or poorly managed respiratory conditions) that manifest as acute care needs (Craswell et al, 2016). These patients receive care at EDs, but it is not necessarily the best option for their ongoing wellbeing and/or recovery.

The Covid-19 pandemic has exacerbated these issues and brought them into the public gaze. Interest in telemedicine has been growing in recent years (Frid et al, 2020; Haimi et al, 2020), but between March and June 2020, when strict social distancing measures of lockdown were in place across the UK, demand on NHS 111 and NHS digital services increased across Wales and England (NHS England and NHS Improvement, 2020; Stats Wales, 2020), as did reliance on telemedicine for GP and other primary care appointments (Jaffe et al, 2020). The pandemic prompted a UK-wide reconsideration of how NHS 111 could be used. In Lincolnshire a system called Talk Before You Walk was launched, allowing patients to use NHS 111, apps and other digital tools to make urgent care appointments, arrange a prescription, or book a digital consultation with a clinician, among other things.
Framework
In Wales, several frameworks for unscheduled care are being developed by clinically led teams at the request of the Welsh minister for health and social services, including a national ED quality and delivery framework (EDQDF). One of the main aims of the EDQDF is to link services across Wales and prevent silo working, while allowing for local differences. Since 2018, the clinicians and professionals working towards this aim have worked with ED staff across Wales to find out ‘what good looks like’ for emergency care.

As part of this approach, the EDQDF programme team organised and hosted a series of workshops for frontline clinicians – including ED doctors, triage nurses and paramedics – during which attendees mapped out their departments to identify where, and why, problems arose. One recurring problem noted by delegates was that it has become normalised for triage nurses to do many extra tasks that distract from their main duty of providing timely triage to patients. After considering the problems, attendees drew up their ideal (but realistic) ED, looking at potential solutions to the problems faced and ways to minimise risks posed by pre-triage waiting times.

In December 2020, this work was collated into a single document to create a draft triage and handover map. This was a visual depiction of the optimal triage model, according to the insights of staff and supported by research-based guidance from the RCEM relating to triage and handover protocols, such as the recommendation that patients should wait no longer than 15 minutes from arrival for triage (RCEM, 2017).

The map includes a streaming hub, which is a space for health professionals to stream appropriate patients into direct access pathways for specialties and/or social care services. The RCEM recommends the use of streaming in EDs, which – according to its own definition – is different to navigation: streaming to another part of the ED, whereas navigation refers to streaming to another ED, which is a space for health professionals to observe and/or self-care, whether this be physical or virtual. This is the least developed aspect of the model and is currently being explored and defined.

In late January 2020, the same group met at a two-day workshop to test the handover and triage map with fictional patients. The insights from the workshop were then used to adapt it further. The redraft was due to be shared with clinicians for critique and continued development, but the coronavirus pandemic led the clinical team to reassess the work for the existing context instead. This work produced the first iteration of what is known as the Welsh Access Model (Fig 1), a model of care created in response to the Covid-19 pandemic, but based on the workshops described above and evidence-based guidance.

Virtual streaming
The ethos underpinning this model is a telephone-first approach that links patients to a virtual version of a streaming hub. The streaming hub that was developed by frontline staff at the workshops was redesigned in light of Covid-19 so that NHS 111 – or similar virtual services – became a proposed access point for urgent care. The main components of the Welsh Access Model, which is still under development, are as follows:● A phone/contact-first option for patients who are sure they need care, but are not sure if it is urgent. If a patient phones and has worrying symptoms, they will be told to attend their ED immediately or call 999. Other patients, such as those with a minor injury, might be given an arrival time, allowing for some control over the number of patients arriving at the ED at any one time;
● A clinically staffed streaming hub that can be accessed digitally by patients who need care but whose needs are unlikely to be best met in an ED. This could give the patient access to an appropriate specialty, a GP or a community service, or a link to a telemedicine service;
● A wait-and-care facility or protocol for patients who need some form of observation and/or self-care, whether this be physical or virtual. This is the least developed aspect of the model and is currently being explored and defined.

Although collated by the central EDQDF team, the model is underpinned by the perspectives and expertise of emergency care staff across Wales. It is a work-in-progress model or blueprint to support a joined-up approach to emergency care in the devolved nation.

Tabletop exercise
At the same time that the Welsh Access Model was being adapted, healthcare providers began to react to the pandemic and the EDQDF team have continued talking with emergency care staff to build on, support and learn from local projects. The tabletop exercise described here is an example of the work being done to support local development, while keeping broader integration in mind. Staff involved with the delivery of care have important knowledge that can support the development of new programmes but these insights are not always pooled. A multidisciplinary team or tabletop approach connects staff with complimentary knowledge to share their expertise and offer a range of perspectives.

The RCEM (2020b) released a statement welcoming the increase of contact-first style initiatives. There is an appetite across Wales and the rest of the UK to use technology to minimise the spread of infection in EDs and new services are being developed at pace to cope with the pressures of winter and Covid-19. Although NHS 111 gives some indication of how new contact-first services could work, the increased emphasis on pre-hospital streaming and ED booking for patients is fairly novel.

To support the development of the Welsh Access Model, a tabletop modelling exercise was used to gain insight into how teletriage could be used to stream patients to the most suitable services, allowing them to access the most appropriate care sooner; this could be through an appointment in primary care or direct access to a specialty. The streaming hub could even be an access point for telemedicine, providing access to a clinician who can provide care virtually using video consultation and other technologies. These options are being explored and the eventual system design will be based on staff experience and insights, relevant RCEM (2017) guidance, local evaluations and peer-reviewed evidence.

The first proposition the tabletop modelling exercise aims to test is that:
● Patients can reach the most appropriate service(s) to their need(s) earlier in their journey through teletriage and streaming, with the development of direct access pathways.
If this is the case, some secondary potential benefits could be:
● A reduction in crowding at the ED;
● A potentially safer ED through a reduced risk of infection.

The busiest day for Cardiff’s
What good looks like for the Emergency Department

Developing a National Quality & Delivery Framework for the NHS in Wales

REDESIGNING ACCESS TO EMERGENCY CARE DURING COVID-19

Fig 1. Welsh Access Model

Clinical Practice
Discussion

State: NHS Wales National Collaborative Commissioning Unit (Bit.ly/WelshAccessModel)

Source:

1. GROUP 1: You need Emergency Care immediately within the Emergency Department (Triage Score 1 & 2)
   - Access the Emergency Department

2. GROUP 2: You need medical care imminently or at an agreed later stage via ED appointment or Secondary Care Direct Access Pathway/Wait & Care Facility (Triage Score 3 & 4)
   - Remain within ED

3. GROUP 3: You need supportive care or intervention with activities of daily living but do not need emergency or urgent medical care (Triage Score 4 & 5)
   - Access Streaming Hub for Direct Access Pathways/Wait & Care and ED appointment system

4. OPTION 1: Press 1 if you feel you have a life-threatening emergency and require an ambulance
5. OPTION 2: Press 2 if you have symptoms or questions regarding COVID 19
6. OPTION 3: Press 3 if you need to make an appointment in your Department
7. OPTION 4: Press 4 if you are calling for advice regarding any other health matters
8. OPTION 5: Press 5 if you are calling for advice regarding other health matters

STREAMING HUB
ACCESS BY:
- WAST Clinical Desk
- Paramedics / Clinician after Face 2 Face assessment
- Physician in Control
- Access Streaming Hub for Direct Access Pathways/Wait & Care and ED appointment system
- Access Streaming Hub with and without Follow up

HOME SELF CARE
- Direct Access Pathways/Wait & Care
- ED APPT

PATIENT RINGS 111
- Phone
- Dental Hub
- Pharmacy
- Emergency Contact Centre
- Social Care
- Local Authority / Housing / Homeless

HOME SELF CARE
- Direct Access Pathways/Wait & Care
- ED APPT

ED
- Cat 1 & 2 patients stay
- Cat 3, 4, 5 considered for Streaming Hub

CLINICAL CONTACT CENTRE
Staffed with:
- EMD
- Allocators / Dispatchers
- Duty Control Manager
- Clinical Support Desk
- Acute Physician
- EMS RESPONSE

SELF CARE
- Direct Access Pathways/Wait & Care
- ED APPT

MINOR INJURY UNITS
- Clinical / Specialty Doctors with oversight of Direct Access Pathways / Wait & Care
- Triage Nurse
- Booking Clerk
- Ali Ps
- Specialist Attendee Teams
- Social Care
- Local Authority / Housing / Homeless

COMMUNITY HOSPITALS
- Self Assessment
- Mobile & Walk-in

Mental Health
- Community / Triage
- Virtual Primary Care

3rd Sector
- Frequent Attender Teams
- Triage
- Social Care
- Local Authority / Housing / Homeless

MEDICAL RESOURCES: TENTS / SHIPS

Community
- 3rd Sector
- Triage
- Social Care
- Local Authority / Housing / Homeless

DIRECT ACCESS PATHWAYS - SECONDARY CARE
- Direct Access Pathways/Wait & Care
- ED APPT

应急部门病人

病情等级分组

1. 组1：需要立即的应急护理
   - 访问应急部门

2. 组2：需要立即的医疗护理或在与特定部门或区域的护理人员商定的较后时间
   - 保持在ED内

3. 组3：需要支持性护理或介入，但不一定需要紧急或急迫的医疗护理
   - 访问直接访问路径/候诊区和ED预约系统

4. 选项1：如果您觉得需要立即的医疗紧急情况，并要求救护车，请拨打1
5. 选项2：如果您有关于COVID-19的症状或问题，请拨打2
6. 选项3：如果您需要在您的部门预约，请拨打3
7. 选项4：如果您需要关于其他健康问题的建议，请拨打4
8. 选项5：如果您需要关于任何其他健康问题的建议，请拨打5

来源：NHS威尔士国家合作联合委任单位（Bit.ly/WelshAccessModel）
emergency unit in 2019 was identified (18 November) and patient notes were gathered for that day. With colleagues from the emergency unit, the EDQDF programme team worked through the notes, one patient at a time, to see what could have happened if the Welsh Access Model was operational and the patient had telephoned first.

The attendees of the workshop had a varied skill mix and included:
- Two EDQDF lead nurses, both of whom were experienced triage nurses;
- ED consultant;
- ED controller (role involves working with a nurse and monitoring ambulance arrivals);
- Paramedic;
- Paediatric charge nurse;
- Out-of-hours clinical director;
- EDQDF project lead (to provide administrative support).

Anonymised patient notes included the following data:
- Age;
- Arrival mode;
- Presenting complaint;
- Manchester triage score (a risk classification system widely used in emergency medicine);
- ED area (such as minor or major injury unit);
- Disposition.

The group facilitator withheld the outcome of the triage and disposition to recreate triage as closely as possible. Using patient notes, the group triaged each patient and then considered what the outcome could have been if the Welsh Access Model was in place. This meant asking whether the patient could have benefitted from one of the following:
- Immediate attendance at the ED;
- An emergency medical services response;
- An ED arrival time;
- A direct access pathway;
- Remaining home but receiving a follow-up – for example, from social care or third-sector staff;
- Wait and care – a concept that is part of the Welsh Access Model and still in the early stages of development;
- Self-care at home following advice.

A direct access pathway would involve a referral to a specialty – such as surgery, ear nose and throat, or paediatrics – allowing patients to bypass the ED waiting room. This approach has been somewhat influenced by the collaboration and cooperation that has taken place between emergency units and specialties in Wales during the pandemic.

The option to remain at home and have a follow-up is similar, but would provide access to primary or third-sector care, or perhaps even frequent-attender or frailty teams that could either create a care package or ensure any current care packages were adhered to or updated according to need.

These two activities would rely on streaming services that are not currently in place but could be developed.

Results
The modelling found that, of 446 patients who self-presented at the ED that day:
- 31% could have benefited from a direct access pathway;
- 36% could have used an ED arrival time;
- The remainder were suitable for usual care.

Of the 68 patients who arrived in an ambulance:
- 25% could have benefited from a direct access pathway;
- 2.9% could have scheduled their arrival time;
- The remainder were suitable for usual care.

Once all of the patient notes were considered in this way, the group looked to see what actually happened on 18 November 2019. There was also a follow-up meeting to consider any unintended consequences and to find a preliminary indication as to whether this service would have caused patient harm.

When checking the data, the team found that their imitation of teletriage corresponded with the disposition options. This exercise suggested that time and resources could be saved for both the patient and staff through the phone/contact-first streaming model by directing patients to the right place earlier in their patient journey. It also could have prevented unnecessary attendance.

In addition to identifying whether a patient can be directed in this way, it is important to find patterns in where
patients would be streamed, to understand where relationships and pathways need to be developed. Further, it sheds light on which specialties, third-sector or primary care services would need to provide insight as to how their system would cope. At Cardiff and Vale University Health Board, the direct access pathway with the biggest demand was surgery (Fig 2).

At the time of the modelling exercise, there was no ED booking system, but this has now been established in Cardiff and Vale, with participants in the modelling exercise supporting this work. CA$V/4, a phone/contact first ED booking system is now operational for patients in the Cardiff and Vale University Health Board area to give suitable patients an arrival time to help control flow into the ED.

Repeating the exercise
The process was repeated with colleagues from Aneurin Bevan University Health Board. Building on the experience of the previous exercise, we decided to include a more diverse skill mix to better understand how other areas of the health system would cope with patients streamed to them and to begin conversations about how services could work together through them and to begin conversations about how other areas of the system would cope and what shifts would need to occur, in terms of additional staff or resources, to ensure patients would receive the most appropriate and timely care.

Next steps
We intend to engage with specific specialties, the planning and operational workforce, and staff working in community-based services to reconsider the findings of the initial exercise. We also hope the results will be analysed by external researchers at the NHS Welsh Modelling Collaborative. The aim is to better understand how other areas of the system would cope and what shifts would need to occur, in terms of additional staff or resources, to ensure patients would receive the most appropriate and timely care.

Box 1. Key learning points
This style of multidisciplinary team modelling to test potential service use helps to connect the knowledge of those working in different areas and has now been adopted by several health boards in Wales. The following key learning points were identified by the research team:

- The staff mix should not be too rigid. It should be diverse, include representatives from across the care system and be informed by the type of demand that is described by emergency and NHS 111 staff – in other words, use local knowledge
- The table-top approach encourages conversation and team building, as well as mutual understanding. Participants should undertake it together where this is possible
- A modelling exercise can be a way to engage with, and build relationships between, staff working in separate parts of the system. Inviting specialties and primary care representatives to participate enriches the knowledge gained and facilitates mutual understanding of pressures
- It is important to start conversations about the potential effect on other departments and to ask how other parts of the system would cope with the number of patients streamed to their services
- Consultant paramedic;
- Consultant nurse;
- Planning manager;
- Frequent attender lead;
- EDQDF project manager.

Repeating the exercise in a different location shed light on the:
- Variation in patient demographics;
- Importance of not presuming a service provides a ‘one-size-fits-all’ solution.

Patients arriving at the ED in the Gwent/Newport area of Wales had more complex needs, which were not so easily managed by the contact-first approach, however there was a significant minority of patients who would have benefitted from direct access to specialties.

Although the aim is to achieve integration and equality of care – through connected data systems, shared software and access to services, this should not come without recognition of local knowledge and differences. Through these exercises, we identified four key learning points (Box 1).

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