Interdependencies or Integration? A Qualitative Evaluation of a National Emergency Department Improvement Programme

Abstract

Background: In Wales (UK), a programme known as the Emergency Department Quality and Delivery Framework (EDQDF) was launched in 2018 with the purpose of designing a framework of *what good looks like for emergency care* and then implementing this framework in a measurable and sustainable way.

Objective: To evaluate a collaborative improvement project for Welsh emergency departments, and identify barriers and facilitators to implementation.

Methods: A gatekeeper emailed attendees of the EDQDF launch event (n=70), providing recipients with an information sheet and inviting them to contact the researcher (KJ) if they agreed to be interviewed. We conducted semi-structured interviews with all respondents (n=8) after three invitation rounds sent between August and October 2021. We used a thematic analysis approach (Braun and Clarke 2006).

Ethics: Ethical approval was granted by Cwm Taf UHB Research and Development Department on 12th July 2021 and given a favourable ethical opinion from Swansea University College of Health and Human Sciences Ethics committee (reference 180521).

Findings: Participants agreed with the aims and design of the framework, and we identified four themes relating to barriers to and facilitators of implementation. Participants perceive a softening of geographical boundaries through the project, but findings correspond with evidence generated elsewhere regarding EDs' system-wide interdependencies and a need for cross-organisational collaboration.

Recommendations: Implementation work on this project may benefit from engaging with primary, secondary and/ or community care agencies to support this process.

Limitations: This evaluation relies on a small number of participants. Further research is required to examine the impact of the framework's implementation on patient care.

Introduction

The ubiquitous pressure under which emergency departments (EDs) operate is well-documented. In the UK, the four hour target for EDs is likely the best-known health-related measure, and the visibility of ambulance queues outside the ED are familiar scenes in the British media and perhaps the most conspicuous site at which the challenges to providing integrated care manifest themselves. While a 'porous' space (Nugus *et al* 2010) in some respects, the ED also constitutes a boundary between organisations with potentially conflicting priorities or challenges (Sujan *et al* 2015) – for instance, limited space to receive patients into the ED waiting room might be in conflict with ambulatory demand in the community and pressure to meet ambulance response targets. While the boundary between ambulatory and ED-

based services constitutes a highly visible symptom of failure to provide patient-centred integrated care, it is often noted that overcrowding in ED is related to less visible failures to integrate services – such as delayed admission to specialties from the ED in cases where there are no ward beds available (Sujan *et al* 2015) or delays to providing care packages for people who require community support in place before discharge (Limb 2022). In addition to these practical problems relating to access and capacity, tension at the interface between organisations or services also hinders integrative practices (Sujan *et al* 2015; HIW 2021). The point at which a patient is ready to move on to another service is regularly fraught and can be thought of as a 'grey zone' in which responsibility for the patient is unclear or contested (Apker *et al* 2007). Research recommends process improvement approaches and collaboration across health services and organisations to achieve integration (Volochtchuk and Leite 2022; Sujan *et al* 2015).

In Wales, design of an Emergency Department Quality and Delivery Framework (EDQDF) began in 2018 using a quality improvement method called CAREMORE® (Figure 1). The framework is comprised of processual improvements (known as "pathway improvement projects") and aims to reflect a cross-organisational, interdisciplinary and national agreement of what "good" emergency care looks like. This focus on processual improvements *and* collaboration aligns with the recommendations for working towards integrated care outlined above (Volochtchuk and Leite 2022; Sujan *et al* 2015). However, given the thorny and complex nature of collaborative relationships, this evaluation considers the quality of the interdisciplinary working facilitated by the EDQDF programme, and the barriers and facilitators to the framework's ongoing implementation according to those who participated in its development. This article reports the findings from semi-structured interviews with participants involved in the framework's development (2018-2020) and early stages of its implementation (2019-present). The interviews reflect perspectives on the work up until December 2021; the framework's implementation is ongoing. First, some background regarding CAREMORE® and the EDQDF programme structure to contextualise the emerging themes.

Background: CAREMORE® and the EDQDF

The National Collaborative Commissioning Unit (NCCU) is a cross-organisational commissioning body which works with Welsh government, the Welsh ambulance service and local health boards to 'deliver national commissioning programmes' (The NCCU, no date). A national entity, the NCCU aims to link health services and avoid repetition through what

policies and health services refer to as “once for Wales” strategies. The NCCU hosts commissioning services for ambulatory and Emergency care with the aim of generating ways to link services in the imagination of NHS managers through a shared language that frames services in terms of “steps” and “care standards”, as well as co-designed measurements that reflect the patient journey across services – from calling an ambulance, to ED discharge/ admission. In 2009 NHS Wales underwent a restructure by which twenty-two local health boards became seven local health boards, with the aim to produce ‘integrated organisations that can provide seamless care’ (NHS Wales 2009: n.p.). In other words, there is a broad policy aim towards integration of health services in Wales. The NCCU’s role within this broad aim is to collaboratively develop commissioning frameworks using a shared language across systems – this is in line with understandings of integrated care as ‘creating ‘a common structure between independent stakeholders’ to co-ordinate ‘their interdependence in order to enable them to work together on a collective project’ (Kodner and Spreeuwenberg 2002: n.p.). More information regarding the context specific to Wales and CAREMORE® is available elsewhere (Holland 2010; Nelson *et al* 2018; Figure 1).

The EDQDF is co-directed by a former ED consultant and senior quality improvement manager. The programme’s self-defined purpose mirrors the quadruple aim described in Welsh government’s *A Healthier Wales: Our Plan for Health and Social Care* – see table 1.

EDQDF Quad Aim	A Healthier Wales Quad Aim
Improved clinical outcomes	Improved population health and wellbeing
Improved patient experience	Better quality and more accessible health and social care services
Value for money	Higher value health and social care;
Improved staff experience	A motivated and sustainable health and social care workforce

Table 1: The Quadruple Aims

In support of the EDQDF, the NCCU employed a project manager and seconded several clinicians: a clinical lead (a senior nurse, 2019-March 2021), and two service improvement managers (a nurse with experience of the ED and Welsh ambulance service, 2019-present; and a radiographer with experience in health service improvement, 2019-April 2020). An assistant director (January 2020-present) and communications manager (December 2020-December 2021) also joined the programme; we refer to these as “centralised” EDQDF roles. The fact

that some roles came to an end is relevant to some of the findings regarding perceived inconsistencies in leadership.

The EDQDF was designed at a series of national events and workshops attended by ED clinicians (all types and levels), ambulatory staff, Chief Operating Officers (COOs), and other health service employees with representation from all ED sites. As such, it aims towards *national* and cross-disciplinary design with room for local variation; there are three early adopter health boards (i.e. those committed to piloting the framework), accounting for six of the thirteen type 1 EDs in Wales at the time of the project's initiation. Early adopter sites also received funding for local project management (n=6) and to give ED consultants (n=3) and nurses (n=2) protected time to facilitate local implementation. These were contractual posts, which we refer to as "local" EDQDF roles.

Figure 2

Figure 3

Elements of the framework include: a "model of care" (Figure 2) twenty "care standards" (Figure 3), and a "Triage and Handover Map" (Figure 4), with other supportive elements. For example, a set of fifteen new measures for Welsh EDs were designed as part of the EDQDF, three of which have been publicly reported since November 2020. The "Triage and Handover Map" synthesises the outcome of national workshops on the two centrally-led care standards, "2C Ambulance Handover" and "2D Triage". The workshops used flip-chart summaries, process mapping for individual EDs, mapping out "sticking points", an "ideal" ED that could attenuate the issues identified, and from these creating and modelling versions the Triage and Handover Map.

Figure 4

In light of some of the immediate problems facing EDs, five actions were identified and funded by Welsh government on a short-term basis, including: a health care support worker to support triage nurses and "red flag" training for ED receptionists. The researcher (KJ) attended and observed these workshops; we do not report observational findings here, but information regarding the events is available online on the programme's website (see https://nccu.nhs.wales/). The Triage and Handover Map centralises a Streaming Hub, intended as a (virtual or material) point of access to alternative services for appropriate patients and was

modelled collectively at the workshops. It was modelled again using a different approach during the Covid-19 pandemic to test its feasibility as a virtual service (Jones *et al* 2021).

Objective:

We evaluate the design of a quality and delivery framework for Welsh emergency departments against its aims, which are to collaboratively design and implement "what good looks like" for emergency departments in a measurable and sustainable way. Additionally, we are interested in the feasibility of the framework and the barriers and facilitators to its implementation.

Methodology

We provided an information sheet to a gatekeeper at the NCCU, detailing the purpose of the evaluation and inviting participation; the gatekeeper used email to disseminate the information sheet and invite attendees at the EDQDF launch event (n=70) to participate in the evaluation. The same email was sent out three times between August and November 2021 with instructions to contact the researcher (KJ) to participate.

A total of nine potential participants replied, with one respondent not replying to further emails.

We developed an interview schedule that centred around themes such as "the quality of interactions" and specific outputs (Figures 2, 3 and 4), and between August and December 2021 conducted semi-structured interviews over Microsoft Teams with participants (n=8) in the following roles: ED nurse (n=3), paramedic (n=1); policy lead (n=1); project manager (n=2), senior NHS manager (n=1).

All early-adopter sites and three of seven health boards were represented: Betsi Cadwalladr (n=4); Cardiff and the Vale (n=1), Aneurin Bevan (n=1), the Welsh Ambulance Service (n=1) and a policy lead not associated with any health board.

The interviews were transcribed verbatim then thematized (Braun and Clarke 2006) in NVivo (QSR 1.5.1). A second researcher performed independent blind analysis of the transcripts. Themes were reviewed and agreed to establish correspondence of themes and reduce bias.

Findings

The emerging themes with regard to facilitators and barriers to implementation are:

1. CAREMORE®, Designing the EDQDF and Elements of the Framework
2. EDQDF Programme Management

3. Integration
4. Culture (NHS Wales and Welsh political landscape)

While the outbreak of the Covid-19 pandemic is an expected thread, we do not treat this as a theme here. Within each theme there are perceived challenges and facilitators to implementation, which are discussed below.

Design and Outputs: CAREMORE®, Designing the EDQDF and Elements of the Framework

Participants communicated similar broad aims that largely correspond with the stated ethos underpinning the EDQDF such as co-production and Welsh health policy. Most participants remarked positively on the use of CAREMORE® to develop the EDQDF, viewing it as a way to standardise:

> *It's about making things better, streamlining services* (P4).

Participants' responses regarding the EDQDF's purpose recalled the quadruple aim:

> *To improve patient experience. Improved patient care. And to absolutely reduced the number of ambulances queuing outside the front door* (P5).

The CAREMORE® approach was cited as providing a kind of foundation or structure for the framework:

> *the sort of CAREMORE style, we thought we'd have a rigid basis from which we could develop and then start putting all the ideas in place* (P2).

> *it was very well put together, the CAREMORE methodology, I thought, was good, y'know* (P3).

Participants also suggest that the design process provided an opportunity for ED clinicians to reflect on how they, as a faculty, actually define ED care:

> *the EDQDF, for me, their overarching aims were about getting clarity – what are our aims and objectives as hospital Emergency departments across Wales* (P2).

Re(de)fining or coming to an agreed definition of what constitutes emergency care thus emerges implicitly as a theme and is reflected in discussions around patient streaming (discussed below under Integration).

However, while standardisation and the CAREMORE® method were cited positively, this was complicated by a tension between standardisation and the complexities of providing care:

> *a lot of this is back to all the old reading we did about service improvement – y'know Toyota, Lean and it might work in a factory, but it doesn't always work in a hospital setting because the variables are so different, y'know* (P3).

Perceptions of the EDQDF Model of Care and Triage and Handover Map (Figures 3 & 4) suggest broad agreement with the framework. One respondent used a cooking metaphor, suggesting structure with room for flexibility:

> *having this is like your recipe book for what you do in ED, for me, this – so you would – if I had a new nurse starting with me, I'd say "have a read of those because that's what we are aiming to do for our patients when they come here"* (P3).

Implemented aspects of the framework were described in positive terms, with a perception that departments were improved as a result. For example, one participant reflects how she used the new measures developed as part of the EDQDF to monitor the impact of an additional Health Care Support worker, one of the five actions (briefly described under Background and Context) commissioned by the NCCU as a part of the project:

> *historically we* [triage nurses] *gained lots of extra tasks to do whilst triaging patients. We stepped away from that and brought it right back to pure triage* […] *We also got a health care support worker in when we could to help with, uh, triage* […] *I wrote a process whereby when it's waiting it- um exceeded 20 minutes, we got more staff on board to triage the patients. So that made us more effective and more efficient. We had some really good performance metrics on the back of that* (P4).

These were perceived positively for showing where patients become "stuck" more accurately than the standard four-hour measure:

> *the three measures* [time to triage by triage category; time to clinical decision maker; outcome of attendance] *that were introduced as well are also a way of proving that your A&E is working – you don't need to rely on specialties, they're within your own gift to influence. You can make a difference on time to triage* (P2).

Under this theme, broad agreement with the framework across health boards and role-types implies that the design approach facilitated co-productive practices.

Implementation: Programme Management

The EDQDF project provided funding for the early adopter sites to employ project managers and/ or for protected clinician time. Each site autonomously decided how to use this funding, meaning that some sites had consultants and nurses working on the project, while others had full-time project managers with no protected clinician time. These roles were seen as particularly beneficial to the implementation of the project:

> *this seemed like a really good way of doing it. So Welsh Government leading it, having colleagues embedded – having a consultant who would go away to these meetings and then feedback* (P2).

> *a huge bonus for us was having* [the local EDQDF project manager]. *Because she – if I didn't have time, and because she's such a good service lead – improvement, y'know, she understands the whole thing* (P3).

However, one participant reflects on the decision to employ non-clinical project managers:

> *none of them were seasoned professionals that were influencers necessarily. So enthusiastic, keen - really keen to learn themselves, really keen to spread the message, and there was an internal conversation* […] *why did we go for so much project management? Why did we not second a nurse out, for example?* (P6).

While the framework, particularly the care standards and model of care (Figures 2 & 3), were perceived as co-produced and as bringing structure, fluctuations in management, staff, and the political landscape were viewed as disruptive. The contractual nature of the local EDQDF roles were perceived as contributing to inconsistencies and a barrier to completion:

> *I also scoped out and we started work – but it obviously wasn't completed because the funding ran out for my role* (P4).

When staff moved on to permanent roles, valuable experience, memory and tacit knowledge of the programme left with them:

> [the local EDQDF project manager] *did lots of work embedding herself within the team and then she was lucky enough to get a new job* […] *Again, these are temporary posts so somebody else came in temporary […] so they went, and so there's a gap. Now we've got somebody else temporarily and we run all the same risk* (P6).

There were also some perceived inconsistencies with regard to the programme's overarching direction and leadership, partly attributed to Covid-19 but also to changes in central leadership roles:

> *with covid all of that got put on hold* […] *I'd say 95% of what I was doing was not related to those original NESIs or PIPs* ["National Enablers for Service Improvement" and "Pathway Improvement Projects"] (P1).

> *I do think it drifted a little bit um as the project went on* (P2).

In light of the overall positive view of the application of CAREMORE® to create the EDQDF, some of the problems around communication and perceived top-down approach suggest that collaboration at the stage of implementation and maintaining cohesion presents a challenge.

Implementation: Integration

We identified three types of integrative practices (as defined by Goodwin 2016), which are

relevant to the project: horizontal (e.g. between ED, specialties, ambulance services or primary care); sectoral (e.g. inter-professional between clinicians, COOs, non-clinical managers); and geographical across health boards and sites.

Sectoral Integration

The project brought NHS Wales staff together to work collaboratively and, while there is agreement on the outputs, our findings imply tensions between clinical and managerial perspectives:

> *I was being spoken to and dealt with – by* [a centralised manager] *who was getting it all wrong. She didn't understand medicine or, y'know, emergency nursing and trying to put words in my mouth which, you know, you don't accept, 'cause you know better* (P4).

> *So the people at the top probably needed to realize that they'd asked clinicians to do this, so they had to really value clinicians' time* (P2).

There was some hesitancy when it came to exposing clinicians to the mechanics of the methodology. One participant spoke of feeling uneasy about clinicians attending an event with too much focus on absorbing information about the programme itself, suggesting a perception that a focus on managerial technique might be a waste of clinician time, but perhaps also revealing concerns regarding the crossing of role-boundaries:

> *I remember at the time talking to another manager saying "you know what, right, as managers were used to go into meetings, right?*[…] *But then you start to think "I've got my clinicians here. We need - we need something more out of it"* (P6).

> *I don't think they necessarily need to understand kind of like the theories and the governance and the management behind it* (P7).

While the EDQDF programme has facilitated dialogue and collaborative working practices between staff at various levels within the health boards, sectoral integration raises challenges and illustrates tensions between managerial and clinical perspectives.

Horizontal Integration

The EDQDF's Triage and Handover Map (Figure 4) positions a "Streaming Hub" at its centre. Participants agreed with the concept of streaming but express scepticism regarding implementation, partly due to the challenges around integrating services:

> *what ED is all about – because it's changed and changed as the patients have changed and more pressures being put on it. I think far too much pressure of the wrong kind – y'know, you cannot get a GP appointment so people are pitching up here with really bad tonsilitis* (P3).

> *I think this all looks great. Umm... But without the remodelling of the wider system, it it's… It's not all around the front door. Uh – it's the whole system* (P5).

> *I think there's something important around streaming as a concept. It's not something that ED can operate as an island on its own, is it? We're trying to stream to places that have to accept those patients* (P6).

Participants describe the ED measures designed as part of the programme in terms that highlight the interaction between ED and specialties:

> [the three new measures] *are also a way of proving that your A&E is working – you don't need to rely on specialties, they're within your own gift to influence. You can make a difference on time to triage […] you can go round to your exec and say "see we're hitting these but it's the specialties coming down that's the issue" (P2).*

In addition to the interdependencies and limited capacity elsewhere, participants also imply that the pressure of decision making is also a barrier to pre-hospital clinical streaming, particularly for less experienced staff:

> *we've got a strong cohort of paramedics who still did that twelve-week vocational training course and we're expecting them to make decisions around non-conveyance of patients* (P5).

Based on the above representative perspectives, integration (or current lack thereof) between the ED and community, primary, and secondary care services constitutes a barrier to the framework's implementation.

Geographical Integration

The pre-Covid 19 (face-to-face) events and workshops were perceived positively as developing a kind of cross-Wales network:

> *it does help with building those relationships building those connections. Y'know, that's a really strong positive outcome of the EDQDF programme* […] *those face to face meetings really helped with starting those relationships off* (P1).

Participants also described a sense of relief or catharsis at having a space to vent:

> *EDs are very small. Everybody knows everyone, but actually meeting up in a more formal environment, having a place where you could vent but also take each others' ideas and expand on them was – was really really good* (P2).

> *I think the biggest benefit I had from joining the programme was understanding that we're all in the same boat* (P3).

The national approach appears to have softened geographical boundaries and supported the development of cross-geographical relationships and shared learning.

Implementation: Culture

The political and cultural context in which the EDQDF and all health services operate was seen as a barrier to implementation and maintaining cohesion:

> *it should be planned out well in advance what we're going to be focusing on in the next year – it's kind of very, at the moment, what we're going to be looking at now, and it just seemed to change quite a lot, I think. Depending on who's talking the loudest at the time* (P7).

Participants saw a relationship between the political landscape and changes to the focus of the EDQDF:

> *with the election, that was quite a massive change in the middle of EDQDF 'cause it was quite clear, quite structured. And then suddenly the re-election, there's a new health minister, and it seems that that point that there was kind of a new direction started* (P7).

One participant notes a desire to shift the conversation regarding quality in EDs away from four-hour targets, as per the new measures that form part of the EDQDF, but viewed the cultural context as a barrier to this:

> *We need to be in a space where we're describing in a different way, which is difficult because they'll say we just moving the goal posts* (P8).

A lack of a clear line of responsibility is also identified as a barrier to implementing meaningful changes:

> *We need a strong effective leadership and we haven't had that. There's not been any there. There's not being any accountability* […] *there's no pressure on Welsh government* (P5).

Political and institutional memory loss were described as *producing* systemic problems within health care delivery, rather than a *barrier* to improvement:

> *care homes have closed. Nursing homes have been reduced significantly.* […] *The plan of moving care in the Community sounds great, but it hasn't happened. So those patients who should be cared for in the Community are still ending up at the front door of our emergency departments* […] *I think we've got to look at the history of how we've got to where we are today* (P5).

One participant stated that '*to build that strong stable resource I think that is the foundation of any improvement work*' (P1, Project Manager). Some participants attributed staffing problems to Covid-19 – *recruitment into EDs prior to COVID was reasonable* (P3) – however, a culture of pressure was identified as contributing to '*a transient workforce*' (P4):

> *because the lower the staff level, the more work is put on the shoulders of the staff that remain and then they burn out and then they leave and then that problem gets worse over time* (P1).

Just as staff turnover within the EDQDF and managerial structures are perceived as a barrier to implementation, so too is staff fluctuation within the ED. Managerial and political agendas are perceived as influencing priorities and direction in ways that make consistency challenging.

Summary of Findings:

The above-described themes begin to establish the challenges of implementing a co-produced framework for the ED. Fostering institutional memory and the challenges around this emerge as a theme. Perspectives on the CAREMORE® approach and the associated outputs are generally positive and imply that it does support staff in breaking a complex system into more manageable pieces that link together. The collaborative processes utilised to design the EDQDF were viewed as beneficial and supportive of cross-health board partnerships; the remarks on integration and challenges associated with primary, community, and secondary care suggest that similar connections are required for the successful implementation of the improvements designed in relation to triage and handover.

Discussion:

CAREMORE®

The findings of this evaluation correspond with prior examination of CAREMORE®, finding the approach to be a useful tool for collaboratively designing improvement projects that span across a complex area (Nelson *et al* 2018). Participants were in agreement with the various components of the EDQDF (Figures 2, 3, and 4).

Implementation: Barriers and Facilitators

The EDQDF programme facilitated a softening of geographical boundaries that supports network development. However, the transience of staff is a barrier to the implementation of a framework to improve emergency care. While the EDQDF outputs were described as akin to *recipe books* for new staff, potentially mitigating the risk of high staff turnover (Colón-Emeric *et al* 2015), staff retention is nonetheless a widespread and well-recognised issue (Hughes 2013) that constitutes a significant barrier to health service improvements generally (Woltmann 2008). Structural elements of the programme also contributed to turnover within the programme; contractual staff were perceived as more likely to seek a permanent role and leave the programme, taking valuable tacit knowledge with them and leaving a gap in organisational memory. Similarly, political and managerial reshuffles were identified as a barrier to

implementation that led to a lack of focus or inconsistent priorities, echoing findings described elsewhere (Rosen and McKee 1995; Charlesworth 2019; Rutter 2020).

Sectoral integration constitutes one of the aims and challenges faced by the EDQDF programme. Our findings imply some success regarding this aim, but also reflect tensions between governmental, managerial and clinical staff described elsewhere (Harrison and Lim 2003; Macfarlane *et al* 2011). The fact of EDs' embeddedness in a much broader health service ecology is clear. The porous nature of the ED comparative to other health areas has been noted elsewhere (Nugus *et al* 2010), and the participants in this evaluation echo this via a concern with the interdependencies with other less accessible parts of the health system. While these interdependencies were viewed as a barrier to implementation, participants agreed with the principle that the ED could act as a space through which to access alternative services via streaming, as appropriate. This point links with understandings of the ED that describe it as a 'complex adaptive system' (Nugus *et al* 2010), defined as 'an entity composed of many different parts that are interconnected in a way that gives the whole capabilities that the parts don't have on their own' (Letiche 2008: 127). Nugus *et al* (2010) remark on 'boundary work' in relation to the ED, and the way in which managing a patient trajectory, that may not be linear, is tied to the relationship between the ED and its external environment, which in turn is dependent on multiple and unpredictable factors – including (but not limited to) interpersonal relationships, organisational capacity elsewhere on a given day, and targets (Nugus *et al* 2010). This evaluation echoes these claims and contributes to the growing number of voices that emphasise the need to view problems in ED as expressive of system-wide issues, as opposed to site-based failures (Yarmohammadian *et al* 2017; McKenna *et al* 2019).

Recommendations

The implementation of ambitious improvement work in emergency departments may benefit from extending collaboration beyond emergency services to support smoother transition between the ED and primary, secondary and/ or community care agencies.

Limitations

This evaluation relies on relatively few interviews. It is not generalisable but adds to understandings of systematized approaches to improvement and contributes to a growing body of literature emphasising the interconnectivities between the ED and other health organisations. The evaluation relies on staff perspectives; further research is required to examine the impact of the framework on patient care.

Positionality

KJ's post-doctoral position at Swansea University is funded by the NCCU; she is employed to evaluate work based on its priorities.

JR is P.I. for the programme of work funded by the NCCU to independently evaluate the EDQDF and related initiatives.

References

Figure 1. CAREMORE. "Collaborative Commissioning", *Complex Wales*, https://complexwales.com/2022/01/01/commissioning/

Figure 2. Model of Care. "High Level Model of Care", *The NCCU (NHS Wales),* https://nccu.nhs.wales/urgent-and-emergency-care/framework/outputs/documents/high-level-model-of-care/

Figure 3. Care Standards. "EDQDF Outputs", *The NCCU (NHS Wales),* https://nccu.nhs.wales/urgent-and-emergency-care/framework/outputs/documents/care-standards/

Key Performance Indicators. "EDQDF Outputs", *The NCCU (NHS Wales), https://nccu.nhs.wales/urgent-and-emergency-care/framework/outputs/documents/key-performance-indicators/*

Figure 4. Triage and Handover Map. "Welsh Access Model", *The NCCU (NHS Wales),* https://nccu.nhs.wales/urgent-and-emergency-care/wam/

Apker, J., Mallak, L. A., & Gibson, S. C. (2007). Communicating in the "gray zone": perceptions about emergency physician hospitalist handoffs and patient safety. *Academic emergency medicine : official journal of the Society for Academic Emergency Medicine*, 14(10), 884–894. https://doi.org/10.1197/j.aem.2007.06.037

Braun, V. and Clarke, V. (2006) "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol.3, No.2, pp.77–101.

Berwick, D.M., Nolan, T.W. and Whittington, J. (2008). The Triple Aim: Care, Health, And Cost. *Health Aff*, 27: 759–69. DOI: 10.1377/hlthaff.27.3.759

Colón-Emeric, C., Toles, M., Cary, M.P. *et al.* (2015). Sustaining complex interventions in long-term care: a qualitative study of direct care staff and managers. *Implementation Sci* **11,** 94 https://doi.org/10.1186/s13012-016-0454-y

Darbyshire D, Brewster L, Isba R*, et al.* (2021). Retention of doctors in emergency medicine: a scoping review of the academic literature. *Emergency Medicine Journal,* **38:**663-672.

Goodwin N. Understanding Integrated Care. *International Journal of Integrated Care*, 2016;16(4):6. DOI: http://doi.org/10.5334/ijic.2530

Harrison, S. and Lim, J. (2003) The frontier of control: doctors and managers in the NHS 1966 to 1997. *Clinical Governance*, **8**, 1, 13– 18.

HIW (2021). Patient Safety, Privacy, Dignity and Experience whilst Waiting in Ambulances during Delayed Handover. Welsh Ambulance Service Trust:

https://hiw.org.uk/sites/default/files/2021-10/43257%20WAST%20Local%20Review%20%28E%29%20WEB%20-1.pdf [accessed 22nd June 2022]

Holland W. W. (2010). Competition or collaboration? A comparison of health services in the U.K. *Clinical medicine (London, England)*, *10*(5), 431–433. https://doi.org/10.7861/clinmedicine.10-5-431

Hughes G (2013). The emergency medicine taskforce: an interim report. *Emergency Medicine Journal*, **30:**348.

Goldberg R, Boss RW, Chan L, et al. (1996). Burnout and its correlates in emergency physicians: four years' experience with a wellness booth. *Acad Emerg Med*, 3:1156–64.

Jones, K., Sussex, A., Ware, A. and Rance, J. (2021). Multi-Disciplinary Working to Predict and Develop Teletriage and Streaming Services: A Novel Approach to Modelling. *The Nursing Times*, 117: 9, 45-49. https://www.nursingtimes.net/clinical-archive/accident-and-emergency/multidisciplinary-working-to-develop-teletriage-and-streaming-services-16-08-2021/

Jourdain G, Chênevert D. (2010). Job demands-resources, burnout and intention to leave the nursing profession: a questionnaire survey. *Int J Nurs Stud*, 47:709–22.

Kodner, D and Spreeuwenberg, C (2002). Integrated care: meaning, logic, applications and implications – a discussion paper. *International Journal of Integrated Care*, 2(14) DOI: https://doi.org/10.5334/ijic.67

Letiche, H. (2008). *Making healthcare care: Managing via simple guiding principles*. IAP.

Limb M. (2022). Delayed discharge: how are services and patients being affected? *BMJ*, 376 :o118 doi:10.1136/bmj.o118

Macfarlane, F., Exworthy, M., Wilmott, M. and Greenhalgh, T. (2011), Plus ça change, plus c'est la même chose: senior NHS managers' narratives of restructuring. *Sociology of Health & Illness*, 33: 914-929. https://doi.org/10.1111/j.1467-9566.2011.01338.x

McKenna, P., Heslin, S. M., Viccellio, P., Mallon, W. K., Hernandez, C., & Morley, E. J. (2019). Emergency department and hospital crowding: causes, consequences, and cures. *Clinical and experimental emergency medicine*, *6*(3), 189–195. https://doi.org/10.15441/ceem.18.022

Nelson, K., McKinnon, A., Farr, A., Rance, J. & Phillips, C. (2018). The Development of a Collaborative Framework for Commissioning Health and Social Care. *Journal of Integrated Care*. http://dx.doi.org/10.1108/JICA-01-2018-0001

NHS Wales (2009). NHS in Wales: Why we are changing the structure. http://www.wales.nhs.uk/documents/nhs%20reform%20leaflet_october%202009.pdf

The NCCU, NHS Wales NCCU Homepage: https://nccu.nhs.wales/ [accessed 22nd June 2022]

Nugus, P., Carroll, K., Hewett, D. G., Short, A., Forero, R., & Braithwaite, J. (2010). Integrated care in the emergency department: a complex adaptive systems perspective. *Social science & medicine (1982)*, *71*(11), 1997–2004. https://doi.org/10.1016/j.socscimed.2010.08.013

Volochtchuk, A.V.L. and Leite, H. (2022), "Process improvement approaches in emergency departments: a review of the current knowledge", International Journal of Quality &

Reliability Management, Vol. 39 No. 2, pp. 495-520. https://doi.org/10.1108/IJQRM-09-2020-0330

Woltmann, E. M., Whitley, R., McHugo, G. J., Brunette, M., Torrey, W. C., Coots, L., ... & Drake, R. E. (2008). The role of staff turnover in the implementation of evidence-based practices in mental health care. *Psychiatric Services*, *59*(7), 732-737.

Yarmohammadian, M. H., Rezaei, F., Haghshenas, A., & Tavakoli, N. (2017). Overcrowding in emergency departments: A review of strategies to decrease future challenges. *Journal of research in medical sciences : the official journal of Isfahan University of Medical Sciences*, *22*, 23. https://doi.org/10.4103/1735-1995.200277