# PWYLLGOR ADNODDAU CYNALIADWY
# SUSTAINABLE RESOURCES COMMITTEE

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| **DYDDIAD Y CYFARFOD:**<br>**DATE OF MEETING:** | 20 December 2022 |
| **TEITL YR ADRODDIAD:**<br>**TITLE OF REPORT:** | Electronic Patient Flow and Electronic Observations Outline Business Case |
| **CYFARWYDDWR ARWEINIOL:**<br>**LEAD DIRECTOR:** | Huw Thomas, Director of Finance |
| **SWYDDOG ADRODD:**<br>**REPORTING OFFICER:** | Rhian Matthews, Senior Responsible Officer, Transforming Urgent & Emergency Care |

| **Pwrpas yr Adroddiad** (dewiswch fel yn addas)<br>**Purpose of the Report** (select as appropriate) |
|---|
| Er Sicrwydd/For Assurance |

## ADRODDIAD SCAA
## SBAR REPORT

### Sefyllfa / Situation

The purpose of this report is to introduce the Outline Business Case (OBC) for the investment in an Electronic Observations (eObs) and a Patient Flow system for Hywel Dda University Health Board (HDdUHB). The aim of the business case is to articulate the strategic rationale for the programme, outline its scope and breadth, and provide an indication of the likely benefits and costs associated with delivery. The document has been prepared in accordance with HM Treasury Green Book guidance for the five-case model.

In summary,

- Current processes and digital solutions within the Health Board are not optimised for patient flow, with an over reliance on paper systems
- There is no electronic observations system available which could add value to the implementation of the Welsh Nurse Care Record
- Optimising patient flow management can help best utilise limited resources
- The adoption of an eObs and Patient Flow system aligns with the strategic direction of the Health Board and progresses the digital maturity towards our aim of Healthcare Information and Management Systems Society (HIMMS) level 5.
- Progresses the Transforming Urgent Emergency Care agenda, supporting handover, patient flow and discharge management

### Cefndir / Background

Patient flow is the movement of patients through a healthcare facility, which involves the medical care, physical resources and internal systems needed from admission to discharge[1]. When patient flow is not well managed in hospitals, this is associated with long wait-times and overcrowding in A&E, as well as inefficient scheduling in surgical departments. Poorly

[1] https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0289

managed patient flow can lead to adverse health outcomes, including increased re-admissions and mortality rates[2]. Optimising patient flow management can help best utilise limited resources, ensure patients move through care pathways efficiently, and reduce the length of hospital stays.

eObs technologies can automatically capture and analyse patient's vital signs and notify clinicians when required. This automation of routine tasks can free up time to enable better patient care, increase accuracy in capture and transmission of information and improve decision-making. Patient flow technologies encompass a range of functionality to help with a better patient flow, including patient handover, bed capacity management and task management. More streamlined patient flow results in reduced wait-times, an improved staff and patient experience, and increased patient safety.

Current processes in HDdUHB are not optimised, as most of the information is recorded manually on paper records, and communication channels are slow and time-consuming (e.g. phone calls). Some digital systems have been introduced in previous years, but the feedback is that information remains siloed, and staff do not feel like they can access the correct information easily and in a timely manner when they need it. This poses a significant risk to patient safety. A lack of clinical staff makes it even more crucial to increase efficiencies, so that limited resources are utilised in the best way.

The deployment of new technologies to support patient observations and patient flow aligns with the strategic goals of the Health Board, both locally and nationally. It focuses on improvements towards a more digitally mature healthcare system in Wales, with the aim of enhancing patient safety. Furthermore, these technologies will support the Health Board's plan for a new Urgent and Planned Care Hospital by enabling HDdUHB to integrate them into current ways of working.

eObs and Patient Flow technologies have previously been implemented by the NHS across the UK, and their clinical value has been established. Evidence from case studies suggests that patient flow technology can significantly increase efficiencies in hospitals, providing a better experience for both staff and patients. They have been shown to reduce the length of hospital stays, reduce patient harm, including a reduction in the number of cardiac arrests, and increase time for care. Ultimately, these improvements lead to better experiences for patients and staff, and enable the provision of high quality, safe care. The development of this OBC has included direct engagement with several reference sites to validate the benefits and clinical value of this technology.

## Asesiad / Assessment

Electronic patient flow management is the application of digital technology to provide the information needed to deliver patient flow. Patient flow technology joins up clinical and operational data in daily use to provide real time data for immediate clinical and operational decision making. This can significantly improve patient flow management in acute settings. It is important to note that patient flow does not end with discharge from hospital. To deliver truly integrated care that enables the best outcomes for patients, we need to create systems that provide seamless integration across all healthcare services, including community and at-home care.

[2] https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0289

**Strategic Landscape in Wales and Hywel Dda**

Health & Care Strategy, 'A Healthier Mid and West Wales: Our future generations living well'
The Health Board strategy sets out the long-term plan for health and social care within Hywel Dda. Fundamentally, it advocates for a shift from reactive hospital-based care and treatment to proactive community-based, person-centred care focused on health, wellbeing and prevention.3 Improving patient flow is a first step to ensuring that patients receive the best care and spend only the time needed in hospital. In the long-term, eObs can then enable remote monitoring in communities, supporting to shift care from hospitals

The Value in Health Programme
Enabling person-centred, preventative care requires health and care services to make better use of existing resources and leverage available data and information to improve decision making. Staff need to be able to have access to real-time data and share it to enable collaboration across the whole system. Key Welsh Government sponsored report recommendations seek improvements in the domains of patient safety, flow management and a person's experience in hospital.4 Digital technologies, such as eObs and technologies that support patient flow, play a key role in making this possible.

HDdUHB's Digital Response
Making patient observations available digitally, so that staff can access them anytime, anywhere as required is a first step towards a more digitally enabled workforce. This data can then for example be used in conjunction with information from location tracking technologies to provide key insights for clinical and operational management. Furthermore, introducing patient flow technology will support the Health Board in its aim to operate its four acute hospitals as one by providing a system that ultimately enables the management of beds across the entire organisation. It will also remove inefficiencies, increasing capacity and therefore realising the strategic aim to provide more timely access to acute secondary care treatments.

Whole System Health & Care Strategic Digital Readiness
The recent work commissioned with CGI, noted that adopting a whole-system approach will enable our people and communities to care for themselves, prevent ill health, improve well-being, promote independence and interconnectedness, and access specialist care and support when required. As part of the whole system approach, the 4 pillars noted within the report, namely.

- Ensuring Citizen engagement
- Health and Care co-ordination and collaboration
- Situational awareness via a command and control approach
- Data fabric to allow sharing of information safely

The adoption and implementation of an eObs and patient flow system will go towards the answering the later 3 of the areas above, and also improve the digital maturity of the organisation.

[3]https://gov.wales/sites/default/files/publications/2021-09/a-healthier-wales-our-plan-for-health-and-social-care.pdf
[4] National ePatient Flow Management Outline Business Case (Dec 2018)

## Benefits

In line with the value-based healthcare programme[5], this project is expected to improve the patient experience and lead to better patient outcomes. The key benefits that are expected to be realised by eObs and Patient Flow solutions are set out below in Figure 1.

Figure 1: Key benefits

Further benefits work has been completed and supplements this report. The digital benefits manager has worked with the services to provide a benefits timeline, attached at Appendix 1, which illustrates the benefits, the reporting metric for baseline measurement, and the timeline for when the benefit will be realised.

A spotlight paper, attached at Appendix 2, has been prepared on several benefits to provide the Committee with greater detail of the proposed benefit, the challenges to achieving the benefit, the current process, and the proposed process and how this will translate in cash or productivity releasing benefits.

## Clinical Value

There are several national strategies and programmes aimed at improving clinical care and patient safety. The Health and Care Standards framework provided by NHS Wales establish a basis for improving the quality and safety of healthcare services.[6] There is specific reference to safety and dignified care for older patients in response to the recommendations made through the Andrew's report, the Older People's commissioner report 'Dignified Care' and the provisions of the Nurse Staffing Act 2016. The NHS Wales Delivery Framework and Reporting Guidance 2021-22[7] lays out the aim to ensure that people in Wales "have better

[5] https://vbhc.nhs.wales/
[6] https://nwssp.nhs.wales/a-wp/governance-e-manual/putting-the-citizen-first/health-care-standards/
[7]https://HDdUHB.nhs.wales/about-us/performance-targets/performance-documents/2021-22-nhs-wales-delivery-framework-amp-guidance-pdf/

quality and more accessible health and social care services, enabled by digital and supported by engagement". Similarly, the six goals for urgent and emergency care published by the Welsh Government call for optimal hospital care following admission.[8] Furthermore, the NICE 50 guidance 'Acutely Ill Patients in Hospital'[9] and the Public Ombudsman Wales report 'Out of hours: Time to Care'[10] highlight the need to improve care of deteriorating patients. As outlined below, the introduction of eObs and patient flow technology can lead to improved and safer care for patients.

eObs technology enables:

- Remote monitoring, allowing doctors and nurses to access data from anywhere without the need to physically see the patient. This can save time and reduce the risk of cross-infection.
- Automation of routine tasks, such as calculating the NEWS2 score, frees up time for staff to look after the patient and reduces the risk for errors.
- Automated alerts remind staff to take actions when patients are deteriorating, supporting early intervention.
- Better communication with the patient by creating visuals that can be shared. For example, staff can share how treatment has impacted an individuals' vital signs over time.
- The provision of real-time data, which can help improve clinical decision-making and reduce the risk of harm, while providing patients and their families with confidence that they are monitored appropriately.

Similarly, patient flow technology is associated with increased patient safety, time savings and efficiency benefits by optimising the use of existing resources and facilitating holistic oversight and coordination:

- Such technology prevents the same information from being recorded multiple times in different locations (e.g. whiteboards, spreadsheets, ward books, site manager records etc.) and repeatedly across wards.
- It can improve cross-department communication.
- It makes operational and management information available in real-time. For example, by enabling staff to remotely access information on current bed status, and estimated discharge dates, "dead bed" time can be reduced.

A 2019 study found that roll-out of eObs was associated with approximately 10% reduction in total unplanned admission to critical care units from eObs-equipped wards and patient contact time as more than doubled (2.9% to 7.3%).[11] In line with the significant clinical value of these systems, Digital Health Intelligence research shows 71% of England's acute trusts (100 out of 104) now have an electronic observations system in place.[12] Similarly, evidence from case studies suggests that patient flow technology can significantly increase efficiencies in hospitals, providing a better experience for both staff and patients:

[8] https://gov.wales/written-statement-six-goals-urgent-and-emergency-care-and-expectations-system
[9] https://www.nice.org.uk/guidance/cg50
[10] https://www.ombudsman.wales/wp-content/uploads/2018/03/Out-of-Hours-Time-to-Care.pdf
[11] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6425312/
[12] https://www.digitalhealth.net/2020/08/special-report-electronic-observations-and-vital-signs/

- **Reduction the length of hospital stays** by 12-30%[13,14] and NHS Lothian have reported an increase the number of patients discharged by 11am by 40%[15];
- **Reduction in patient harm**: 50-70%[16,17] reduction in hospital cardiac arrests, 16% reduction in unplanned critical care bed days[18] and 90% reduction in norovirus incidence[19]; and
- **Increased time for care:** By reducing time spent on administrative tasks using a mobile device can release up to 66 minutes of nursing time per 12-hour shift. Similarly, organisations have seen a 50% time saving in Multi-Disciplinary Team meetings.[20]

**Economic Appraisal**

Implementing both eObs and Patient Flow (Option 4) received the highest weighted benefit score, reflecting that introducing both solutions would result in the biggest efficiency increases and improvements in staff and patient experience. This is in line with user needs identified during research sessions.

Table 1: Total Economic Cost by Option

| Cost Line | Option 2: eObs Only | Option 3: Patient Flow Only | Option 4: eObs + Patient Flow |
|---|---|---|---|
| **Non-Recurring Capital (NRC) Total** | 994,408 | 1,367,908 | 1,817,908 |
| **Non-Recurring Revenue (NRR) Total** | 1,293,270 | 1,518,270 | 1,984,361 |
| **Recurring Revenue (RR) Total** | 713,171 | 884,541 | 1,362,644 |
| **Optimism Bias** | **336,375** | **505,747** | **704,532** |
| **Total with Contingency** | **3,337,224** | **4,276,466** | **5,869,444** |

Given the resources and time required to build a bespoke solution from scratch, the decision was made to procure an existing, 'tried and tested' solution that can be configured to meet local needs for both the eObs and Patient Flow solution. The aim is to implement these solutions incrementally. The full scope will be finalised during detailed requirement capture in the next phase of procurement.

HDdUHB's preferred option is to procure a software-only solution hosted on their own local Cloud environment. This will need to be discussed further during the procurement process, as some suppliers only offer their Patient Flow solutions as Software as a Service (SaaS).

The recommendation is to procure the software solutions via an existing framework and several suitable frameworks have been identified. These will need to be assessed against the detailed requirements by the Procurement team once these have been established. Procuring both solutions from the same supplier would be advantageous, as it would streamline integration and simplify the procurement process.

[13] Nervecentre. October 2016. A Whole-Hospital Mobile Solution-Nervecentre Support for Efficient Patient Flow
[14] Allocate Software - NHS Wales ePatient Flow Management programme PIN (Presentation)
[15] National ePatient Flow Management Programme OBC (Dec 2018)
[16] https://www.alcidion.com/success-stories/central-manchester-university-hospitals-nhs-foundation-trust/
[17] https://www.digitalhealth.net/2015/11/vitalpac-helps-croydon-cut-cardiac-arrests/
[18] Nervecentre. October 2016. A Whole-Hospital Mobile Solution-Nervecentre Support for Efficient Patient Flow
[19] National ePatient Flow Management Programme OBC (Dec 2018) – Appendix 11
[20] National ePatient Flow Management Programme OBC (Dec 2018) – Appendix 11

**Stakeholder Engagement**

To develop the Outline Business Case for implementing eObs and Patient Flow, staff across the Health Board were engaged in the consultation. The aim was to understand the as-is processes and current issues, as well as their needs with regards to the new technology.

Across all sites, clinical and operational staff conveyed some key needs that should underpin the implementation of any new technology. Given the current resourcing constraints, it is clear that HDdUHB could benefit significantly from technology that supports ways of working by increasing efficiencies. There seems to be a particular need for technology that improves how patient flow is managed across the Health Board.

Some of the key themes that came out from the stakeholder engagement were:

- **Keeping the patient at the centre** - While staff felt that technology could help improve ways of working, they highlighted the importance of maintaining the human element of care. Regardless of the solution, the patient needs to remain at the centre.

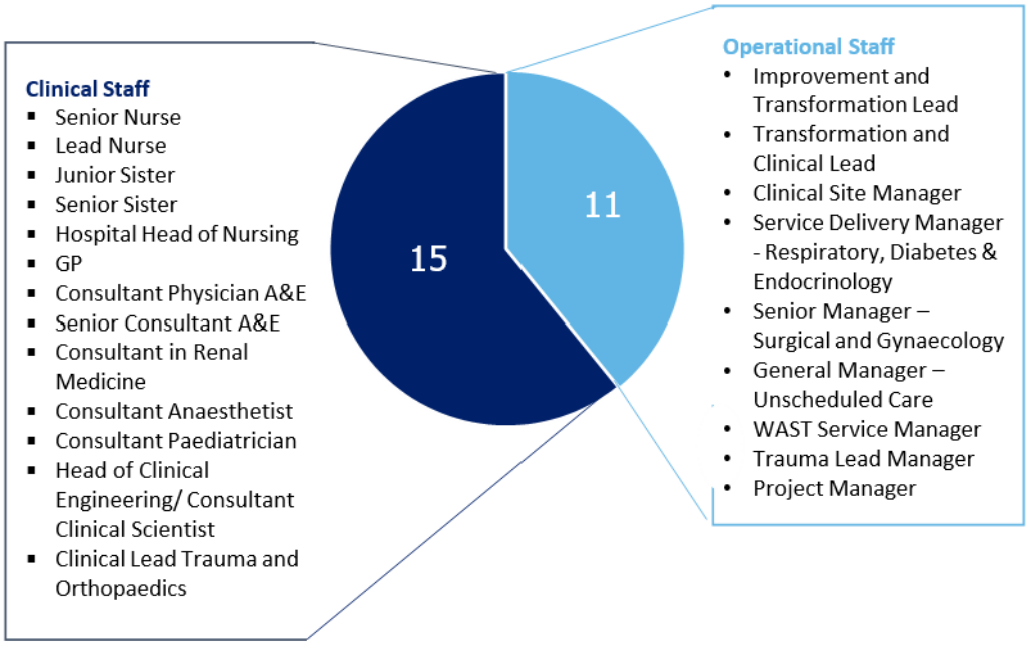
- **Technology must not add to existing workloads** - Due to resourcing constraints, staff are already extremely busy. They do not have capacity to complete additional administrative tasks and new technology should make things faster and easier.

- **Interoperability is key** - There are a number of systems currently in use across HDdUHB. To ensure efficient working and avoid adding to staff's administrative workload, any new systems need to be interoperable with existing solution.

During the development of the business case the team spoke to the following:

- 49 people from across HDdUHB were invited to take part in the consultation.
- 26 staff members were available to join 1-1 sessions,

The staff distribution is illustrated below:



During the stakeholder engagement, a number of “pain points” or issues that are currently being faced by staff were highlighted to the project team. Although these are not new issues, colleagues felt it important that the following were expressed as they feel that the introduction of a digital solution could address the following:

- **A lack of available beds limits patient flow across the Health Board.**
  There are a number of reasons why there are not enough beds available, including
  - ‘Medically fit’ patients cannot be discharged as there is significant pressure on community services
  - A lack of staff means that in some areas not all beds can be used
  - Inefficiencies in patient transfers/ handovers
  - lead to delays in admitting patients.

  This has a significant negative impact on the services, examples of the impact are below:
  - Normally, GP referrals should be assessed in the Clinical Decision Unit (CDU) to determine next steps, however, the CDU is used as an additional ward and GP referrals are assessed in the Emergency Department (ED) instead. This impacts ED capacity.
  - When there is no space on wards, patients stay in the ED as in-patients. The Welsh Patient Administration System (WPAS) does not enable admission into the ED and as a result there can be confusion around who has been admitted.
  - When patients are admitted, they tend to be admitted to any bed that becomes available without consideration for the speciality they may be overseen by. This leads to lots of outliers, making it difficult for clinicians to identify their patients.
  - Surge beds are opened, which are difficult to staff.
  - Ambulances cannot offload their patients and end up waiting outside the hospital. Welsh Ambulance Service NHS Trust (WAST) estimates that 70 to 85 hours are lost every day per site at the acute hospitals in HDdUHB. This means ambulances cannot respond to calls in time. It also leads to difficulties with ambulance crew changeover, as the new crew may not have the PIN used by the previous crew, which means the screens in hospitals cannot be updated.
  - When the Same Day Emergency Care (SDEC) unit cannot admit patients, staff has to stay overtime to ensure patients’ safety.

- **Ineffective communication is one of the biggest issues faced by staff across all sites**
  - Lack of shared patient record: There is no single system to view all the information about a patient. Often different services/ specialities do not have access to each other’s systems. This causes problems for example when managing flow from primary to secondary care for children and mothers.
  - Bed capacity management: Site managers find out about available beds during three daily meetings or by walking around wards. At Bronglais General Hospital, a dashboard has been set up to manage admissions and discharge, which is updated by the site manager. However, information about available beds is not available in real-time and involves a lot of administrative work for the site management team.
  - Working in isolation: Staff have very little sight of what is happening across other areas.
  - Slow communication methods: Staff spends lots of time calling wards or services to arrange handovers/ referrals. In particular for moving patients from A&E into wards.

- Audit trails: There is a lack of audit trails for escalation.
- Duplication of effort: In many cases staff have to record information in multiple places, including both online systems and paper records. This leads to duplication of effort and can make it difficult for staff to know where to look for relevant information.
- Up-to-date records: Staff lack the time to keep electronic records up-to-date due to both staffing issues and the need to replicate information.

- **Handovers, transfers and discharges are slow, negatively impacting patient flow**
  There is a lack of real-time information:
  - Due to resourcing difficulties, there is not enough staff – this can cause delays for example when a patient is medically fit and ready for discharge but certain tasks are yet to be completed, e.g. preparing prescription medication.
  - When there are lots of outliers, it is difficult for doctors to know where their patients are due to the lack of real-time information.
  - When a bed does become available, deep cleaning (required for infectious patients, e.g. COVID-19) takes a long time, and beds are not always declared immediately.
  - Staff have no visibility of what is happening in other areas.
  - When a child is transferred from another hospital to Glangwili General Hospital, staff don't have any information about how they are doing for 30-40 minutes (while in transfer).
  - The lack of a single, shared electronic record means that clinicians often don't have access to a patient's full history and information is duplicated:
  - Handovers are completed on paper – this is seen as a patient safety risk.
  - With handwritten notes, legibility can be a problem.
  - Because triage notes and observations are not available electronically (e.g. on WPAS), staff working in the SDEC unit in Glangwili General Hospital often have to go to A&E to identify patients that may be suitable for the unit.
  - When a patient leaves A&E and is transferred to a ward, nurses need to scan the paper notes, which can take up to 20 minutes.

- **Observations are not always completed fully or on time, and there can be inappropriate escalation.**
  A key driver for issues with observations are resourcing problems:
  - Observations are sometimes delayed as staff are busy with other activities. For example, at times in South Pembrokeshire Community Hospital, ward round timings determine observation timings.
  - As qualified nurses tend to be extremely busy, Healthcare workers are responsible for taking observations. They escalate abnormal measurements, but at times the NEWS score is calculated incorrectly, or they may not be aware that the parameters need to be adjusted for a particular patient. For example, chronic obstructive pulmonary disease (COPD) patients may have observations that look abnormal but are normal for that particular type of patient. This leads to inappropriate escalation.
  - There can be issues with the frequencies of observations, where staff may not be aware that patients require more or less regular observations. For example, in the SDEC Unit in Glangwili General Hospital, observations are completed every hour. When staff from other wards fill in to support the unit, they may be used to carrying out observations every four hours.

Following the stakeholder engagement, a playback session for the user research was held on 9th June 2022. 94 staff from across HDdUHB were invited to attend the session. The aim was to present back the findings from the research and provide staff with an opportunity to provide feedback and ask questions. The staff that were invited to the stakeholder engagement and the user playback sessions are included within the OBC.

**Timescales**
An indicative timeline for the procurement process of the software solutions is outlined in the table below:

Table 2: Proposed Procurement Timeline

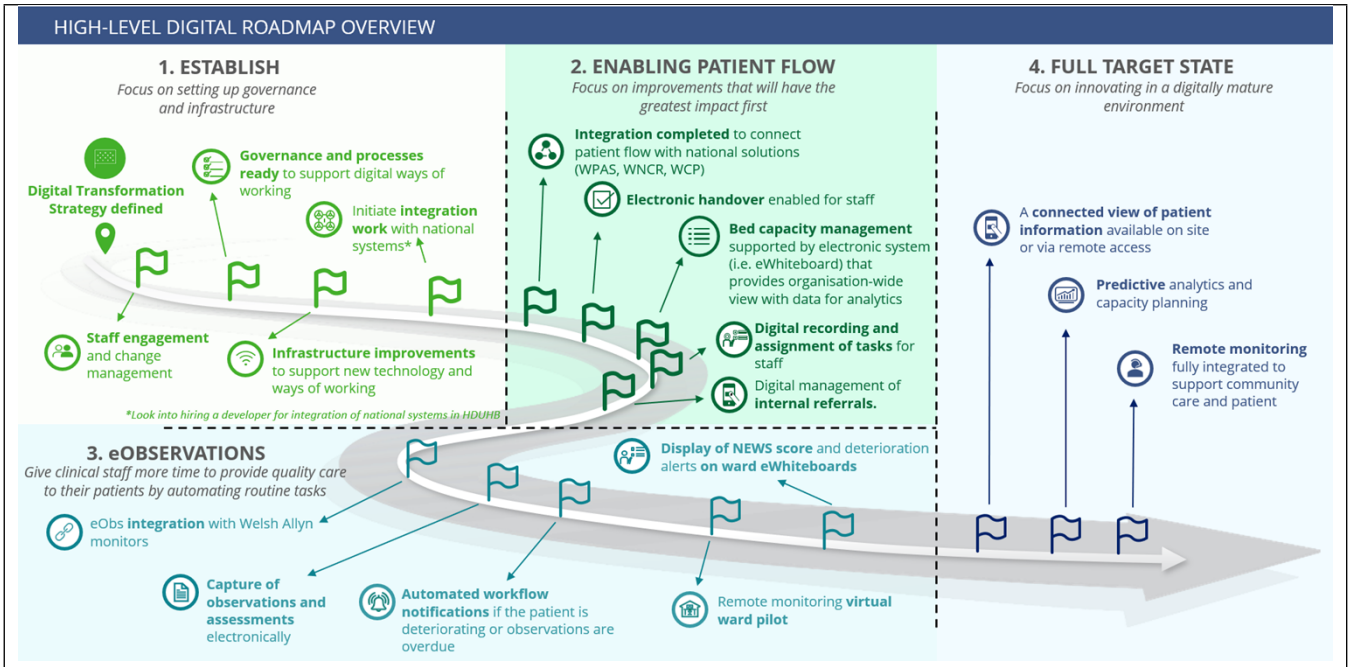
| Milestone | Estimated Timeline |
|---|---|
| Final OBC Draft Ready for submission | July 2022 |
| Submitted to Executive Team for comment | September 2022 |
| Submission to Sustainable Resources Committee | December 2022 |
| Consideration and Approval by Board | January 2023 |
| | |
| Select relevant framework(s) | February 2023 |
| Mini competition via framework: Prepare and Issue ITT, Evaluate Responses | March 2023 |
| Preferred supplier selected | May 2023 |
| Governance and Approvals (incl. FBC Sign Off) | June / July 2023 |
| Implementation Starts | August 2023 |

All required hardware will be procured separately on a rolling basis via an existing hardware framework. The contract duration will depend on the framework selected, however due to implementation timeline it is preferable to have a duration of more than 3 years.

The Digital Delivery Roadmap sets out four phases to ensure successful implementation:

- **Phase 1 – Establish**: Setting up governance processes and infrastructure (incl. integration) to ensure solutions can be successfully adopted.
- **Phase 2 - Enabling Patient flow:** Rollout of patient flow functionality to increase efficiencies, starting with electronic patient handover and bed capacity management.
- **Phase 3 - Electronic Observations**: Introducing eObs capture across sites, followed by escalation and alerts functionality.
- **Phase 4 - Target state**: Building on phases 2 and 3 to roll out remote monitoring across all sites, as well as predictive capacity planning.

The Digital Roadmap (**Error! Reference source not found.**2) visualises the rollout of the Patient Flow and eObs solutions across four phases. The first phase focuses on setting up governance and processes, preparing the local infrastructure, and engaging staff on all levels, with communication and training. During phase 2 technology to support patient flow are introduced. Patient flow is being improved with digital tools, and their integration with existing systems. The third phase introduces improvements that build on existing capabilities. The focus is on giving clinical staff more time to provide quality care to their patients by automating routine tasks. The fourth and final phase makes HDdUHB reach their full target state for this project. It builds on the technology set up in previous phases. This phase is about innovating with digitally mature eObs and patient flow technologies. Learnings from phases 2 and 3 will influence the vision of the full target state. An agile approach will enable HDdUHB to make changes as required.




**Summary**

eObs and Patient Flow technologies have previously been implemented by the NHS across the UK, and their clinical value has been established. Evidence from case studies suggests that patient flow technology can significantly increase efficiencies in hospitals, providing a better experience for both staff and patients. They have been shown to reduce the length of hospital stays, reduce patient harm, including a reduction in the number of cardiac arrests, and increase time for care. Ultimately, these improvements lead to better experiences for patients and staff, and enable the provision of high quality, safe care. The development of this OBC has included direct engagement with several reference sites to validate the benefits and clinical value of this technology.

## Argymhelliad / Recommendation

The Committee is requested to scrutinise the Outline Business Case for the investment in an Electronic Observations (eObs) and a Patient Flow system and recommend that this is considered by the Board as part of the planning cycle.

| **Amcanion: (rhaid cwblhau)**<br>**Objectives: (must be completed)** | |
|---|---|
| Committee ToR Reference:<br>Cyfeirnod Cylch Gorchwyl y Pwyllgor: | Not Applicable |
| Cyfeirnod Cofrestr Risg Datix a Sgôr Cyfredol:<br>Datix Risk Register Reference and Score: | Not Applicable |
| Safon(au) Gofal ac Iechyd:<br>Health and Care Standard(s): | All Health & Care Standards Apply |

| | |
|---|---|
| Amcanion Strategol y BIP:<br>UHB Strategic Objectives: | Not Applicable |
| Amcanion Cynllunio<br>Planning Objectives | All Planning Objectives Apply |
| Amcanion Llesiant BIP:<br>UHB Well-being Objectives:<br>Hyperlink to HDdUHB Well-being Objectives Annual Report 2018-2019 | 10. Not Applicable |

| **Gwybodaeth Ychwanegol:<br>Further Information:** | |
|---|---|
| Ar sail tystiolaeth:<br>Evidence Base: | Contained within the report |
| Rhestr Termau:<br>Glossary of Terms: | Contained within the report |
| Partïon / Pwyllgorau â ymgynhorwyd ymlaen llaw y Pwyllgor Adnoddau Cynaliadwy:<br>Parties / Committees consulted prior to Sustainable Resources Committee: | Not Applicable |

| **Effaith: (rhaid cwblhau)<br>Impact: (must be completed)** | |
|---|---|
| **Ariannol / Gwerth am Arian:<br>Financial / Service:** | The introduction of the patient flow system will have benefits not only the staff, patients, but will improve efficiencies of the wards and staff. Releasing more time for staff to treat patients |
| **Ansawdd / Gofal Claf:<br>Quality / Patient Care:** | The lack of a patient flow system presents a significant risk to patient safety and negatively impacts staff, who are working under extreme pressures. There is a clear need to improve efficiencies, particularly with regards to managing patient flow, and introducing technologies to support staff are a first important step in this journey |
| **Gweithlu:<br>Workforce:** | The improvement in digital solutions will provide efficiencies for staff, who will be able to see the right information at the right time when treating the patient. The combination of approaches and system will also reduce the effort required to transcribe as system will be fully integrated. |

| | |
|---|---|
| **Risg:**<br>**Risk:** | The patient safety risk from that lack of Automation of routine tasks, such as calculating the NEWS2 score, frees up time for staff to look after the patient and reduces the risk for errors. The provision of real-time data, which can help improve clinical decision-making and reduce the risk of harm, while providing patients and their families with confidence that they are monitored appropriately. |
| **Cyfreithiol:**<br>**Legal:** | The introduction of both systems could lead to a reduction in legal claims due to the reduction errors. |
| **Enw Da:**<br>**Reputational:** | Having resilient and robust systems for the treatment of patients will enhance the reputation of the Health Board and will also improve opportunities to recruit. |
| **Gyfrinachedd:**<br>**Privacy:** | Not applicable |
| **Cydraddoldeb:**<br>**Equality:** | If the system is approved to progress a full equality approach will be adopted |

# E-Observations

## Patient Outcomes

**1. Reduced risk of patient harm and improving patient safety**

Through having access to the correct information easily and in a timely manner this will reduce the risk of harm to patients and improve their safety. It's anticipated that the number of cardiac arrests for patients will reduce by **50 - 70%**.

**2. Reduced risk of errors (e.g. due to more regular and accurate observations)**

E-Observations will provide more accurate and regular observations that will provide early identification of risks to the patient, such as, sepsis. Automated alerts will remind staff to take actions when patients are deteriorating which supports early intervention. Automation of routine tasks, such as calculating the NEWS2 score, frees up time for staff to look after the patient and reduces the risk for errors.

**3. Reduced unplanned admissions to critical care units from EObs-equipped wards**

The roll-out of e-observations aims to reduce the total of unplanned admisstions to critical care units from e-obs equipped wards by approximately **10%**.

**4. Increased number of observations completed on time**

E-observation technology will result in an increase in the number of observations completed on time.

## Staff Experience

**5. Increased confidence resulting in improved decision making**

E-Observations will provide clinicians with up to date and accurate information that will aid their confidence when conducting routine tasks in the workplace

## Efficiencies

**6. Reduced manual admin work and removal of duplication of effort**

Through the utilisation of remote monitoring and the automation of tasks there will be a reduction in duplication, data will be easily shareable across the health board releasing **960 minutes** back to nurses.

## Organisational

**7. Reduced complaints and improved brand image due to better patient care**

The reduction in errors due to the use of e-Observations will ultimately lead to a reduction in complaints and an improved brand image due to better patient care.

**8. Reduced litigation**

The reduction of patient harm and the reduction in complaints due to the use of e-Observations will potentially result in the reduction of litigation for the health board potentially savings **millions of pounds** each year.

# Patient Flow

## Patient Experience

**9. Increased time to care for patients**

By reducing time spent on administrative tasks using a mobile device can release up to **66 minutes** of nursing time per 12-hour shift which can be used to care for patients

## Staff Experience

**10. Reduced stress levels**

It is anticipated that the introduction of patient flow technology will improve staff wellbeing and reduce stress levels by removing duplicate tasks and freeing up time on their shifts

**11. Improved communication between staff members and across departments**

Patient flow technology will assist in cross-departmental communication through providing up to date information about a patient that will aid in immediate clinical and operational decision making.

## Efficiencies

**12. Reduced handover time and quicker discharges**

Patient flow will allow more efficient handovers on wards, when patients move location and assist in quicker discharges allowing more patients to be discharged before midday. Currently 15% of discharges take place before midday, the patient flow project aims to increase this by **40%**.

**13. Reduced average time until seen by doctor in A&E**

It is expected that patient flow technology will help healthcare staff effectively manage resources and free up time for patient care, enabling the Welsh Government to meet key national targets, such as the 4-hour A&E waiting time target stating that **95% of patients** attending A&E should be admitted, transferred or discharged within 4 hours. Currently this is around **70%**.

**14. Reduced time an ambulance waits outside of the hospital**

It is anticipated that the improvements in patient flow processes will reduce the requirement for ambulances to wait outside of A&E to handover a patient. Ambulances currently lose between **70 and 85 hours per day per site** at the four acute hospitals.

**15. Quicker response times for ambulances**

As ambulances will be available to respond quicker to emergency calls as a result of improving patient flow and reducing the need for ambulances to wait outside A&E. Currently **41.12%** of red calls are responded to within 8 minutes.

**16. Reduced time spent by clinical site manager to identify available beds**

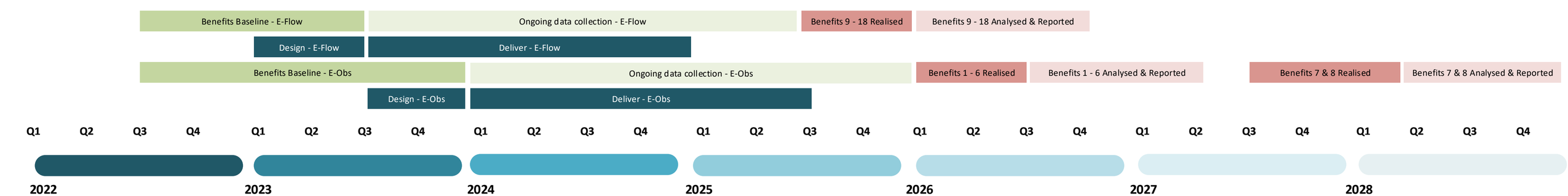
Patient flow technology will aid in reducing the time required for clinical site managers to spend identifying available beds. Clinical site management teams can focus on solving key flow problems, such as liaising with social care

**17. Reduced average length of hospital stay per patient**

Patient flow technology will aid in ensuring that patients are treating at the right time and right place which will result in a reduction in the average **length of stay per patient to 6.1 days**.

**18. "dead bed" time can be reduced by enabling staff to remotely access information on current bed status**

It is expected that "dead bed" time will be reduced by staff being enabled to remotely access information on current bed status and estimated discharge dates



# Patient Observations

Current processes in HDUHB are not optimised as most of the Information is recorded manually on paper, and communication channels are slow and time-consuming which results in delays for patients stays. Staff are unable to access the correct information easily and in a timely manner when they need it which results in significant risk to patient safety. A lack of clinical staff makes it even more crucial to increase efficiencies so that limited resources are utilised in the best way to achieve positive outcomes for our patients.

### Current Challenges & Risks

- Risk of charts and data going missing
- Information is captured manually and cannot be shared easily
- Impact on patient safety
- Paper based
- Risk of errors being made

An e-Obs system allows clinical staff to record their patient observations digitally. In an acute setting, staff can use mobile devices to record data, which can be accessed remotely by other clinicians. Such systems automatically calculate the (NEWS2) score, which reflects whether a patient's condition is improving or deteriorating and provide clinicians with relevant alerts. Remote monitoring will allow doctors and nurses to access data from anywhere without the need to physically see the patient which will save them time and also reduce the risk of cross-infection. The provision of real-time data will help improve clinical decision-making and reduce the risk of harm, while providing patients and their families with confidence that they are monitored appropriately.

E-Observations will provide more accurate and regular observations that will provide early identification of risks to the patient, such as, sepsis. Automated alerts will remind staff to take actions when patients are deteriorating and supports early intervention.

## Current Process

Healthcare assistant or nurse will take the observations.

Including: BP, pulse, RR, temperature, O2 saturation, conscious state.

Observations are recorded on the observation chart

The NEWS or PEWS score (or other EWS score) is calculated manually and recorded on an early warning chart
The Glasgow Coma Score is included at the bottom of the Track and Trigger chart

Unregistered nurses work under the supervision of qualified staff and are required to flag any results of concern.
A registered nurse signs off on the observations

Observations that are abnormal for the patient or the NEWS (or other EWS) score indicates that the patient is deteriorating then a relevant staff member is alerted, and appropriate steps are taken

## Electronic Patient Observations

**Reduced manual admin work and removal of duplication of effort** to save

960

**minutes per day** across the health board

**Reduced risk of errors**

**Reduced litigation**

**Increased number of observations completed on time**

**Reduced unplanned admissions to critical care units from e-Obs-equipped wards**

**Reduced complaints and improved brand image due to better patient care**

**Reduced risk of patient harm and improved patient safety** which will result a 90% reduction in norovirus incidents and up to a

70%

reduction in the number of in hospital cardiac arrests which could mean an annual saving of up to approximately

£162,788

**Increased staff confidence resulting in improved decision making**

Patient observations are automatically captured, and the relevant scores are calculated and recorded

Electronic Whiteboards that capture key patient data made available through connected devices.
Remote access to data as information is synchronised across systems.

Automation of routine tasks minimising risk of errors and enables early intervention.

Better communication with the patient by creating visuals that can be shared. E.g., staff can share how treatment has impacted an individuals' vital signs over time.
The patient is aware of next steps and informed.

# Handovers

Current process lack real-time information which leads to slow handovers, transfers and discharges. This also presents a key risk to patient safety whereas the electronic patient handover systems ensures that errors are minimised, for example, due to illegible handwriting. As a result, fewer patients are admitted to intensive care units, where beds carry a significantly higher cost. Delays caused by inefficiencies in processes, including handovers, leads to a significant negative impact on health services with ambulances waiting outside Emergency Departments, patients spending up to 5 days in A&E without being admitted to a ward, and surge beds opened regularly.

## Current Challenges & Risks

- Largely paper based
- Information is duplicated and kept in silos
- There is a lack of real-time data
- Many of the existing systems do not support patient flow across the organisation
- Inconsistent between wards and sites
- Missing information
- Patients are often assigned to any available bed which means they may not be in the ward best suited to care for their condition

## Current Process

Observation Chart, Skin Bundle & Intentional Rounding Adult Nursing Assessment documents are scanned and saved to SharePoint with the originals being transferred to the ward with the patient.
A&E staff transfer the patient on WPAS.

Handover takes place over the phone between A&E staff and Senior Sister of the ward where the patient is being transferred to.

Senior Sister handwrites the information on a handover sheet or on a piece of paper.
The handover sheet will be updated throughout

Senior Sister updates a digital version of the handover sheet at the end of their shift.
Hardcopy is binned.
A new handover sheet is printed off for the next shift.

Patient is moved to the new ward.

***"You feel as a clinician that you are working blind… We're making life and death decisions without all the information"***

## Electronic Patient Handovers

Workflow solutions that provide a **real-time overview** of bed capacity and facilitate communication. A Control Centre, which provides a clear view of timeframes for beds becoming available and provides the hospital's dashboard.

Electronic Whiteboards that capture key patient data made available through connected devices which prevents the same information being recorded multiple times in different locations and repeatedly across wards.

Mobile apps that visualise key information and help staff communicate with colleagues

**Reduced stress levels for staff**

It is anticipated that the introduction of patient flow technology will improve staff wellbeing and reduce stress levels by removing duplicate tasks and freeing up time on their shifts

**Improved communication between staff members and across departments**

Patient flow technology will assist in cross-departmental communication through providing up to date information about a patient that will aid in immediate clinical and operational decision making.

**Increased time to care for patients**

66

minutes of nursing time per 12-hour shift released

**Reduced handover time and quicker discharges**

40%

of discharges to take place before midday

# Efficiencies & Savings

A more efficient process would create capacity. It would also better the patient journey and transfers would run much faster and smoother when you remove the need to scan notes and wait to confirm bed allocation. For staff, they will be able to do more in other areas if we make processes more efficient. It is anticipated that e-Observations will free up time for nursing staff while patient flow solutions are expected to release time for clinical site teams to facilitate flow in a more efficient and proactive way. By removing duplication and digitising manual processes it is expected that staff capacity will increase which could result in a reduction of overtime spend.

**Reduced time spent by clinical site manager to identify available beds**

Patient flow technology will aid in reducing the time required for clinical site managers to spend identifying available beds. Clinical site management teams can focus on solving key flow problems, such as liaising with social care

*"It's the system that is limiting us clinically."*

40%

of discharges to take place before midday

**"dead bed" time reduced by enabling staff to remotely access information on current bed status**

**Improved handovers and quicker discharges**

Patient flow will allow more efficient handovers on wards, when patients move location and assist in quicker discharges allowing more patients to be discharged before midday. Currently 15% of discharges take place before midday.

**Reduced average length of hospital stay per patient**

Patient flow technology will aid in ensuring that patients are treating at the right time and right place which will result in a reduction in the average **length of stay per patient to 6.1 days**.

**Reduced manual admin work and removal of duplication of effort**

Through the utilisation of remote monitoring and the automation of tasks there will be a reduction in duplication, data will be easily shareable across the health board

16

hours of staff capacity saved each day

**Reduced litigation**

The reduction of patient harm and the reduction in complaints due to the use of e-Observations will potentially result in the reduction of litigation for the health board potentially savings **millions of pounds** each year.

# Staff Perspective

Patient flow technology will assist in cross-departmental communication through providing up to date information about a patient that will aid in immediate clinical and operational decision making. With remote digital access to information, and automated notifications, communication becomes easier. It is expected that this will result in a lot less phone calls, which will remove dependencies on staff being available to answer the phone for example for transfers or handovers. Digital notes are also expected to be more easily legible. E-Observations will provide clinicians with up to date and accurate information that will aid their confidence when conducting routine tasks in the workplace.

***"…communication is the biggest problem. Especially when moving between specialities."***

***"If I could change one thing I would try and improve the communication between the emergency department (where most patients go out of) and the ward areas… Can we not have a direct means of communication?"***

**Reduced stress levels**

It is anticipated that the introduction of patient flow technology will improve staff wellbeing and reduce stress levels by removing duplicate tasks and freeing up time on their shifts

positive impact on staff morale

positive impact on staff sickness and absences absences

reduced staff turnover

**Improved communication between staff members and across departments** + **Increased confidence resulting in improved decision making** = **Improved outcomes for patients**

# Patient Perspective

E-Obs and patient flow solutions help provide more accurate and reliable information. Staff will find that it will be easier to pick up on trends and identify deteriorating patients earlier. It is also worth noting that an electronic system can serve as a safety net for staff with less experience. There are less errors, and the information provided can be used with confidence.

***"It's about providing high quality care for patients. And providing it at the right time."***

**Reduced risk of patient harm and improving patient safety**

Through having access to the correct information easily and in a timely manner this will reduce the risk of harm to patients and improve their safety. It's anticipated that the number of cardiac arrests for patients will reduce by **50 - 70%**.

up to a

70%

reduction in the number of in hospital cardiac arrests which could mean an annual saving of up to approximately

£162,788

**Reduced risk of errors (e.g. due to more regular, accurate observations)**

E-Observations will provide more accurate and regular observations that will provide early identification of risks to the patient, such as, sepsis. Automated alerts will remind staff to take actions when patients are deteriorating which supports early intervention. Automation of routine tasks, such as calculating the NEWS2 score, frees up time for staff to look after the patient and reduces the risk for errors.

***"People sometimes have difficulties adding up the NEWS score and there is incorrect scoring."***

**Reduced unplanned admissions to critical care units from e-Obs equipped wards**

10%

reduction in the number of unplanned admissions to critical care units from e-obs equipped wards

***"You feel as a clinician that you are working blind… We're making life and death decisions without all the information"***

**Increased time to care for patients**

By reducing time spent on administrative tasks using a mobile device can release up to **66 minutes** of nursing time per 12-hour shift which can be used to care for patients

66

minutes of nursing time per 12-hour shift released

**Increased number of observations completed on time**

E-observation technology will result in an increase in the number of observations completed on time.

**Reduced complaints and improved brand image due to better patient care**

The reduction in errors due to the use of e-Observations will ultimately lead to a reduction in complaints and an improved brand image due to better patient care.

**Reduced average time until seen by doctor in A&E**

It is expected that patient flow technology will help healthcare staff effectively manage resources and free up time for patient care, enabling the Welsh Government to meet key national targets, such as the 4-hour A&E waiting time target stating that **95% of patients** attending A&E should be admitted, transferred or discharged within 4 hours. Currently this is around **70%**.

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