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Leicestershire Partnership NHS Trust

Business Case: Oxevision

April 2022

1.1 Document Control

0.1.1 Version Control

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1	12/11/21	Business case	[I/S]
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0.1.3 Distribution

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Contents

1 Executive Summary

This paper outlines the proposal to invest funding in a digital monitoring service to selected inpatient services to supplement existing processes to enhance patient and staff safety and reduce patient harm.

The digital monitoring service (Oxevision) is a contact-free vision-based patient monitoring platform that helps ward teams get clinical insights (i.e. risk factors, early warning signs) to plan patient care and intervene proactively to improve safety, quality and operational efficiencies in inpatient services.

It uses an optical sensor (camera + infrared illumination in a secure housing unit) to monitor the pulse rate, breathing rate and movement of a patient in their bedroom, providing warnings, alerts, vital signs observations and activity reports to clinical staff.

The supplier (Oxehealth) is working with 40% of NHS mental health trusts in England and has a strong clinical evidence base showing improvements in patient safety (e.g. falls reduction, self-harm and ligature reduction, assaults reduction, physical health monitoring) and patient experience (including wellbeing, sleep and privacy), as well as operational savings (reduction in agency/bank spend, clinical staff time savings/efficiencies). In addition, the technology has a robust evidence base and an active research and development programme centred on improving inpatient mental health care. The technology has also been referenced positively by the CQC.

This paper introduces a preferred option of a phased rollout to selected inpatient wards identified as a clinical priority to reduce ligatures, violence and aggression. Patient benefits include improved experience including sleep and privacy. Staff benefits include freeing up clinical time to attend to more acute needs, and increased reassurance in managing safety risks.

This case is aligned with trust, CQC and national priorities, with a focus on building a data-enabled workforce to drive safety, quality and productivity within inpatient services, and support with recovery as inpatient services move through the pandemic. In addition, it is supportive of the trust's overall research position and ambitions.

The case for change provides assurance that the focus is on well researched business needs and that these are supported by service demand and capacity planning and introduces a planned approach to implementation which has been successfully used in several large-scale deployments of this service within the NHS.

This paper is intended to inform a decision for approval for the rollout of a digital monitoring service to support the wider safety, quality and digital agendas in the trust.

Trust Board are asked to consider the information presented in this Business Case and approve:

- Appropriate operational budget prioritisation to roll out across 7 wards as described.

Capital & Revenue investment:

Capital set-up cost (excl. VAT)	**Leicestershire Partnership Trust**	**Total**
Cabling & installation for 7 wards	[I/S]	[I/S]
Oxehealth installation fee	[I/S]	[I/S]
Oxehealth Service Licence (excl. VAT)	[I/S]	[I/S]

2 Background

This paper is centred on three themes: digital innovation, supporting to build an efficient, effective and data-enabled workforce as we recover from the pandemic, and improving the safety & quality of care in inpatient mental health services.

It introduces the proposal to deploy a digital monitoring service into inpatient wards. This service is a contact-free vision-based patient monitoring platform that helps ward teams get clinical insights (i.e. risk factors, early warning signs) to plan patient care and intervene proactively.

It uses an optical sensor (camera + infrared illumination in a secure housing unit) to monitor the pulse rate, breathing rate and movement of a patient in their bedroom, providing warnings, alerts, vital signs observations and activity reports to clinical staff.

The supplier (Oxehealth) is working with 40% of NHS mental health trusts in England and has a strong clinical evidence base showing improvements in patient safety (e.g. falls reduction, self-harm and ligature reduction, assaults reduction, physical health monitoring) and patient experience (including wellbeing, sleep and privacy), as well as operational savings (reduction in agency/bank spend, clinical staff time savings/efficiencies).

Clinical subgroups within LPT have undertaken several in-depth discussions and evaluations based on well researched business needs to identify areas of concern within inpatient services that could be effectively improved using the digital monitoring service.

After careful clinical consideration, the desire is to focus on improving patient and staff safety while reducing ligatures, violence and aggression within inpatient wards. These are areas in which Oxehealth have experience and existing clinical evidence from other Mental Health trusts in reducing incidents and improving safety, quality and efficiencies.

3 Strategic Case

This Business Case is focused on building a partnership with Oxehealth to help improve safety, quality and operational efficiencies within inpatient services. It is directly aligned with trust, CQC and national priorities including managing patient safety risks.

This Business Case is directly supportive of the rust's strategy by focusing on areas such as:

- Prevent and reduce patient safety risks, and improve quality of care for patients
- To maximise the effectiveness of service models and patient pathways
- Embrace new ideas to deliver technology-enabled, clinically, financially sustainable ways of working
- Deliver innovative solutions to drive productivity to meet increasing demand without significant additional resources & use resources more efficiently
- Seek out new technology to improve healthcare delivery
- Ensure the health and wellbeing of our staff

The strategic case for this paper is supportive of and in alignment with key national CQC priorities on patient safety and the workforce including zero suicide strategy, reducing restrictive practice, reducing ligatures, reducing violence & aggression and improving staff wellbeing on inpatient wards.

In addition, this case is supportive of keeping staff in inpatient wards safe and releasing their time-to-care during the COVID-19 pandemic and through the recovery period.

Increasing staff time for therapeutic engagement will have a positive impact on the patient-staff relationship and the patient experience. In addition, it is expected to improve morale and staff sense of confidence and satisfaction in managing patient safety.

Regarding managing suspected and positive cases of COVID-19 on the wards, this project will help the staff to minimise infection control risk whilst still monitoring the physical health and activity of patients when they are isolated in their bedrooms.

In addition, it is expected that introducing a new, digital tool to help the staff will have a positive impact on their morale as it would be introduced at a time when there is fatigue around COVID-19 and workforce capacity is highly stretched.

4 Objectives/Benefits/Outcomes

This Business Case aims to improve safety and quality of care for patients and staff on inpatient services, and deliver operational value in releasing time and generating cashable savings.

If this case is successful, it will strengthen the safety and quality of the Trust's inpatient services, improve staff confidence, peace of mind and productivity, and position LPT at the forefront of the digitisation of inpatient services and translating research into practice.

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

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

Outcome category	Desired outcome
1. Improved patient safety	• Reduction in incidents, including but not limited to self-harm (ligatures), violence and aggression, assaults • Faster response time to incidents and potential 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 to support engagement 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 wellbeing, safety, privacy and sleep/disturbance
5. Improved staff experience	• Reassurance/peace of mind that patients are safe • Greater confidence in managing patient risk • Improved sense of feeling safe
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

The service provider offers support to the trust in defining and executing a full benefits realisation plan (data methodology, collection, evaluation and write-up) based on the safety, quality and operational outcomes defined in the business case.

5 Options Appraisal

Extensive clinical and operational engagement has taken place across services, to produce a shortlist of the clinical priorities for rollout.

This has been based on expressed clinical appetite across the organisation as a result of many briefings, presentations and Q&A sessions across the directorates and services within the directorates and is also based on current incident statistics within LPT.

Clinical teams expressed the desire to implement Oxevision across service types to improve clinical outcomes and assess the impact to inform a Phase 2 rollout. Anticipated clinical outcomes across the determined wards include:

- Reduce the frequency and severity of falls
- Reduce self-harm risk, particularly ligatures
- Improve physical health monitoring
- Enhance staff and patient experience & safety
- Improve sleep hygiene
- Improve night observations
- Reduce avoidable 1-2-1s, and enable positive risk taking in stepping down 1-2-1s where clinically appropriate
- Improve care planning through activity & behavioural data

Through an options appraisal this paper recommends 7 war roll-out (option 2).

Below is the rationale behind suggested options:

Option 1: Do Nothing

The Trust will continue with current practice, not taking advantage of the new technologies that can improve safety and quality on our wards. As a result, this is not the preferred option.

Option 2: Preferred Option (7 ward rollout)

This option is based on 7 wards across the trust with a focus on enhancing safety, quality and efficiency, reducing falls, self-harm and ligatures, and reducing incidents of violence & aggression:

Capital set-up cost (excl. VAT)	**Leicestershire Partnership Trust**	**Total**

Cabling & installation for 7 wards, 140 rooms	[redacted]	[redacted]
Oxehealth installation fee	[redacted]	[redacted]
Oxehealth Service Licence (excl. VAT)	[redacted]	[redacted]

Location	Service	Wards
Beacon	CAMHS	
Mill Lodge	Huntingtons Disease	
Community Hospital	CHS	Clarendon
Bradgate #1	Adult MH	
Bradgate #2	Adult MH	
Evington	MHSOP	Coleman
Evington	MHSOP	Gwendolen
Total		7

6 Clinical Case

The clinical case outlined in this paper is focused on demonstrated safety and quality improvements, as well as patient and staff experience, seen in other NHS mental health organisations.

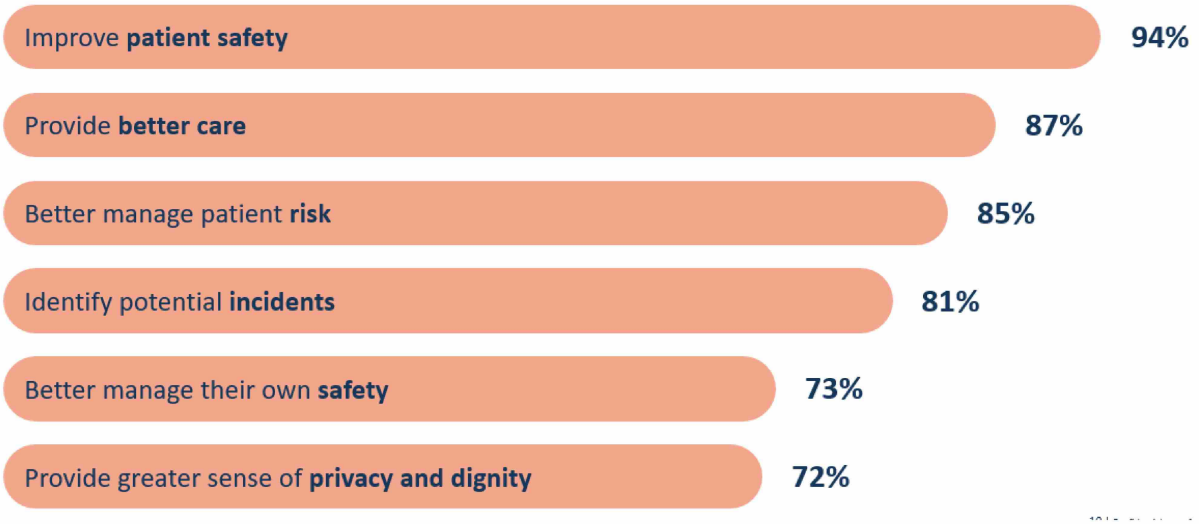
The supplier of this digital monitoring service is now working with 40% of NHS mental health trusts in England, and the following information is from publicly available sources:

Benefit	Desired Outcome	Mapping the Evidence
Reduce self-harm, including ligatures	• Reduced incidences & early warnings to self-harm	One-year (intervention period) before & after cohort clinical study in 4 Acute wards: • **22% reduction in self-harm** in bedrooms • **66% reduction in bathroom ligatures** *Links:* *Webinar (QNPICU Webinar #7 – 17 July 2020) methodology & results; publication in progress* *Publication in progress*
Reduce assaults	• Reduced incidences & early warnings to assaults	One-year (intervention period) before & after clinical study in male PICU ward: • **26% reduction in assaults** in bedrooms *Links:* *Webinar (QNPICU Webinar #7 – 17 July 2020) methodology & results; publication in progress* *Publication in progress*

Reduce restrictive interventions	• Reduced incidences of rapid tranquillisation	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*
Improve physical health monitoring	• Improve adherence to physical health monitoring • Earlier detection of physical health deterioration	Staff can now measure **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 sense of safety, sleep and privacy	• Digitally assisted nursing observations that are as safe as traditional methods • Improved sense of sleep at night • Improved sense of privacy at night • Improved sense of safety at night	Service evaluation in male Acute ward: • Digitally assisted nursing observations are **as safe as** conventional in-person observations (>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 checks *Links:* *Publication (Barrera et al.) – BMJ Evidence Based Mental Health Report*
Improve staff experience	• Improved confidence in managing patient risk • Improved clinical decision making • Improved sense of safety • Improved peace of mind	Staff experience has been evaluated through surveys, interviews and focus groups. Some of these results are public: • 91% (n=23), 92% (n= 18) and 91% (n=33) reported the technology **improves patient safety** • 91% (n=23) and 78% (n=32) reported the technology allows them to **make better care/clinical decisions** • 92% (n=18) and 88% (n=13) reported that the technology **helps them to provide better care**. *Other links:* *Early insights report*

Staff Feedback

Data compiled from NHS-led surveys from 7 Mental Health Trusts. Staff agreed that Oxevision helps:



Data compiled from 7 NHS Mental Health Trusts

Sample size: N=255; N=255; N=215; N=138; N=211; N=141

Patient Feedback

Data compiled from NHS-led surveys from 5 Mental Health Trusts. Patients agreed that Oxevision helps:

Data compiled from 5 NHS Mental Health Trusts

Sample size: N= 78; N=77; N=76; N=60; N=78

Further benefits:

More effective care planning: clinicians are able to obtain more objective data on patient activity, behaviour and vital signs trends to support and assess the impact of care interventions over time.

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, team and organisational learnings.

COVID-19 applications: monitoring physical health in bedrooms: Given infection control risks presented by contact and proximity with suspected COVID-19 patients, the system can be used to minimise avoidable clinician contact with patients who need to be isolated and their cardio-respiratory vital signs measured on a regular basis. Patients still receive direct in-person care as & when needed.

7 Economic Case

Oxehealth recently commissioned an independent evaluation via York Health Economics Consortium (YHEC) which evaluated the impact of Oxevision from a return-on-investment perspective across adult acute inpatients, psychiatric intensive care unit, and older adult inpatient wards, the findings of the evaluation are detailed below in figure 1 and highlight both cash and non-cash releasing benefits. The full report can be found below:

YHEC 2 Pager_OXE_YHEC-05_

Figure 1

Executive Summary

Oxevision was evaluated to have a positive return on investment, including a cash releasing in-year saving across multiple services. Overall, the cash releasing benefits are predominantly delivered through reducing 1:1 observations, a proportion of which is cash releasing from reducing agency/bank spend. Non-cash releasing time efficiencies are delivered through a reduction in 1:1 observations within safe staffing levels[1], reduction in incidents and faster nighttime observations[2]. As highlighted in Table 1, the results of the economic evaluation showed that for every £1 invested, Oxevision would return £6.94 (Older adult), £2.70 (Acute), £3.70 (PICU) and £3.64 (Weighted average).

Table 1

Service	Return for every £1 invested	Non-cash releasing	Cash releasing
Older adult	[I/S]	[I/S]	[I/S]
Acute	[I/S]	[I/S]	[I/S]
PICU	[I/S]	[I/S]	[I/S]
Weighted average[3]	[I/S]	[I/S]	[I/S]

Additional comments:

Service Licence
The service license includes:

- Hardware including in-room hardware and out-of-room hardware (i.e. servers, switches), monitors and tablet devices
- Hardware maintenance and upgrades to ensure we meet the SLA
- Hardware replacements to ensure we meet the SLA, subject to fair wear & tear
- Software functionality including Vital Signs, location/movement based alerts and warnings (edge of bed, out of bed, in bathroom, at door, multiple people, out of room), activity reports
- Software management, maintenance, patching, updates and upgrades
- Customer service as prescribed in the SLA, including 24/7, 365 day support line
- Implementation support, including supporting the trust with protocol development; patient and staff materials development; staff engagement, education and training & building a "train the trainer" model.

In addition, the supplier offers their support and expertise in benefits realisation, including data collection, analysis, evaluation and reporting (exact roles to be defined during implementation).

Terms: 3-year term minimum contract; invoiced upfront in advance.

Not included: Hardware replacement for patient damage or staff misuse or damage will be charged at the replacement cost plus engineer call-out fee at the time.

Installation
The trust is responsible for the cabling and securing the housings to the wall (including anti-pick mastic).

For the purposes of this paper, the installation cost for retrofitting the technology into existing wards has been estimated from actual quotes from other NHS trusts deployments (**[I/S]** per room). Oxehealth's component of installation costs **[I/S]** per room (excl. VAT).

As an estimate, the installation cost per room was taken at **[I/S]** + VAT per room for the purposes of this paper. This is expected to be a conservative estimate, in the absence of a site visit and formal quote.

For accurate installation costs, a site survey with Estates, IT and the preferred cabling contractor will need to be undertaken for the wards.

IT Infrastructure
The trust is responsible for the required broadband connectivity and Wi-Fi connectivity.

This business case assumes that there is suitable space for servers & associated equipment in existing comms rooms or data centres in all buildings. In addition, it assumes that the tablet devices can be served by existing Wi-Fi access/coverage and the internet connection for the servers is via trust network/DMZ.

To confirm this IT infrastructure and whether there are additional unknown costs, a site survey will need to be undertaken for the wards.

VAT Relief
A discussion with VAT advisors is advised as the service license may be covered for VAT relief.

8 Implementation/Management arrangements

As with any project, implementation will need to be tightly managed with appropriate governance and resourcing. This is vital to the successful implementation of this project, as is the commitment of the clinical leadership and governance teams.

The implementation will rely on clinical and operational resource; subsequently communication has taken place with the working group to highlight this. Assurance will be sought whereby operational resource is required; this will be discussed at the Implementation Steering Group where management will be present.

Oxehealth have a proven ability and established process to implement their service into mental health wards to deliver clinical and operational outcomes. They work in partnership to provide end-to-end support for implementation: pre-installation planning, installation management and support, adaptation of clinical workflows (i.e. protocol and SOP updates), and staff engagement, education and training (a sustainable training model is developed for continuity purposes.

This paper proposes that there are three workstreams, overseen by an Implementation "Steering Group" (that meets every 3-4 weeks until 3 months post-go live, after which the Partnership Board is the governance forum for managing the partnership), chaired by an Executive Director to ensure the timely and successful implementation.

- **Clinical Sub-Group:** Sub-Group is responsible for embedding the technology into ward protocols and ways of working as well as ensuring staff, patient and carer engagement/communication, education and training is implemented successfully. This sub-group will have representation from across the three directorates and is accountable for:
  a. Completing the clinical protocols / SOPs (i.e. how the technology works in practice on the wards), and any required links to wider trust protocols/policies
  b. Completing staff training and education plan, including materials
  c. Completing patient and carer engagement and communication plan, including materials – to be cascaded to the wards
  d. Consultation with staff and service users during implementation
  e. Supporting Oxehealth to train staff and implement a "train the trainer" staff engagement programme on the wards for sustainability.

Training will be provided by Oxehealth in the first instance, however a cohort of staff will be expected to take time out of duties to attend training and will be required to cascade the training to other members of the team and new starters as part of the local induction. In reality, this is limited as a new starter can be trained on the technology and protocols in 20-30 minutes.

This Sub-Group is disbanded 1-2 months after go-live, whereby clinical representatives with accountability for monitoring / updating these materials will become part of the Partnership Board.

- **Installation Sub-Group:** responsible for the timely and successful installation of the digital monitoring service in the locations. This sub-group is accountable for:
  a. Confirming the installation plan, including safe working regime
  b. (Oxehealth) Procuring and preparing the hardware
  c. (NHPT) Installing the required network and power cabling, connectivity and securing the housing units in the room
  d. Completing the installation and blind running period prior to "go live".

This Sub-Group is disbanded 1-2 months after go-live.

- **Benefits Realisation Sub-Group:** responsible for defining and executing the benefits realisation plan based on the desired outcomes as defined in the business case. This sub-group is accountable for:
  a. Creating the benefits realisation plan, including methodologies, data collection requirements, data sources, roles & responsibilities for executing the plan, and key deliverables
  b. Coordinating the execution of the benefits realisation plan including data collection, processing, analysis and write-up of the results at key junctures.

This Sub-Group remains in place until longer-term benefits have been evaluated, meeting as frequently as is required to execute the plan.

Once the approach is approved, the lead of each sub-group will be identified and approved. Each workstream will have representation from Oxehealth.

Post go-live, operational teams will take ownership of using the technology to supplement and enhance patient safety and care quality, with oversight from Nursing & Quality. The service provider also supports post go-live with regular ward check-ins, additional training needs, and other "cultural support" needs that underpin the use of the technology to compliment good clinical practice and continuous improvement.

Collaboration before, during and post implementation will take place in a co-ordinated way, supported by Project Management. This support needs to be identified by the trust in order to ensure a smooth implementation.

The partnership working (including governance of the SLA) and longer-term evaluation will be governed by the Partnership Board – which meets quarterly at a minimum.

9 Key Assumptions/Risks

Risks are inevitable during business change projects. Through previous installations the following potential risks have been highlighted. The identified risks can be included on the Trust Risk Register and monitored throughout the duration of the project via the Implementation Steering Group and later the Partnership Board. Further monitoring will ensue once the technology has been implemented and action for mitigation will continue.

Risk Title	Controls / Assurance in Place	Risk Owner
Risk to installation timeline due to COVID-19 restrictions on the wards	Due consideration must be given in relation to COVID-19 restrictions at the time of installation and go-live. The suppliers can work flexibly in terms of ward access, and certain installation activities take place off the ward. In terms of staff training, this can be provided remotely if needed by the service provider.	Installation sub-group Clinical sub-group
Workforce acceptance and overreliance on technology	Risk of negative effect of "disintermediating the nurse from the patient" and therefore over reliance on technology. This is always a fear with technology in general. The Clinical sub-group's role is to ensure that this risk is mitigated through integration of the technology within existing protocols and ways of working, staff listening & engagement sessions during implementation and a comprehensive and robust training programme alongside supplementary guidance, operating protocols and a "train the trainer" model for sustainability.	Clinical sub-group

Equipment Breakdown	Risk of equipment breaking down. The service provider will provide replacement Hardware for wards and operating protocols will be available for staff to using equipment, based on the service provider's SLA.	Contracting/ Procurement & Partnership Board
Patient acceptance	The patient admissions / consenting regime will be decided by the clinical sub-group and IG team, and patient engagement as well as appropriate patient materials and ward signage will clearly provide all relevant information to patients on the wards and their carers.	Clinical sub-group
Future proofing	Risk the system is not future-proofed. The system is upgradable with no change to hardware. Software can be remotely upgraded (as the system is hardwired into servers with high bandwidth). Oxehealth maintain a network of Academic and Clinical Research partner programmes through the Oxehealth Clinical Research Forum, which is designed to produce world leading research and deliver novel functionality to continuously improve safety and quality.	Research

10 Timescales

Milestone	Timescale
Site Surveys, Installation Requirements & final costs	To take place prior to approval
Approval, Contract, Purchase Order	TBD
Stage 1: Ready to Install	6 weeks based on hardware procurement. Cabling works can start in parallel during this phase to shorten Stage 2. The Clinical Sub-Group work also starts in this phase
Stage 2: Install Complete	8-10 weeks based on installation for wards without the technology taking approx. 1 week per ward, phased ward-by-ward
Stage 3 – Ready for Go-Live	For each ward, 4-6 weeks from the point that ward is fully installed and ready to enter blind running (where the system is calibrated and configured based on agreed functionality). This includes blind running as well as staff training.
Stage 4 – Go-Live for "new" wards	This is clinically led in terms of decision making for go live date, and is typically ward-by-ward

11 Governance

The implementation and ongoing monitoring and evaluation of the partnership with Oxehealth will be overseen by a Partnership Board that holds quarterly meetings, Executive sponsored by Chief Nurse.

The Partnership Board will oversee the partnership with Oxehealth across all sites, as well as the contract and SLA. It includes clinical, clinical governance, operations, contracting, finance and representation from Oxehealth. The members include:

- **Executive Sponsor** Executive Director
- **Finance**

- **Operations**
- **Nursing**
- **Safety & Quality**
- **Medical**
- **Contracting**
- **Admin Support**
- **Oxehealth representation**

The Partnership Board also calls upon additional people as & when required, including but not limited to:

- **Communications**
- **IT**
- **Clinical Data**
- **Information Governance**

The Partnership Board will report key information to the Executive Board.

12 Summary/Conclusion

In summary, this Business Case outlines the proposal to invest in the Oxehealth partnership and move forward with Option 2, rollout to 7 wards (preferred option) within the trust.

We have a long-term commitment to digital development to support services to embrace opportunities for improvements in patient safety, quality, efficiency and effectiveness.

Executive Management are asked to consider the information presented in this Business Case and approve:

- Progression of partnership with proposed provider
- Investment to rollout to the Option 2 (preferred option) – 7 wards identified as a clinical priority
- Appropriate clinical and operational resource / prioritisation of work within the wider portfolio of work to ensure a timely and successful implementation.

13 Appendix A

What is the digital monitoring service?

Oxehealth's Oxevision is a contact-free vision-based patient monitoring platform. It helps clinicians to deliver proactive care through earlier interventions and more effective care planning.

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 is a few metres away). Staff interact with the system via a monitor in the nurses' station and portable tablet devices.

Clinicians can:[1]

- 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)
- 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/warnings 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.

Staff can only access the video feed for 10 seconds when taking vital sign observations, or when requested during/shortly after an alert to high-risk activity. It is not CCTV.

The technology is real-world validated and has almost 7 million room-hours of live running on wards.

What has the CQC said?

OxeVision is recognised as a marker of quality by the CQC:

- Highlighted as an example of outstanding practice in an NHS Mental Health trust
- Referenced as innovative safety monitoring and effective use of technology in two separate care homes reports that are "Outstanding"
- Shortlisted as one of only two mental health case studies in CQC's "Driving improvement through technology" series.
- Referenced as an example of "Innovation and inspiration: examples of how providers are responding to coronavirus" report – the only example of "use of technology" in use in mental health hospitals to help providers dealing with COVID-19.

[1] The Oxehealth Vital Signs device is intended for non-invasive spot measurement and historical trends of pulse rate and respiratory rate. It is a fixed-installation device for use within single occupancy rooms within hospitals, general care, domestic and secured environments where a framework exists which mandates periodic checks by a trained professional to ensure subject safety. See Instructions for Use for intended use, contraindications, warnings, cautions, usage directions and maintenance. The activity detection, fall risk, activity tracker and sleep products are activity trackers and do not have a medical purpose or functionality. They are not patient monitors or vital signs monitors. They cannot be used to make a medical or clinical decision.