Keele University Teaching Trust

NHS
North Staffordshire Combined Healthcare NHS Trust

Our Ref: NG/RM/25390
Date: 28th November 2025

Nicola Griffiths
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North Staffordshire Combined Healthcare NHS Trust
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Reception: 0300 123 1535

Dear

Freedom of Information Act Request

I am writing in response to your e-mail of the 31st October 2025**.** Your request has been processed using the Trust's procedures for the disclosure of information under the Freedom of Information Act (2000).

Requested information:
Please can I request the following information under the freedom of information act.

1. Oxevision service evaluation reports, including qualitative and quantitative data. These may be referred to as 'early insights report', 'Oxevision benefits realisation', 'Oxevision report', 'Oxevision review', 'Oxevision internal review', 'Oxevision pilot report'. I am requesting the documents that details any review of the usage of Oxevision within the Trust. There may be multiple reports, and they may have names that differ to the examples provided. **Please see Appendix 1 attached.**

2. All Oxevision business cases and renewal cases. Again, these may be referred to by other names, but I am requesting documents that outline the rationale for implementation of Oxevision and may have been presented as part of the process of considering implementation and/or renewal of contracts. **Please see Appendix 2 attached.**

   Information redacted in table 1 has been withheld using an absolute exemption under Section 40(2) as the patient numbers are low and therefore there is a risk of identifying individual patients. In relation to our duty to assist under Section 16(1) we can however confirm that this is five patients or less.

   Financial costing in section 8 / 8.1 / 8.2 have been redacted, and Appendix 1 has been removed as the Trust is applying Section 43 exemption to this aspect of the request as release of the information is likely to prejudice the commercial interests of any person (A person may be an individual, a company, the public authority itself or any other legal entity). As part of our consideration, we have considered the balance of releasing the information in relation to the wider public interest vs our commercial interests. In our view the public interest is

better served by the Trust retaining its commercial ability to negotiate with the supplier when balanced against the public interest in releasing the information.

If you are dissatisfied with the handling of your request, you have the right to ask for an internal review of the management of your request. Internal review requests should be submitted within two months of the date of receipt of the response to your original letter and should be addressed to: Dr Buki Adeyemo, Chief Executive, North Staffordshire Combined Healthcare Trust, Trust Headquarters, Lawton House, Bellringer Road, Trentham, ST4 8HH. If you are not content with the outcome of the internal review, you have the right to apply directly to the Information Commissioner for a decision. The Information Commissioner can be contacted at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF.

Yours sincerely

Nicola Griffiths
Deputy Director of Governance

Principles for using digital technologies in mental health inpatient care

Introduction:

At the beginning of 2024 North Staffordshire Combined Healthcare Trust (NSCHT) commenced a pilot in the use of a vision-based patient monitoring system (VBPMS) known as Oxevision, the pilot included Ward 6, an older peoples mental health ward and a 6 bed Psychiatric Intensive Care Unit (PICU) with one seclusion room.

In October 2024 a report was presented to the Senior Leadership Team (SLT) providing a 6-month evaluation into the use of Oxevision VBPMS on the 2 pilot wards: staff feedback was positive in the areas of physical health monitoring, improved sleep for patients and supporting least restrictive practice. Patient and carer's satisfaction was positive although this was limited due to the limited timeframe and the cohort of patients included in the study.

VBPMS have recently had some negative publicity with concerns over video footage of patients being used without appropriate governance being in place and with patients not consenting to this intervention. Following this NHS England (NHSE) published a document titled 'Principles for using digital technologies in mental health inpatient treatment and care' (NHSE, 2025). The document provides 8 guiding principles which have been created in view of the coproduced Culture of care standards for mental health inpatient services.

Purpose of the Report (Executive Summary):

This paper will review each of the 8 principles in respect of the pilot wards that are using Oxevision VBPMS and make recommendations of where improvements can be made.

Principle 1: Any use of digital technology will support a human rights approach to care.

Principle 2: Any decision to use digital technologies and to collect and store patient data from the use of such technologies must be based on consent from the patient (or a person lawfully acting on their behalf) or be taken following a best interests decision-making process.

Principle 3: Patients' opportunities to access available digital technologies to enhance their care and treatment must be equitable.

Principle 4: Co-production must occur at procurement, testing, implementation and evaluation of all digital technologies.

Principle 5: Digital technologies for care, treatment and safety must enable inpatient settings to provide therapeutic and personalised care as set out in the culture of care standards.

Principle 6: Safety planning for patients must always be personalised and co-produced; digital technologies must only be used to help manage safety risks if deemed to be proportionate to the need.

Principle 7: Providers must adopt a process for assessing the evidence base of any digital technology prior to procurement and implementation and must be able to demonstrate how the evidence base was taken into account in any decision made to procure and implement the technology.

Principle 8: Providers must have a process of regularly measuring the impact and benefit of the use of any digital technology on patients' care and treatment outcome.

Background:

Oxevision has been developed by Oxehealth, an Oxford based digital company, it can be defined as a device that measures patients vital signs via infrared-sensitive technology, it is installed in a housing unit in each patient's bedroom and in seclusion. This allows staff to measure patient's breathing rate and pulse rate without having to enter the patient's bedroom, thus enhancing patient safety whilst being less invasive.

Clear video data recorded by the Oxevision system is automatically deleted on a 24-hour cycle and is not retained unless specifically requested to support incident investigations. This system can support patients, carers, staff and organisations to learn from patient safety events.

After concerns were raised about the use of live video footage and patients not consenting to the use of this technology NHSE developed the 8 principles to assist service providers with how to ensure that appropriate governance is in place to protect patients.

This paper will consider each principle and provide an update on where NSCHT is in relation to these principles, it will then make recommendations as to any areas where further work is required during the ongoing pilot.

Principle 1: any use of digital technology will support a human rights approach to care.

NHSE state that any digital technology must be used in accordance with the human rights act (1998). This includes the right to:

Life

Liberty and security

Respects for private and family life

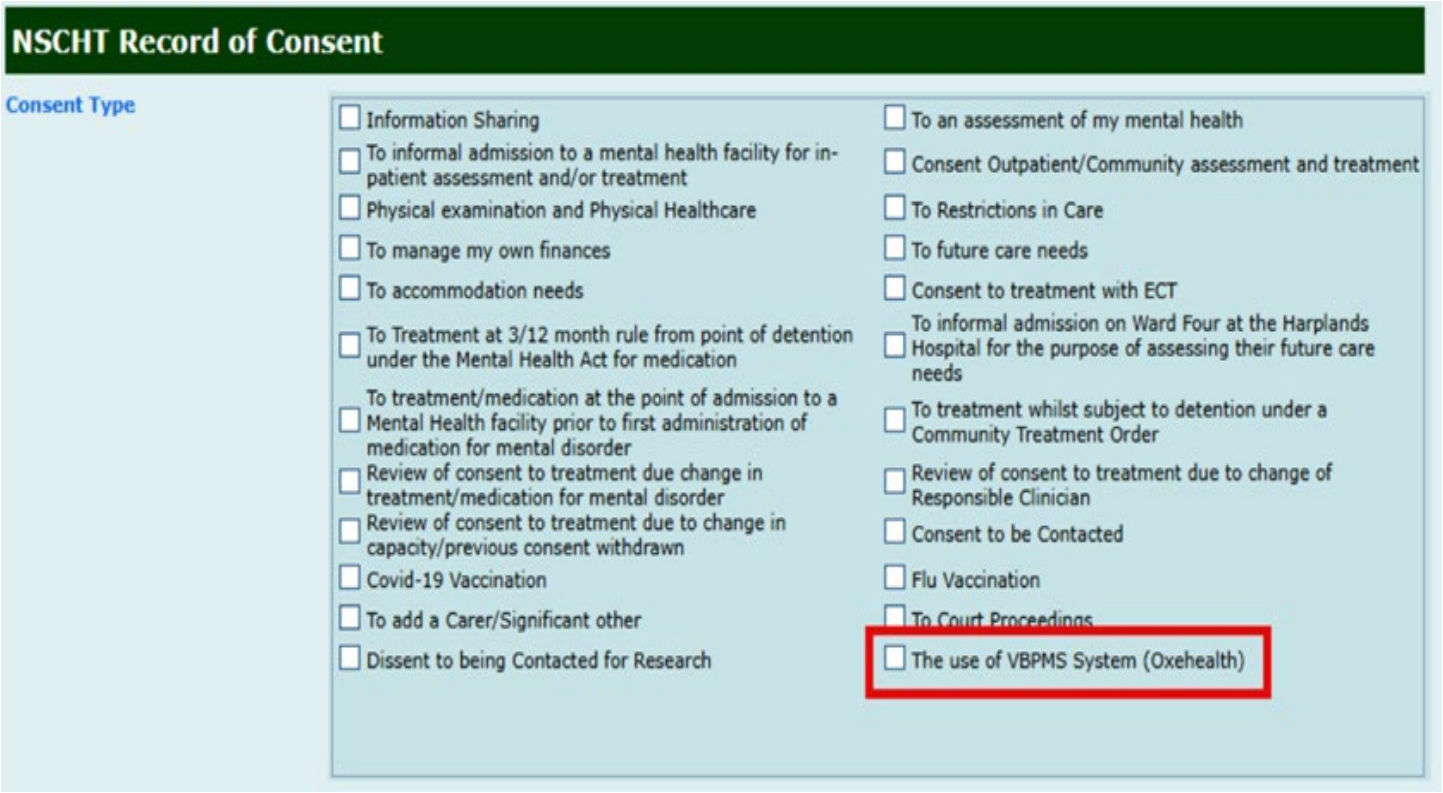
Be free from inhumane or degrading treatment

In NSCHT patients are informed how VBPMS can support the recording of vital signs in a least restrictive manner, this information can be provided verbally on admission, written in the form of a patient/carer leaflet and with posters available on the wards.

To ensure that patients' rights to privacy are considered best practice guidance has been produced by the National Mental Health and Learning Disability Nurse Directors Forum; this guidance has been used by NSCHT and includes a clear set of questions and considerations to support obtaining consent from patients. These guidelines have been used to update the Standard Operating Procedures (SOPs) that are used on the 2 wards and in seclusion.

At the commencement of the pilot there was no system in place to audit patients consent to VBPMS, the Oxehealth clinical subgroup requested that a consent form was created on NSCHT Electronic Patient Record (EPR) system known as Lorenzo. This digital form means that staff can now record if a patient is consenting or objecting to Oxehealth VBPMS. This has been added to the generic consent form on Lorenzo and is shown below.

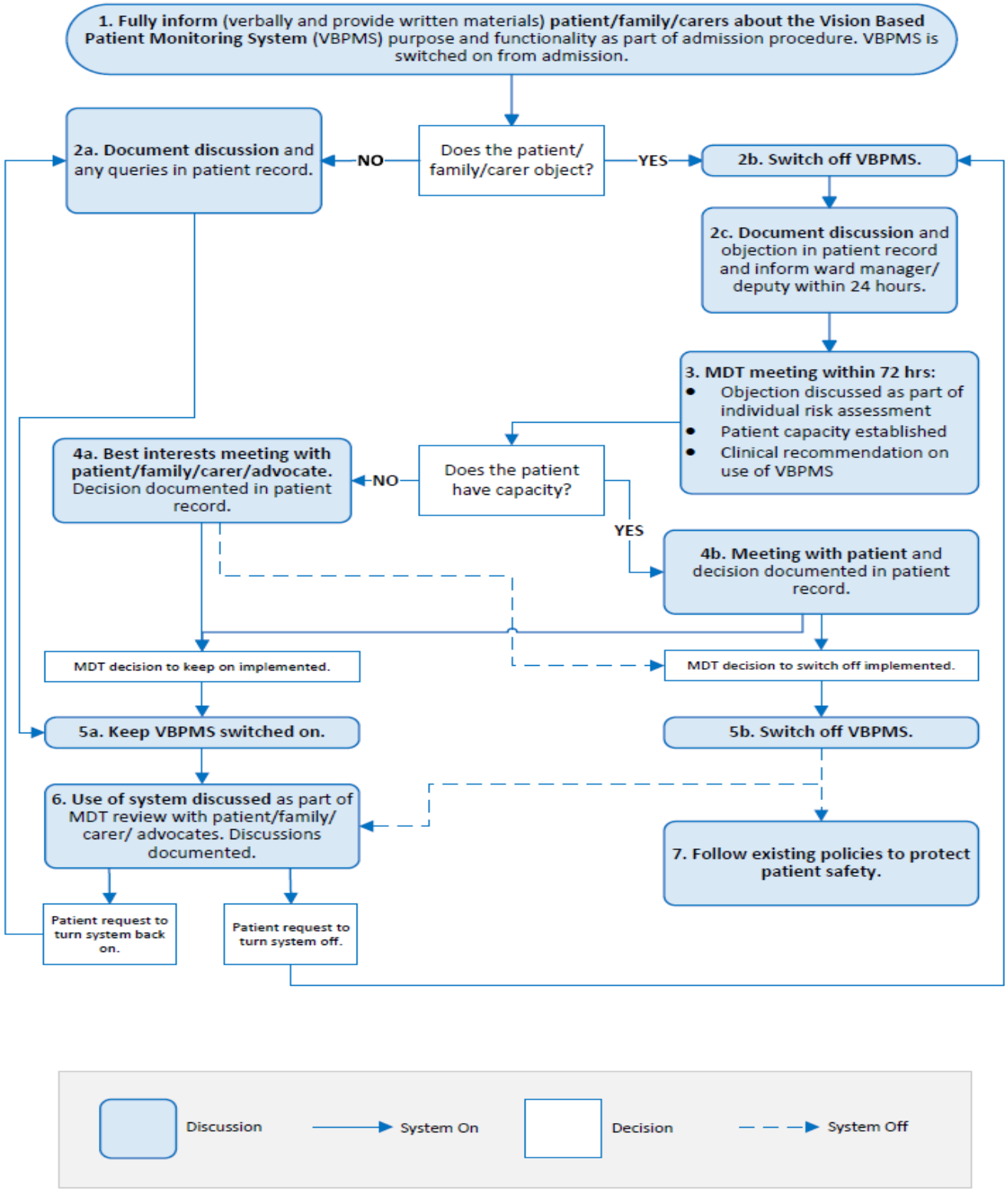
Figure 1. Screenshot of Lorenzo consent form showing VBPMS (Oxehealth)



Principle 2: any decision to use digital technologies and to collect and store patient data from the use of such technologies must be based on consent from the patient (or a person lawfully acting on their behalf) or be taken following a best interests decision-making process.

A consent flow chart was developed in line with guidance from the National Mental Health and Learning Disability Nurse Directors Forum, see below:

Figure 2. Consent flowchart

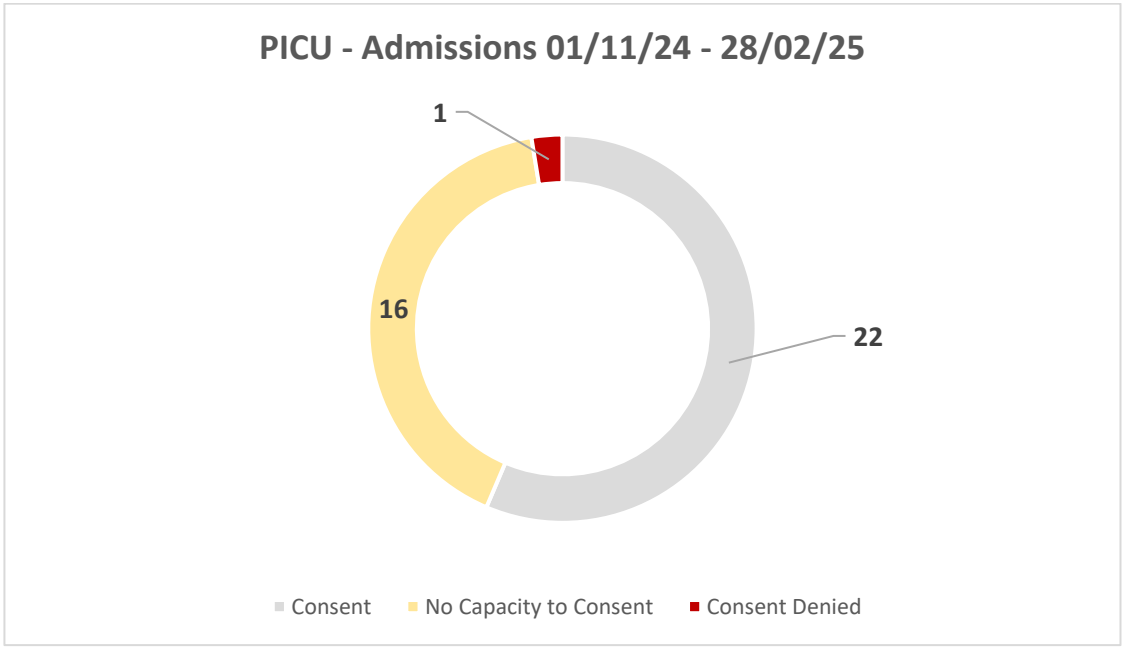


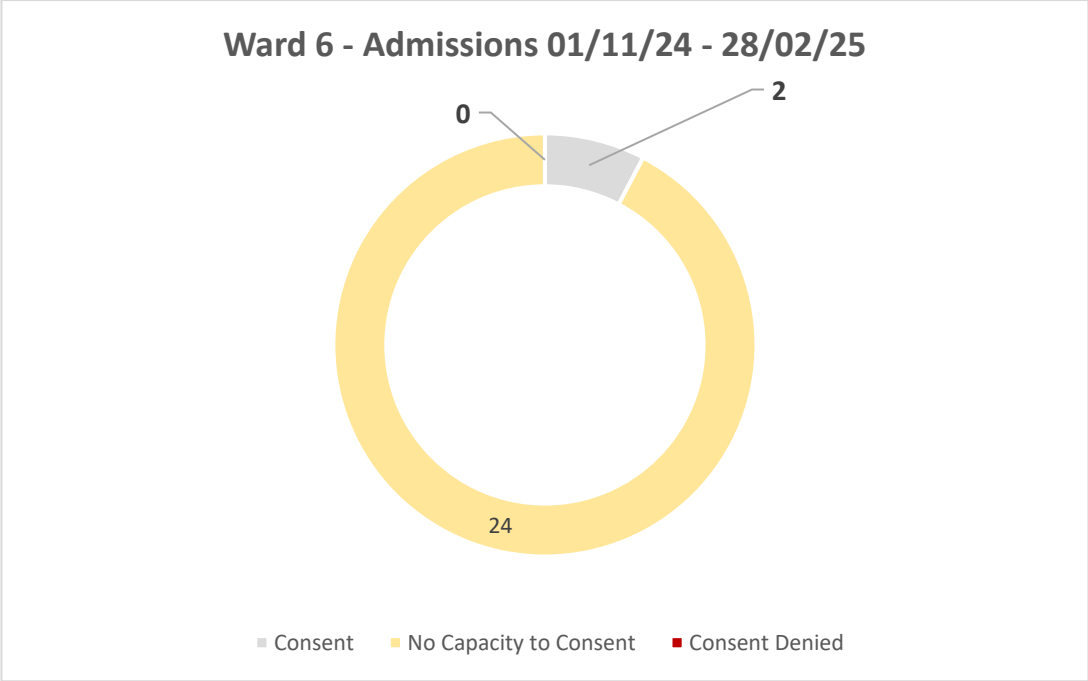
On admission each patient is asked if they consent to VBPMS, if they patient does not consent then the device is turned off, the devise can be turned off immediately on the ward computer. If the MDT feel that VBPMS should be used in the best interest of the patient for example to monitor the patients' vital signs an MDT discussion will take place and the outcome of this is recorded in the patients notes.

The following graphs have been produced from the data captured from the consent form in Lorenzo, this shows the number of admissions to PICU and Ward 6 since 1st November 2024 to 28th February 2025. This shows where consent was recorded, where the patient was assessed as having no capacity to consent and where the patient had capacity to consent but declined the option of VBPMS being in use.

Figure 3. Consent data

	Total Ward Admissions	Consent	No Capacity to Consent	Consent Denied	Unknown
PICU	39	22	16	1	0
Ward 6	27	2	24	0	1





The data shows that on PICU from 1st November 2025 until 28th February 2025 there were 22 patients that had consented to VBPMS and 1 patient that objected, 16 patients did not have the capacity to consent. On ward 6 out of 26 patients that had been admitted only 2 patients were able to give their consent, 24 patients did not have the capacity to consent.

Where patients do not have the capacity to consent to VBPMS the guidance indicates that this is recorded in the patients notes. There is evidence of this discussion taking place however this information is difficult to retrieve as it is placed in the patients' clinical notes. Further work is required to consider if this can be built into the Lorenzo consent drop down box which may be able to capture this detail for audit and compliance purposes.

Principle 3: patients' opportunities to access available digital technologies to enhance their care and treatment must be equitable.

NHSE state that in settings where digital technologies are available, providers must ensure that patients are supported to be able to benefit from digital technologies as there is evidence that this can enhance their care and treatment as well as supporting personalised safety plans.

On ward 6 there have been several examples of where Oxehealth has supported the increase in patients' observation levels in response to a fall. On PICU there is feedback from staff that the systems support's improved privacy and dignity as staff are no longer having to entre patient's bedroom to record 15 minuet checks, there is also feedback that patients sleep is improved due to less disruptions to patients throughout the night.

As part of the culture of care work the patient safety partners are keen to commence a piece of work to establish inpatients views on VBPMS. An audit has been produced by the National Mental

Health and Learning Disability Nurse Directors Forum is available for this purpose. It is recommended that this audit be used to support the ongoing evaluation of the pilot wards.

Principle 4: co-production must occur at procurement, testing, implementation and evaluation of all digital technologies.

Co-production with patients and carers has been and continues to be central to the development of the services at NSCHT. The patient experience facilitator and the patient safety partners were included in the project at the commencement of the project group and will continue to be part of its evaluation.

Since its inception in 2012, Oxehealth has co-produced its platform in collaboration with patients, carers and clinicians. Oxehealth has an active and growing expert-by-experience advisory group. In 2023 and 2024, Oxehealth undertook 24 co-production and codesign engagements, covering areas such as patient and carer communications, product and service development and advising on SOP best practice guidance.

In February 2025 the patient experience facilitator has reviewed the information provided to patients and carers on the 2 pilot wards, although there was evidence of patient leaflets and posters available these were not displayed in all areas. The Oxehealth clinical subgroup have been tasked with ensuring that posters and leaflets are displayed in all areas on the pilot wards.

The patient experience facilitator has agreed to request that the patient safety partners commence a piece of work to audit patient and carer views of having VBPMS in operation and to also evaluate the information available to patients and carers on the 2 wards.

Principle 5: digital technologies for care, treatment and safety must enable inpatient settings to provide therapeutic and personalised care as set out in the culture of care standards.

Technology cannot and should not replace positive and therapeutic engagement with patients and the visible presence of staff within wards (Buckley, 2024). In a recent multi-centre study VBPMS have been found to support staff to be able to spend more time with patients through 'releasing time to care' (Nolan, 2024). The 2 pilot wards both ensure that the use of this technology is documented as part of patient care, and this is reviewed on a regular basis in the Multi-Disciplinary Team Meeting (MDT). NSCHT has signed up to be part of the national research that is being completed by Nolan et al during 2025.

Principle 6: safety planning for patients must always be personalised and co-produced; digital technologies must only be used to help manage safety risks if deemed to be proportionate to the need.

As with Principle 5 the 2 pilot wards ensure that the use of technology is documented as part of patient care plans and reviewed on a regular basis. Further work is taking place within NSCHT to

develop co-produced care plans as part of the culture of care work, this includes staff training on personalised and co-produced care planning.

Information about the function and purpose of Oxehealth should be shared in a format that is personalised. Further work is required to ensure that the information NSCHT provide is accessible and personalised and tailored to each person's communication needs.

Principle 7: providers must adopt a process for assessing the evidence base of any digital technology prior to procurement and implementation must be able to demonstrate how the evidence base was taken into account in any decision made to procure and implement the technology.

Independent research on patient experience has shown that most patients with direct experience of the Oxehealth platform feel that their therapeutic relationships and communication with staff is the same or better when the system is in use. There is a significant body of peer-reviewed literature and real-world evidence demonstrating the clinical outcomes and positive impact of the Oxehealth. These articles can be found in the reference section of this report.

Principle 8: providers must have a process of regularly measuring the impact and benefit of the use of any digital technology on patients' care and treatment outcomes.

SLT received a 6-month review paper where the impact of Oxehealth on the 2 pilot wards was reported on, the conclusion from the 6-month review was that staff satisfaction was overwhelmingly positive in the areas of supporting the monitoring of physical health, less disruptions to patients sleep and observations being less restrictive. Further data is required on service user and carer satisfaction. NSCHT will continue to evaluate VBPMS on the 2 pilot wards before consideration will be given to roll out to other wards within the trust.

NSCHT complies with the provisions of the Data Protection Act 2018 and UK GDPR in implementing a digital technology and in the use and storage of any personal identifiable data produced by a digital technology.

All staff on the 2 pilot wards were appropriately trained in the use Oxehealth digital technology, this training refers to the human rights act and the ethical considerations of its implementation. The training also adheres to the guidance that was produced by the National Mental Health and Learning Disability Nurse Directors Forum on best practice for staff training.

Further and ongoing training on how the technology works is provided by Oxehealth through OxeAcademy, a learning management system that staff can access at any time of the day or night, this being suitable for night staff, this platform continues to be available to existing staff and bank and agency staff as and when required.

Oxehealth provide a 24-hour contact line where any problems with the system can be flagged up, this system has supported staff in the introduction of this technology to the wards and has received positive feedback from staff.

Summary:

The clinical decision-making process to use VBPMS to support the care and treatment of a patient must demonstrate a careful balancing of the patients' rights. The best practice guidance produced by the National Mental Health and Learning Disability Nurse Directors Forum has been used to review the SOPs, consent flowchart and practice to ensure that patients human rights are paramount.

The additional tick box to the consent record on Lorenzo has supported staff in being able to record patient's consent or objection to VBPMS, this recording has assisted in the auditing of the number of patients that have consented to or have objected to VBPMS on the 2 pilot wards.

Further work is required to audit MDT notes and clinical notes to review when patients lack capacity to consent to VBPMS and the decision is made to continue in the best interest of the patient. A possible improvement to the retrieval of this information is to update the form on Lorenzo to include a best interest discussion and decision.

NSCHT currently provide posters and leaflets for patients and carers that explain what VBPMS do and how they can support the patients care. Further work is required to ensure that this information is continually updated and displayed on both wards and that this information is tailored to the individual communication needs.

Recommendations:

1) Consider amending the consent form on Lorenzo to include best interest discussion and decisions.

2) Request that the patient safety partners complete the audit produced by the National Mental Health and Learning Disability Nurse Directors Forum to evaluate patient and carer views on VBPMS.

3) Request that the Oxehealth clinical subgroup audit the use of posters and leaflets on both pilot wards.

4) Request that the current posters and leaflets are moderated to ensure that they meet individual communication needs such as language and easy read formats.

5) To continue with the pilot on Ward 6 and PICU and monitor outcomes.

References:

Buckley, C., et al. (2024). Economic impact of a vision-based patient monitoring system across five NHS mental health trusts. PLOS Digital Health, 3(9): E0000559.

Clark, H., et al. (2022). Non-contact physical health monitoring in mental health seclusion. Journal of Psychiatric Intensive Care, 18(1), 31-37.

Dewa, L. H., et al. (2023). A service evaluation of passive remote monitoring technology for patients in a high-secure forensic psychiatric hospital: a qualitative study. BMC Psychiatry, 23, 946.

Malcolm, R., et al. (2022). Economic evaluation of a vision-based patient monitoring and management system in addition to standard care for adults admitted to psychiatric intensive care units in England. Journal of Medical Economics, 25(1), 1101-1109.

Malcolm, R., et al. (2022). Economic evaluation of a vision-based patient monitoring and management system in an acute adult and an older adult mental health hospital in England. Journal of Medical Economics, 25(1), 1207-1217.

Lloyd-Jukes, H., et al. (2021). Vision-based patient monitoring and management in mental health settings. Journal of Clinical Engineering, 46(1), 36-43.

Nolan, F. (2024). A multi-site evaluation of the use of vision-based patient monitoring systems & body worn cameras in mental health inpatient wards in England [Presentation]. 29th International Mental Health Nursing Research Conference, Oxford, England.

Murray, K., et al. (2016). Non-contact health monitoring in secure mental health settings: patient and staff studies at Broadmoor Hospital [Paper presentation]. National Conference Research in Forensic Mental Health Services, London, England. Basu, A. (2015).

Non-contact health monitoring in secure mental health settings: a proof-of-concept study at Broadmoor Hospital [Paper presentation]. National Conference Research in Forensic Mental Health Services, London, England.

Ndebele, F., et al. (2023). Non-contact health monitoring to support acute care in mental health. Journal of Mental Health, 33(3), 320-325.

Ndebele, F., et al. (2022). Non-contact health monitoring to support care in a psychiatric intensive care unit. Journal of Psychiatric Intensive Care, 18(2), 95-100.

Wright, K., et al. (2022). Reducing falls in dementia inpatients using vision-based technology. Journal of Patient Safety, 18(3), 177-181.

https://www.oxehealth.com/

North Staffordshire Combined Healthcare NHS
NHS Trust

Improving inpatient safety and quality using digital technology

Thursday 26th November 2020

Working together, developing together.

1. INTRODUCTION

As part of North Staffordshire Combined Healthcare NHS Trusts Strategy 2020 and beyond, there is an aspiration to improve quality and maintain patient safety by exploring digital opportunities.

Safety and quality challenges in inpatient services include the risk of falls, self-harm, assaults and physical health deterioration.

In addition, current observation practices (especially at night) to confirm patient safety lead to poor patient experience (including complaints of lack of sleep from intrusive staff observations) and poor staff experience.

The Trust has been reviewing new technologies that can support with improving safety and quality in inpatient services and identify how, as part of the "digital by default" agenda, innovative digital technologies can provide solutions to the Trust's most pressing safety and quality challenges in inpatient services.

Several discussions have taken place with Executive Directors, in Acute and Urgent Care Directorate and the Specialist Directorate, including with Clinical Directors, Service Managers, Ward Managers and the Senior Leadership Teams. A Project Group was set up to develop this business case, including representatives from clinical, operational, estates, IT, finance and procurement. In addition, ward teams, service users and carer representatives have been engaged to seek opinions on the potential impact of this business case. These discussions have been positive and instrumental in defining the scope and preferred option outlined in the paper.

2.1 Fit with Trust strategy

The case supports the following strategic goals for the Trust:

Provide the highest quality services: using digital technology to support and enhance clinical staff to reduce safety incidents, improve quality of care, and patient and staff experience whilst in hospital.

Digital by default: giving clinical teams a digital "tool" to support, enhance and empower them to care for patients in the therapeutically most beneficial way and manage safety risks on the ward.

Create a learning culture to continually improve: using digital technology to support staff to improve ways of working and evidence the safety, quality and efficiency benefits of those improvements over time. In addition, and under strict governance, digital technology can provide objective, auditable data to support with near miss and SI investigations to help individuals, wards and the organisation to learn.

Maximise and use our resources intelligently and efficiently: using digital technology to support more efficient use of clinical time (especially acute given current staffing shortages), thereby encouraging skilled staff to focus their expertise on recovery focused, therapeutically beneficial activities.

COVID-19 recovery: given infection control risks presented by contact and proximity with suspected COVID-19 patients, using digital technology to minimise avoidable clinician contact with patients who need to be isolated and their cardio-respiratory vital signs and activity measured on a regular basis.

Dormitory eradication: In addition, this case is in alignment of the ongoing dormitory eradication and elimination of mixed sex accommodation agenda and the Trust Reduced Ligature Programme.

2.2 Fit with national or local economy strategy

The strategic case for this service reflects national and local priorities on safety and quality in mental health inpatient services, and is based on good principles:

It supports the STP's objectives of:

- Focused prevention
- Effective and efficient planned care

It is in line with national CQC and NHSE/I priorities for inpatient wards:

- Zero suicide ambition
- Reducing self-harm especially ligature risks
- Reducing restrictive practice

- Reducing violence & aggression
- Reducing sexual safety risks
- Reducing falls in older adults
- Improving staff wellbeing on inpatient wards.

If this case is successful, it will strengthen the safety and quality of the Trust's inpatient services, improve staff productivity and demonstrate the Trusts ability to adapt to evidence-based digital technologies in the NHS.

2.3. Service context

This case is focused on inpatient mental health facilities. The following services are considered within the case: PICU, acute working age adult wards and older adult wards.

3. CURRENT SERVICE PROVISION

In inpatient wards, current clinical operations to manage/monitor patient safety in inpatient services are largely human resource based and are based on a risk assessed observation level (i.e. intermittent or close observations).

This approach continues to be a grievance for our patients, who feel that their privacy and sleep are being disturbed at night, which is detrimental to their recovery. In addition, the current approach has not fully addressed safety concerns; despite best efforts, incidents including SIs still occur on wards.

Whilst substantial progress has been made to improve patient safety in inpatient services, incident data from 2019 indicates there is further progress that can be made in areas including self-harm, falls and assaults:

Ward	Service Type	Falls (#)	Self-Harm (#)	Assaults (#)	SIs (#)
PICU	PICU	11	11	**80**	-
Ward 1	Acute	14	**170**	51	-
Ward 2	Acute	[Redacted]	10	59	-
Ward 3	Acute	22	**222**	**120**	[Redacted]
Ward 4	Older People	**85**	[Redacted]	37	[Redacted]
Ward 6	Older People	48	6	24	-
Ward 7	Older People	68	[Redacted]	24	[Redacted]

Table 1 – Patient Safety Data (2019)

In addition, the current observation process (intermittent and close observations) is labour intensive to undertake.

For example, in 2019/20 close observations are estimated to have cost approximately £1.1m each year. This is estimated to be the cost of a WTE Band 3 Healthcare Assistant (£1.1m as safe staffing levels allow for 1 x 1-2-1 per shift). It is difficult to be able to identify the actual costs of observations due to intermittent & general observations that can take place per shift.

This figure does not include the actual spend associated with 1-2-1 observations from overspend (bank & agency) as this is hard to calculate to exclude sickness and vacancy.

The current observation process has several other challenges, including:

- It can lead to a lack of staff engagement, with the monitoring of patients becoming "mechanical" and non-therapeutic in nature
- Staff cannot objectively identify what happened prior to and during a serious incident in a bedroom, and current data/documentation lacks clarity and identifiable crucial information for clinical decision making.

Several environmental factors are exacerbating this situation, including:

- There has been an increase in patient acuity for our inpatient services, including since the start of the COVID-19 pandemic
- There has been an increase in the complexity associated with managing patients physical health, exacerbated by the limitations in place due to COVID-19 infection control.

Conventional technologies, such as service user call alarms and fall detection mats, have been available for many years but have limited impact and limited clinical evidence to suggest they improve patient safety; they are supportive of a reactive system of care (i.e. they provide alerts to the fact or after the fact, minimising opportunities to intervene early and proactively to prevent harm and injury to patients or staff).

Advancements in recent years have meant new services/technologies that are supportive of proactive care are now available on the market. They have a growing evidence base with proven safety, quality and efficiency outcomes documented in NHS mental health inpatient services.

4. THE CASE FOR CHANGE

4.1 Reactive to proactive care

Proactive technologies help ward teams to reduce harm, improve care quality and save clinical time by:

- Providing clinically relevant, accurate alerts to early warning signs before an adverse event occurs, rather than after it, enabling clinical teams to intervene proactively in time
- Supporting improved care planning by presenting care insights and risk factors to clinical teams, enabling them to assess and prioritise care decisions as well as track their impact over time
- Making it easier for clinical teams and organisations to learn from how an incident occurred so the individual, ward and the organisational system of care can learn and improve.

Effective proactive care requires “data-enabled care”: i.e. clinically validated risk factors and early warning signs are provided to the clinician, at the moment they need them and in a quickly digestible form that slots into how they work (ways of working, protocols and policies), helping them to choose whether to intervene to help the patient in that situation.

The actual proof of any system is the level of clinical validation. Therefore, this paper considers technology that stands up to clinical validation in mental health inpatient settings, including clinical studies, reports and real-world evidence that evidences the impact and is available publicly.

4.2 Technology & partner assessment

In identifying a potential digital technology, the main considerations are:

- Suitability of the underlying technology for use in mental health inpatient facilities
- Safety & quality benefits it can provide to care today and strength of the clinical evidence base, with an emphasis on supporting proactive care
- Suitability of technology supplier as a partner.

<u>Suitability of the underlying technology for inpatient facilities</u>

From market assessment, on-ward technologies that are supportive of proactive care can either be in contact with the skin (for example, a wearable device), in contact with furniture or contact-free. For the benefits sought, and in the Trust’s inpatient facilities, it was considered that contact free devices with mains power supply are preferable for several reasons:

- Preserve patient independence and freedom of movement
- Are able to monitor all patients within the whole room (whereas wearables risk no monitoring of uncooperative, independent minded and disorientated/confused patients)
- Present a significantly lower risk of being used for self-harm/weaponry
- Present a lower infection control risk
- Have a lower unit breakage rate and have no requirement to be recharged.

Contact free systems use a range of sensors and are packaged with a range of functionalities.

The most common contact-free sensors are camera and radar sensors. Cameras are superior to radar sensors because they can not only supply automated measurements and alerts but also a video feed when vision into the room is required.

Looking at camera-based systems, the market leader in relation to underlying technology is Oxehealth's Oxevision; it is the only system to measure medically accurate vital signs as well as movement/activity. It is cleared as a Class IIa medical device in the UK/Europe. In addition, it is suitable for installation in a mental health inpatient facilities (i.e. the in-room equipment is patient safe).

There are two other, relevant camera-based systems available in the UK: Care Protect. Xim Lifelight.

Xim Lifelight use tablets to detect vital signs. It requires a patient or member of staff to hold a phone in front of their face. It is not a medical device. It does not monitor patient movement/activity or provide alerts to these parameters. It has no clinical evidence base. It would not be appropriate on inpatient wards – especially at night when patients are sleeping.

Care Protect install cameras and use humans to watch videos and alert staff on the wards to potential malfeasance practice. It does not have the ability to allow staff to monitor health parameters (i.e. not a medical device). It has no clinical evidence base. Their care model has a high risk of disempowering staff if seem as "spying on them".

On the basis of suitability of the underlying technology, this paper focuses on the opportunity and potential deployment of Oxevision (by Oxehealth) to inpatient facilities within the Trust. This device has been used to build the financial model in order to make the later recommendations for deploying Trust resource.

Oxevision technology

OxeVision is a contact-free vision-based patient monitoring platform. It gives ward teams clinical insight (i.e. into risk factors, early warning signs) to plan patient care and intervene proactively to reduce harm or speed up recovery. It supports a shift to proactive (not reactive) care.

It uses an optical sensor (camera + infrared illumination in a secure housing on the wall) to monitor a patient in a bedroom/seclusion room 24/7. No equipment touches the patient (it's a few metres away). Staff interact with the system via a monitor in the nurses' station and portable tablet devices.

Clinicians can:

- Take medical grade cardio-respiratory measurements remotely (i.e. no need to enter the patient's room to get pulse rate & breathing rate of a resting patient) [i]
- Access cardio-respiratory trends from the last 24 hours to understand if a resting patient's physical health may be deteriorating.
- Receive real-time alerts to high-risk activity, prompting a safety check (i.e. if a patient spends a prolonged time in the bathroom, if a patient gets out of bed, if a patient leaves the room, if there is more than one person in the room).
- View objective patient activity reports (daily, weekly) to support clinical decision making and individual patient care planning.

The Vital Signs (pulse/breathing) functionality is a certified Class II(a) medical device in Europe.

It was designed with patient privacy in mind. Staff can only access the video feed for 10 seconds when taking vital sign observations, or when requested during an alert to high-risk activity. It is not CCTV.

The technology is real-world validated and has >2 million room-hours of live running on NHS wards.

<u>Safety & Quality benefits</u>

Oxehealth work with 1 in 3 NHS Mental Health Trusts in England. They have a clinical evidence base that supports the trust's safety & quality and digital agenda.

The technology has been referenced as outstanding practice by CQC in mental health and care home settings (see Appendix), and highlighted as a case study in CQC series "Driving improvement through technology" and "Examples of innovation and good practice in response to coronavirus (COVID-19)."

The following safety & quality evidence is public information from use of the technology in other NHS mental health trusts:

Benefit	Desired Outcome	Services	Mapping the Evidence
Reduce self-harm and assaults	- Reduced incidences & early warnings to self-harm - Reduced incidences & early warnings to assaults	Acute, PICU	One-year (intervention period) before & after and partial cohort clinical study in 4 Acute wards and 1 PICU ward: - **22% reduction in self-harm** in Acute bedrooms - **66% reduction in bathroom ligatures** - **15-26% reduction in assaults** in Acute & PICU bedrooms respectively *Links:* *Webinar (QNPICU Webinar #7 – 17 July 2020) methodology & results; publication in progress* *Webinar presentation notes*
Reduce rapid tranquillisation events	- Reduced incidences of rapid tranquillisation	PICU	One-year (intervention period) before & after clinical study in male PICU ward: - **40% reduction in rapid tranquillisation** related to assaults - Staff found they could manage patient safety using less restrictive practices *Links:* *Webinar (QNPICU Webinar #7 – 17 July 2020) methodology & results; publication in progress* *Webinar presentation notes*
Reduce falls	- Reduced falls in bedrooms - Reduced severity of harm - Reduced demand for A&E services	Older People	Two-year (intervention period) before & after clinical study in 24-bed Older Adult hospital: - **48% reduction in falls** in bedrooms - 82% reduction in harmful falls - 49% reduction in paramedic callouts - 68% reduction in visits to A&E *Links:* *Publication - submitted* *8-month interim report*
Improve physical health monitoring	- Improve adherence to physical health monitoring - Earlier detection of physical health deterioration	All wards and seclusion rooms	Staff can now measure the **medically accurate pulse & breathing rate** of resting patients without entering a room. 8 NHS trusts are using the system in seclusion and/or S136 suites. *Links:* *Patient story: identifying early signs of physical health deterioration to a medical emergency* *Patient story: monitoring physical health comorbidities remotely*
Improve patient experience at night, including	- Digitally assisted nursing observations that are as safe as traditional methods - Improved sense of	All	Service evaluation in Vaughan Thomas ward: - **Digitally assisted nursing observations are as safe as** conventional in-person observations

sleep and privacy/dignity	sleep at night - Improved sense of privacy at night - Improved sense of safety at night		(>17,000 observations over 755 patient nights) - Patients surveyed reported improved sense of sleep (100% agree), safety (100%) and privacy/dignity (86%) - 78% of staff surveyed agreed patient privacy & dignity had improved - 94% agreed that the same level of safety was maintained vs. conventional in-person observations Preliminary medical data suggests that use does not lead to worse sleep, more use of medication or longer length of stay. *Links:* *Publication (Barrera et al.) – BMJ Evidence-Based Mental Health* *Report*
Improve staff experience	- Improved confidence in managing patient risk - Improved sense of safety - Improved peace of mind	All	Staff experience has been evaluated through surveys, interviews and focus groups. Some of these results are public, including results from Coventry & Warwickshire Partnership NHS Trust: - 91% (n=23) and 92% (n= 18) reported the technology improves patient safety - 91% (n=23) reported the technology allows them to make better care/clinical decisions - 92% (n= 18) reported that the technology helps them to provide better care - 82% (n=18) would prefer to have the technology to support them through the night. *Other links:* *Early insights report*

Further benefits:

More effective care planning: clinicians are able to obtain more information on a patient's activity, behaviour and vital signs trends which is being used to support and assess the impact of care interventions over time.

For example: read Yasir's story where objective data was invaluable in understanding behaviour and planning care, Carla's story where proactive care and earlier intervention enabled positive behaviour change, and Ben's story where change in care decisions helped to break the cycle of behaviour.

Objective, auditable data for incident reviews: under strict governance, the trust may choose to obtain/retain objective data (vital signs data, activity reports, video data) for serious incidents to build individual and organisational learnings.

In addition, it is hugely costly to undertake serious incident review – not only financially but from a staff morale and productivity perspective. Having objective & auditable data to document and learn from serious incidents can save valuable time & money in these extenuating circumstances.

Operational efficiencies: Recognising that patient safety and care quality are the priority, safer and more effective care can deliver productivity and financial benefits for the trust.

For example, Coventry and Warwickshire released 8,260 clinical hours per year in their 24-bed dementia facility, equivalent to over £150k per year, by reducing 1-2-1 observations by 71%.

This case would aim to deliver the clinical outcomes alongside operational efficiencies. It is expected to deliver safety & quality improvements that lead to operational efficiencies, including releasing clinical time to care through fewer incidents, faster observations and more effective data sharing as well as reducing avoidable 1-2-1 observations.

5. OPTIONS APPRAISAL

5.1 Options for Consideration

Several discussions have taken place with Clinical Director, Service Managers, Ward Managers and the Senior Leadership Teams across the Acute and Urgent Care Directorate and the Specialist Directorate. Two clinical workshops were held to seek views of ward teams. Matrons continue to engage with ward teams via team meetings, Ward Managers Task and Finish and WM Innovation Forum. In addition, discussions took place at SUCC to seek opinions from service user and carer representatives.

The three options considered in this case are:

1. **Do nothing:** discounted as it will not provide required safety & quality improvements
2. **Rollout to selected services:** rollout to all single-occupancy rooms in services where the technology has proven to impact safety & quality – PICU, Acute, Older People.
3. **Complete rollout across all inpatient services:** the market lead supplier does not have clinical evidence on the impact in LD and CAMHS services at this time. This option is discounted for now.

It should be noted that the Learning Disabilities service are exploring the use of this technology within their refurbishment plans for Ward 5 in Harplands Hospital. The Clinical and Estates teams are in early explorations, and for avoidance of doubt, these discussions are being considered separately to this business case.

It is anticipated that, should this business case be approved, the Learning Disabilities service will benefit from shared learnings and benefits from this process (e.g. procurement, information governance, general infrastructure upgrades to the hospital) and may require a separate business case to seek investment approval for its use within the LD service once all options have been explored.

6. PREFERRED OPTION

6.1 Description of proposed service

Option 2: Rollout to selected services: rollout to all single-occupancy rooms in Harplands Hospital services where the technology has proven to impact safety & quality – PICU, Acute, Older People.

This paper recommends that deployment should be on the pathway basis across the Trust to ensure standardisation in service provision.

The rationale for the preferred option is:

- **PICU:** to support with improved physical health monitoring and reduction in interventions that can be perceived as invasive
- **Acute:** to support with reductions in safety incidents in particular self-harm and ligatures, reduction in high observation/intervention levels, and improved behaviour and physical health monitoring
- **Older People:** to support with falls reduction, safer staffing (reduction in avoidable 121s) and improved physical health monitoring.

A workshop was held to order clinical areas in priority based on patient safety, quality and performance data for past 12 months. In addition, discussions between clinical, capital projects, estates and IT

colleagues have confirmed that the following clinical priority order is feasible within existing and planned infrastructure and estates project plans.

The clinical priority is:

1. Ward 6 - Older People
2. Ward 1 - Acute
3. PICU – Psychiatric Intensive Care Unit
4. Ward 3 - Acute
5. Ward 4 - Older People
6. Ward 7 - Older People
7. Ward 2 - Acute

Whilst out of scope for this paper, should Option 2 deliver satisfactory clinical improvements and operational efficiencies, it is anticipated that a separate business case may be required to consider whether to roll out the service across remaining wards within the Trust.

6.2 Workforce Impact

The case is supportive of improving staff experience and satisfaction on inpatient wards. Workforce benefits include:

- Releasing clinical time (e.g. through reducing incidents and related admin, through a more effective night observation protocol) and reducing avoidable enhanced observtions (which in turn reduces agency/bank staff spend/overspend)
- Improving staff confidence and “peace of mind” in managing patient safety, especially at night, which in turn can improve morale
- Improved accuracy and efficiency of patient physical health monitoring
- Minimising, where possible, infection control risks by supporting staff to monitor physical health remotely within the ward when appropriate.

There are clear audit and data quality benefits to this system through access to objective data on which to review, report and take learnings. This can reduce staff stress and costs in litigation cases.

With all technologies, there is fear of a negative effect of “disintermediating the nurse from the patient”. In practice, NHS trusts that are using the system have not found this to be the case. Instead, ward staff feedback is consistently positive in supporting confidence, peace of mind, and time for therapeutic engagement.

Utilising new and innovative technology will mean a new way of working for teams. Service Managers, Modern Matrons and Ward Managers will be involved in the development of the protocols to promote ownership and cultural change. Protocols will describe in detail the responsibilities at each level.

Attendance at training sessions will be necessary for all ward staff when implementing the technology therefore consideration will be made as to the roll out of the training sessions to limit any disruption to service delivery. Engagement and training sessions can be conducted within 30 minutes and the supplier is flexible to fitting in to ward schedules.

Relevant training will be carried out by the supplier in the first instance and it is anticipated that training champions (approx. 1-2 hours to become a champion trainer) will be assigned to cascade the training and use of the technology with other staff and new starters on local induction.

6.3 Physical infrastructure, Estates and Facilities

Estates colleagues conducted a site visit with Serco and the supplier to consider the impact on the physical environment. All wards except PICU and Ward 2 were surveyed in person. The site visit

confirmed that the physical installation (cabling and securing housing units safety in the room) is feasible within the rooms proposed in Option 2. It also confirmed that the rooms are feasible for the technology, i.e. the set-up and make-up of the room will not have an impact on the standard “set up” of the system in the wards.

For Estates/Serco, the physical installation requires placement of in-room equipment. In-room equipment is placed in a secure housing that is securely fitted to the wall/ceiling such that it is patient safe. The in-room equipment is securely hardwired via networking and power cabling back to a server (placed in an appropriate location within the hospital site). Cabling and housing installation (including anti-pick mastic) is to be completed by the Trust/Serco. There is a fixed monitor in the nurses’ station that is also hardwired back to the server.

There is an interdependency with the dormitory eradication programme.

Whilst all wards, except PICU and Ward 2, are affected by dormitories eradication works, it is anticipated to be a two-year phased programme. It is therefore expected that for those wards affected, the technology can be installed prior to the works, and then moved & reinstalled once for those wards affected by the programme. Hence, the clinical priority is not changed by the estates interdependencies.

6.4 IT and Informatics

IT Informatics colleagues conducted a site visit with Serco and the supplier to consider the impact on networking. The site visit confirmed that the networking and IT requirements for the installation (server location, broadband, Wi-Fi) is feasible within the facilities proposed in Option 2.

For IT/Informatics, the installation requires suitable server space, broadband connectivity for the server(s) and Wi-Fi connectivity for staff to use tablets throughout the wards. See site visit summary enclosed above.

Equipment will be located in new cabinets installed by the Trust in each ward’s local comms rooms (or a non-IT room if there is no space). From the local cabinets, there will be a fibre link (OM4 provisionally) run back to the central server room in the hospital, where the servers will be located in a (600*1000) rack provided by the Trust. The supplier will provide the UPS, if required.

In order to create suitable space for supplier’s server equipment within the hospital, new or expanded cabinets, or a new location (i.e. from a non-IT room) is required on or near the wards. In addition, and independent of this paper, the IT fibre connections from comms rooms to the central server location was in need of an upgrade, and can be upgraded to include infrastructure capacity for the supplier’s system.

Broadband connection will be provided to the servers via a new broadband circuit provided by the Trust.

Current Wi-Fi within the hospital in undergoing improvements to achieve 100% coverage on the wards. The proposal is to use a private VLAN on Trust switches and a copper connection between the supplier’s LAN and the Trust’s network.

7. PROCUREMENT CONSIDERATIONS

A full procurement exercise is being recommended in order to comply with EU procurement regulations and to ensure the Trust against any risk and liability.

8. FINANCIAL COSTS

The following capital and revenue costs for the preferred option are shown below. These compare the implementation in 7 wards (114 rooms) with the costs of implementing on just 1 ward. The costs assume the contract is signed in 1st April 2021. All costs are including VAT.

Table 1 - 7 Wards

Annual Cost £000	21/22	22/23	23/24
Capital Investment	[Redacted]	[Redacted]	[Redacted]
Revenue costs			
None Pay	[Redacted]	[Redacted]	[Redacted]
Cost of capital	[Redacted]	[Redacted]	[Redacted]
Total Revenue Costs	[Redacted]	[Redacted]	[Redacted]

Table2- 1Ward

Annual Cost £000	21/22	22/23	23/24
Capital Investment	[Redacted]	[Redacted]	[Redacted]
Revenue costs			
None Pay	[Redacted]	[Redacted]	[Redacted]
Cost of capital	[Redacted]	[Redacted]	[Redacted]
Total Revenue Costs	[Redacted]	[Redacted]	[Redacted]

8.1 Cost Capital

The capital costs include upgrading the core infrastructure for this hospital for purposes beyond use of the digital monitoring system. Capital costs associated exclusively with installing the system are network field wiring and power wiring [Redacted] as per the installation & cabling costs in appendix 1). The remaining infrastructure works are required to be in place for implementation of the digital monitoring system but will have uses beyond this business case for future digital and IT projects.

The following costs are based on 10 years depreciation.

7 x Wards

The total capital cost is expected to be [Redacted]in 2021/22 for installing on the 7 wards per table 1 above.

The revenue cost of capital would be [Redacted] in 2021/22. For the following 9 years the total revenue cost of capital start at [Redacted] in the second year (22/23) gradually decreasing to [Redacted] by the final year (2030/31).

1 x Ward

If the trust decided to install the patient monitoring system on just 1 of the wards then the total capital cost would be [Redacted] (30% of the cost of 7 wards) in 2021/22 per table 2.

The revenue cost of capital would be [Redacted]in 2021/22. For the following 9 years the total revenue cost of capital will be [Redacted] in the second year (22/23) gradually decreasing to [Redacted] by the final year (2030/31).

8.2 Cost of Revenue

This is in addition to the revenue cost of capital.

Service License: The supplier provides a fully managed service based on an annual “service licence”.ii This include providing hardware, hardware maintenance, hardware replacement for wear & tear, software management, maintenance and upgrades related to existing functionality and SLA.iii Their terms are 3-year term minimum contract; invoiced annually in advance. The annual service license is [Redacted] + VAT [Redacted] per ward per year based on 7 wards equates to a total of [Redacted] per year. To install on just 1 ward the cost would be [Redacted]+ VAT per year.

Broadband Line: a standard business broadband line ([Redacted]) would be required to connect the digital monitoring system’s server to the internet.

7 x Wards

Overall the total cost of the patient monitoring system across 7 wards over 3 years comes to a total of [Redacted] as shown in appendix 1. Therefore the total cost per year across 7 wards comes to [Redacted].

1 x Ward

If it was decided to implement the patient monitoring system on just 1 ward the total cost over three years comes to [Redacted] per appendix 1. Therefore the total cost per year would be [Redacted].

8.3 Funding Source

Capital is proposed to be funded by the capital plan for 21/22.

Revenue expenditure is proposed to be funded by the trust as a cost pressure, with a view in the long term to see if can self-fund through efficiencies across the wards.

8.4 Efficiencies

Recognising that patient safety and care quality are the priority, safer and more effective care can deliver productivity and financial benefits for the trust.

This business case aims to deliver safety & quality improvements that lead to operational efficiencies, including releasing clinical time to care through fewer incidents, faster observations and more effective data sharing as well as reducing avoidable 1-2-1 observations.

In addition, but not factored into the analysis, it is expected that this project will have a positive and supporting impact for future safe staffing level reviews.

9. RISKS AND MITIGATIONS

Refer to section 12 Assessment of Risks

9.1 EQUALITY AND IMPACT ASSESSMENT

An Equality Impact Assessment has been completed and can be found below:

9.2 PRIVACY IMPACT ASSESSMENT

The supplier has completed a Data Protection Impact Assessment (DPIA). The Trust will complete an internal DPIA prior to contracting with the supplier. The supplier has comprehensive DPIA documentation and discussions are already underway to support with completion of the Trust DPIA.

9.3 QUALITY IMPACT ASSESSMENT

A Quality Impact Assessment has been completed and can be found below:

10 INTERDEPENDENCIES

The following interdependencies apply:

- Estates works, including dormitories eradication.

Whilst all wards, except PICU and Ward 2, are affected by dormitories eradication works, it is anticipated to be a two-year phased programme. It is therefore expected that for those wards affected, the technology can be installed prior to the works, and then moved & reinstalled once for those wards affected by the programme. Hence, the clinical priority is not changed by the estates interdependencies.

11 MOBILISATION PLAN

11.1 Implementation plan

Implementation will take place in a phased approach, ward-by-ward.

The implementation and ongoing evaluation will be overseen by the Inpatient Reconfiguration Programme Board, sponsored by Jonathan O'Brien, Executive Director of Operations. It will include cross-service clinical governance, finance, estates, Digital/Informatics, project management support, and senior representation from the awarded service provider.

There is a well-established approach to implementing and deriving value from this technology. It is expected the award service provider provides end-to-end support for implementation working in partnership with the Trust.

11.2 Key milestones

Milestone	Timescale
Business Case Approval	December 2020
Procurement completed	January – April 2021
Contract and DPIA Signed, Purchase Order Created	April 2021
Stage 1: Ready to Install	4-6 weeks based on hardware procurement. Cabling works can start during this phase to shorten Stage 2. This phase also includes initial communications to staff, patients, carers
Stage 2: Install Complete	6-8 weeks, phased ward-by-ward depending on clinical priorities. (See notes at end of this table). This phase also includes clinical protocol / SOP development, staff engagement, education and training plan development, and patient materials development
Stage 3 – Ready for Go-Live	4-6 weeks, phased as the wards are installed from point at which the ward is fully installed and ready to enter blind running (where the system is calibrated and configured based on the agreed functionality). This includes blind running as well as staff training and baseline data collection for benefits realisation.
Stage 4 – Go-Live	This is clinically led in terms of decision making for go live date

Installation can be done in active wards and requires flexibility from the cabling provider and service provider but does mean that no rooms need to be taken out of service for a full day. Installation can start

in Stage 1 to shorten Stage 2, as long as the cabling plan is completed early on. Cabling typically takes 3-5 days per ward, depending on the size of the ward.

11.3 Assessment of risks

As with any project, the implementation process will need to be tightly managed with appropriate governance. The role of the Executive Sponsor and the Implementation Group is vital in the successful implementation of this project.

Risks are inevitable during business change projects. Through initial discussions, the following risks have been highlighted; further explanation and mitigation plans for each risk are tabled below. The identified risks will be included on the Trust Risk Register and monitored throughout the duration of the project via the Inpatient Reconfiguration Programme Board.

An initial risk assessment has been carried out and is summarised in the table below. Likelihood and impact are assessed on a scale of 1 – 5.

Risk area	Risk identified	Likelihood	Impact	Total Score
Clinical, Workforce	There is a risk that staff will have an over reliance on the technology which may lead to harm if other processes are missed	1	4	5
Clinical, Workforce	There is a risk that the equipment breaks down	1	4	5
Clinical, Workforce, Financial	There is a risk that staff do not embrace the new technology and therefore the delivery of associated benefits will be reduced or not realised	1	5	6
Estates & IT, Installation	Current infrastructure costs are based on a maximum estimate for planned works to create space for server equipment in the hospital. There is a risk that installation is delayed should space identified not be able to be used to locate server equipment	TBD	TBD	TBD
Estates, Installation	There is a risk that installation is delayed as a result of COVID-19 activities	TBD	TBD	TBD

11.4 Risk mitigations

Risk identified	Risk mitigations
There is a risk that staff will have an over reliance on the technology which may lead to harm if other processes are missed	- Guidance and operating protocols will be developed for each service in collaboration with the clinical teams to ensure ownership and buy-in as to what is appropriate use of the system within existing ways of working - Comprehensive and robust training will be provided to all clinical staff prior to go-live. - Guidance, SOPs and other training materials will be made available to staff and teams - Staff will be reminded that the technology will not replace existing assessments and policies that are in place - Regular check-ins with ward teams post go-live will ensure SOPs and guidance developed is appropriate and being utilised, as well as highlight improvements - Train-the-trainer model with provider champions will ensure new staff + refresher training for existing staff in a sustainable, manageable way
There is a risk that the equipment breaks down	- The supplier will have an SLA to ensure that there is a clear and timely protocol for resolution of equipment breakages - Guidance and operating protocols will include staff escalation procedures for equipment breakages - There will be business continuity planning as part of SOP development

There is a risk that staff do not embrace the new technology and therefore the delivery of associated benefits will be reduced or not realised	- The supplier will have extensive experience working with ward teams to build engagement and support as well as activate usage on go-live - Promotion of the benefits of the technology will be at every level and will support the culture change required - Ward staff will be invited to be involved in protocol development and benefits realisation to build engagement, buy in and ownership of the project at the ward level - Pre go-live education and training sessions will be held with ward staff - Supporting materials will be provided to help staff engage with patients and carers about the project before, during and after go-live - Train-the-trainer model with selected provider champions on each ward will encourage staff to embrace the technology - Initial weekly check ins with wards post go-live will encourage sharing of good practices and early examples of how it can deliver value across team to encourage usage and activation
There is a risk that installation is delayed should space identified not be able to be used to locate server equipment	TBD
There is a risk that installation is delayed as a result of COVID-19 activities	TBD

12. EVALUATION

The following six core outcomes have been identified as the projected outcomes to rolling out the technology across identified inpatient wards across the Trust:

Outcome category	Desired outcome
1. Improved patient safety	• Reduction to incidents, including but not limited to self-harm, violence and aggression, assaults, falls • Faster response time to incidents and therefore reduction in harm • Learning from near misses and incidents
2. Improved physical health monitoring	• Improved adherence to physical health monitoring, for example post-rapid tranquilisation • Earlier detection of physical health deterioration
3. Improved patient care	• More information to support clinical decision making, including engaging with the patient • Improved observation level mix through supporting the risk management to ensure the least restrictive practice
4. Improved patient, carer experience	• Improved patient and carer experience related to sense of privacy/dignity, sleep/disturbance and safety
5. Improved staff safety and experience	• Reassurance/peace of mind that patients are safe • Greater confidence in managing patient risk • Improved sense of feeling safe • Improved sense of wellbeing
6. Increased time to deliver direct care	• Effective risk management to support clinical decision making in relation to patient safety leads to fewer or shorter enhanced observations where appropriate • Efficient observation rounds at night • Better use of staff time due to fewer incidents

A Benefits Realisation Sub-Group will be accountable for creating the full benefits realisation plan, gathering baseline and outcomes data, and evaluating that data.

Data collected will include as a minimum incident data; observation data; patient, carer and staff experience feedback.

As a minimum, an early insights report will provide early insights in the form of thematic evaluation through qualitative data. Data for this report will be collected 3-4 months post go-live. In addition, longer-term qualitative and quantitative data will be collected over several months to produce a comprehensive report after approximately 12 months post go-live, noting that it can take time for sufficient data to be gathered and evaluated in order to sufficiently prove impact.

This Sub-Group will report to the Inpatient Reconfiguration Programme Board to review, sign-off and disseminate early insights and longer-term findings.

13. RECOMMENDATIONS

This paper has ascertained the benefits to introducing a digital monitoring system across some of the inpatients sites and recognises the scope to go further and consider full roll out in the coming years. It is important this work is aligned to the wider estates reconfiguration work to ensure co-ordination. This paper seeks;

- **Approva**l for the capital and revenue costs needed to support the installation of this product across 7 wards
- **Agreemen**t to a full procurement exercise to ensure the Trust is OJEU compliant

Delegation of the implementation of the project to be overseen by the Inpatient Programme Reconfiguration Board

14. APPENDICES

Appendix 1: Finance Costs

[Redacted]