National Mental Health and Learning Disability Nurse Directors Forum

Influencing and advancing care in mental health and learning disabilities

Vision-based patient monitoring systems (VBPMS) in mental health wards

National recommendations, guidance and best practice on safe use of VBPMS

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Further information about this document

Document name	Vision-based patient monitoring systems (VBPMS) in mental health wards: National recommendations, guidance, and best practice on safe use of VBPMS
Document summary	VBPMS are assistive tools that enhance and support patient safety in inpatient services. This document has been approved by nurse leaders and the National Mental Health and Learning Disability Nurse Directors Forum (to be referred to as 'the Forum' henceforth). The Working Group that created this report included representation from service user and carer groups. All work presented here has been informed by clinical practice and best available evidence and has been validated by stakeholders. This report should inform mental health service providers who are considering use of VBPMS or who are at varying stages of its implementation within their inpatient services. It will provide a robust platform from which providers can develop their own policies, protocols, and materials in line with local needs. This document should be used to guide a consistent and auditable approach to: ● Implementing safe, ethical, and effective use of VBPMS ● Engaging with service users and carers on the use of these systems ● Meeting individualised needs of service users ● Ensuring ongoing governance and assurance around the use of VBPMS.
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Contents

IMPORTANT NOTE TO READERS 5
Background and context 6
Approach 8
Purpose 9
Themes and recommendations 10
1. Purpose of using VBPMS 10
Context 10
Recommendations 11
2. Service user and carer engagement, information and communication 13
Context 13
Recommendations 13
VBPMS Information Resource Pack 14
3. Consent for use 15
Context 15
Recommendations 16
4. Staff engagement, education and training 18
Context 18
Recommendations 18
5. Use of data in investigations 20
Context 20
Recommendations 20
6. Operationalising into practice 22
Context 22
Recommendations 22
7. Evaluating impact 24
Context 24
Recommendations 24
8. Future engagement 26
Context 26
Recommendations 26
Reviewing this report 27
Conclusions 28
Appendices 29
Appendix 1: Background information on the currently available Vision-based patient monitoring system (VBPMS) 29

Appendix 2: Terms of Reference and Working Group membership 31
Terms of Reference 31
Members of the Working Group 31
Appendix 3: Consent flowchart 32
References 34
Summary table: Themes and recommendations 37

IMPORTANT NOTE TO READERS

It is important the statements below are considered in relation to this report.

1. This report is not in any way endorsing any product nor seeking to influence any decision that a particular organisation may want to make as to the procurement, or choice of informed consent model, relating to any given product.
2. This report does not seek to provide technical expertise on the way in which vision-based patient monitoring systems (VBPMS) in general, or specific vision-based patient monitoring (VBPM) products, work. The relevant licensing authorities have jurisdiction over medical and other technologies.
3. This report indicates the need for further and continuous research, as with all care delivery, to explore various elements relating to the use and benefits of VBPM technologies.
4. This report indicates that, for any given deployment of a VBPM technology, work and agreement is needed with various stakeholders, and recommends that each NHS Trust or other mental health service provider works closely with patients, carers and staff groups to achieve best outcomes.
5. The views around the important issue of consent can largely be attributed to the contributions from service user and carer members of the Working Group.
6. This report has taken its Terms of Reference from the National Mental Health and Learning Disabilities Nurse Directors Forum and in line with this the Working Group agreed to include all views and representation from all stakeholder groups.
7. This report aims to inform the implementation of any VBPM technology however only one supplying company could be identified within the UK, and so reference to the company name has been essential occasionally throughout the report. That notwithstanding, the findings are applicable to any system with similar functions.
8. Representatives from the supplying company have been included as stakeholders throughout the review but excluded at times from discussions which were deemed to be sensitive.

Background and context

Origins:

Vision-based patient monitoring systems (VBPMS) have been described extensively in the clinical engineering literature for some time. A useful survey of such systems, then almost exclusively deployed in research environments, can be found in Sathyanarayana et al. (2018) [1].

Recent years have seen a growth in academic publications concerning VBPMS deployments in mental health settings, for example Ndebele et al. (2022) [2]. Academic work has also been published on how to specify the VBPMS functionality required to support the work of clinicians in a given mental health setting and patient group (Lloyd-Jukes et al., 2021) [3].

Definition:

For the purpose of this guidance, VBPMS are assistive tools that enable staff to enhance and support patient safety in inpatient services by delivering non-contact measurement of physiological parameters such as pulse and breathing rate, some estimate of patient location, activity or behaviour data and some form of contextual video information (which may be blurred) either in real-time or through subsequent reviews. The use of these systems is intended to enhance existing clinical practice and not replace the need for nursing interventions. The Working Group is only aware of one VBPM technology which is described briefly in Appendix 1.

In some cases, a VBPMS can be classified as a medical device regulated by the Medicines and Healthcare products Regulatory Agency and have specific indications for use. Providers adopting the technology need to ensure users are appropriately trained.

Current usage:

Several mental health service providers around the country have introduced VBPMS into clinical practice on inpatient wards, with some positive feedback from service users, carers, and staff.

Trigger for review:

The need for this review was prompted by events in Camden and Islington NHS Foundation Trust (C&I) which were covered by The Guardian newspaper in December 2021 [4]. C&I was conducting a trial of a VBPMS on a 12-bedded women's acute ward. Some service users expressed concerns about use of the system, primarily around the impact on privacy, which the Trust attempted to address. However, a formal complaint was raised and was published initially in Disability News Service [5] prior to coverage in The Guardian.

The Forum received a statement from C&I in which the Trust admitted that implementation of the system was not to the required standard and agreed that the concerns raised by service users were valid. The response attempted to address these concerns.

A statement from C&I in relation to concerns raised by service users and the media around the use of VBPMS read:

- **Messaging and communication with service users:** implementation occurred during the start of the Covid-19 pandemic when the stability of the workforce was severely affected by coronavirus infection. This impacted on the ability of the clinical

team to provide consistent communication with service users about the system so they could be fully informed

- **Protocols on consent:** there were varied views within the organisation on how to handle patient consent, and this featured in the trial's findings. As a patient safety intervention, it could be considered a required intervention as per standard observation practice. The question of opting out and capacity to do so was a challenge as a few patients were strongly opposed to this intervention

- **Privacy:** it is important to recognise that there were valuable benefits and some service users expressed positive views about it. However, there was insufficient attention paid to the potential disbenefits in relation to perceived impact on privacy and dignity, with these service users raising concerns about what they considered an intrusive intervention in their bedroom area, the only private space they have in a restrictive environment.

Experience from organisations represented in the Forum indicates that there is variation in implementation practices for use of VBPMS. The Working Group aimed to promote a consistent approach to implementation and evaluation throughout the country.

Current deployment of vision-based patient monitoring systems (VBPMS):

The Working Group is only aware of one company providing a VBPMS within the UK market (see Appendix 1). This company provides a VBPMS to approximately 50% of the 54 mental health Trusts in England.

The supplying company has compiled a report from NHS organisations using its system, which presents data from evaluations of patients' experience indicating an improved sense of safety, less disturbed sleep, and an increased sense of privacy [6].

A related report describes staff-reported reduction in incidents and serious injury and harm as well as improvements in care quality and staff experience [7].

The Working Group noted that clinicians and technologists have published 18 peer reviewed journal articles [2-3, 8-23] and 6 reports [24-29] covering both the underlying VBPMS technology and the benefits of the system in use to patients, families, clinicians and other stakeholders.

We would like to see further developments and research into this technology which will require further collaborations between healthcare providing organisations, educational institutions, the NHS, and industry.

Approach

The Forum across its members met to co-develop the Terms of Reference for this Working Group. The Terms of Reference were approved by the Forum in late March 2022 (see Appendix 2).

Membership nominations were approved by the Forum Council. Membership comprised six Directors of Nursing from across the country (including the Forum lead for Care Quality Commission (CQC) engagement), a service user representative, a carer representative, the Chair of Mental Health Nurse Academics UK, the Forum's Project Support Officer, and an Industry representative from Oxehealth (UK Managing Director).

Input from service users, carers and staff was sought from all mental health providers across the country. Three workstreams were developed with work conducted mostly through workstream activity:

- To gather lessons learned and good practice from use of vision-based patient monitoring (VBPM) across mental health wards
- To develop a report on recommendations that will support safe use for patients, staff and organisations. This may include the development of national guidance on appropriate use and system monitoring to support with local adoption and implementation
- To identify and share best practice for patient and carer engagement and education, and develop a framework for consent that supports local decisions on the most appropriate consent model
- To look at opportunities for future engagement and research in the field to inform future developments and continuous improvement.

Regular engagement meetings with the Chairs were held with NHS England's Mental Health Policy, Mental Health Digital and Patient Safety teams to enable timely contributions of their views to the recommendations and remain up to date with progress of the Working Group.

Purpose

This document has been developed to support providers of mental health inpatient services that are considering, actively implementing, or who are already advanced in use of vision-based patient monitoring systems (VBPMS) to create or update their protocols, policies, and governance arrangements to support safe use for the benefit of patients and staff.

Its aim is to support individual healthcare providing organisations in their current or future use of VBPMS to standardise implementation approaches across the country and provide a platform for sharing learning. Particular attention has been paid to recommendations that underpin governance of the system in addition to its safe, effective, and ethical use.

Recommendations from the document should be used at the discretion of each organisation to fit their specific needs and local circumstances.

Recommendations have been developed based on recent literature, implementation best practice and feedback from service users, carers, and staff in mental health organisations from across the country.

Themes and recommendations

1. Purpose of using VBPMS

Context

When considering the use VBPMS, mental health service providers need to clearly articulate the purpose and scope.

National Reporting and Learning System (NRLS) figures from NHS Improvement indicate that, in 2019/20, unexpected or unintended events caused the death of 1,316 acute/general hospital inpatients across England. This amounts, sadly, to approximately one death per 26,000 occupied bed days in that period. Tragically, the same dataset indicates that unexpected or unintended events caused the death of 2,469 mental health hospital inpatients in the same time period – amounting to approximately one death per 2,700 occupied bed days (NHS England, 2020a, 2020b) [30,31][1].

All patients within mental health services deserve to be treated in a modern, safe and therapeutic environment and there should be no disparity in the quality of care received on a mental health ward and an acute/general ward. The Mental Health and Learning Disability Nurse Directors Forum and this Working Group believe that systemwide focus and action on inpatient safety are an urgent and critical priority. We note that safe and high-quality patient outcomes in acute/general hospitals have been, in part, underwritten by the widespread availability of patient monitoring systems designed to support specific care pathways within acute/general hospitals.

Taking another national dataset, there were 1,109 mental health inpatient deaths by suicide between 2009 and 2019 in the UK (HQIP, 2022) [32]. Whilst significant efforts have been made to reduce inpatient suicides, with a reduction seen between 2009 and 2016, rates have not fallen since 2017. The effect of this is wide-reaching, having a long-lasting impact on carers, families, clinicians and other professionals involved.

Meanwhile, in 2015/16 at about 34,000 reported incidents from 110,000 admissions, falls were the third most commonly reported type of incident in mental health hospitals (as reported to the NRLS) (NHS Improvement, 2017) [33]. Falls are a common occurrence in the general population and in all care settings and are the result of a complex interplay between intrinsic and extrinsic risk factors; these factors typically worsen with age.

Most falls do not result in physical injury, but other harms may occur such as psychological distress, fear of further falls, delayed functional recovery and prolonged hospital stays.

Patients with mental health problems are typically more vulnerable to increased risks of falling due to treatments and/or medications in addition to multiple medical co-morbidities.

It should be noted that the foregoing statistics, whilst confronting, do not reflect the significant number of injuries from assault and self-harm also sustained by mental health inpatients, despite the best efforts of staff caring for them.

The NHS 10-year plan builds on the NHS Long Term Plan and forms part of the government's wider commitments to 'build back fairer', working towards ensuring mental

[1] Occupied bed day figures are taken from the 'Report Rates' spreadsheet and death numbers are taken from the 'Mental Health', 'Acute (Non-Specialist)', and 'Acute (Specialist)' spreadsheets. See References section for full references.

health is on a level footing with physical health. The use of technology to support the delivery of safe and effective care within acute/general services has been a requirement for many years, however suitable technology to support clinicians in delivering safe and effective care has not been available for mental health services in the past.

The NHS Mental Health Implementation Plan 2019/2020- 2023/2024 Policy now requires all mental health providers to meet expected levels of digitisation; this includes local systems to offer a range of self-management apps, digital consultations and digitally enabled models of therapy. NHS providers therefore wish to embrace innovation and the use of technology to support the mental health care they deliver.

VBPMS are assistive tools that enhance and support patient safety in inpatient services. They are to be used as part of clinical practice and in conjunction with other policies and protocols that already inform how care is delivered day-to-day.

In some cases, a VBPMS can be classified as a medical device regulated by the Medicines and Healthcare products Regulatory Agency and have specific indications for use. The manufacturer has a responsibility that these indications are fully understood by the user.

As with any digital technology, implementing a VBPMS represents a clinical as well as a financial decision. As such, each mental health service provider should come to their own decision as to how they roll out the use of VBPMS within their inpatient services. This decision needs to consider the importance of patient-centred care, trauma-informed approaches to care and how to ensure equity of care across their services and the minimisation of operational risks. For example, it is not advisable to implement VBPMS partially on a ward (i.e., in some patient rooms and not others) as this introduces an operational risk as staff would be required to manage different policies and protocols within a single ward.

Similarly, organisations should consider the approach to implementing these systems across different service pathways (i.e., working age services, older adult services, child and adolescent mental health services) in a way that is both equitable for patients under their care and manageable for the organisation itself to implement safely and appropriately.

Recommendations

This report makes the following recommendations when organisations have agreed to use VBPMS:

1. The sole purpose of VBPMS is to support patient and staff safety in inpatient services.

2. VBPMS cannot and should not replace positive and therapeutic engagement with patients and the visible presence of staff within inpatient settings. Staff must remain responsible for the patient and clinical judgement must be used at all times. Emergency intervention where self-harm is suspected should not be delayed by first checking the VBPMS.

3. Service users and carers should be engaged early on regarding the purpose and use of VBPMS, and the co-production of “guiding principles” that can be used as part of service user and carer engagement and education during implementation.

4. More broadly, when defining the digital strategy for an organisation, due process should include engagement with service user, carer and staff groups to ensure all groups are clear on the vision, reason and purpose behind certain digital choices from the outset.

5. This report suggests an approach to the issue of consent and considers the implications of choice that each organisation makes.

6. Organisations should provide clear and concise information to staff and patients, one policy or guidance, training of 85% of staff before implementation, and regular oversight of adherence to policy, protocol, and training.

2. Service user and carer engagement, information and communication

The Working Group includes service user and carer groups representation. The service user and carer group, supported by a Chief Nurse, led on the work reported in this section and on the creation of the Resource Pack referenced within it.

Context

Service users and carers must be made aware of what VBPMS can and cannot do, and how they are used as part of the care service users receive whilst in inpatient services. When vision-based technologies are used within patient bedrooms in inpatient wards, clear and transparent information needs to be shared with service users and carers if the system has capabilities that allow staff to use a video stream to view a patient in their room or to record video data that is personal in nature.

This report acknowledges that there was variation across the country in service user and carer information materials that were created locally via co-production. In particular, there was mixed quality in messaging, imagery, and design which has the potential to create the risk that service users and carers are misinformed about VBPMS or do not receive all the information they need to understand how these systems work. It should be noted that there were also examples of good practice in information materials.

Misunderstanding or misinformation on what systems can/cannot has the potential to create risks; for example, the risk that a patient on the ward may misunderstand what the system does and either exhibit non-pre-existing risky behaviour or exhibit pre-existing or previously hidden risky behaviour. Whilst these risks have not been seen in practice, it is important to consider how to mitigate or reduce the potential disbenefit of creating such risks when developing service user and carer messaging and information.

It is therefore crucial that service users and carers are clear on the systems, what they do, their limitations and how they are used as part of their care to avoid confusion or the introduction of novel safety risks. This includes the use of video data to view patient activity.

The manner in which service users and carers are informed about the use of VBPMS when they are in use on an inpatient service is of utmost importance.

Careful consideration must be paid to what information is provided to service users and carers, at what time during their stay and by what means. This is not a “one-size-fits-all” model and must take into account the local variation in services as well as individual service user preferences and choices.

Recommendations

This report makes the following recommendations:

1. Service users and carers must be informed of the use of VBPMS, including the use of video data:
    - Upon admission (or readmission) to a ward
    - At regular times throughout their length of stay on the ward.

    Informing should take place not only by providing information leaflets and signage on the wards, but service users (and where relevant, carers) must also be

engaged and informed, as not all service users and carers will read information leaflets or signage.

2. Information materials should be taken from nationally co-produced best practice templates to avoid creating inaccuracies or confusion across the country, with localisation limited to account for local service variation and needs only.

3. Local co-production of how to engage and inform service users and carers on the ward should take place throughout implementation with organisations working in collaboration with service user and carer groups. Starting from the VBPMS Information Resource Pack (see below), this can focus on facilitated co-production of local Standard Operating Procedures and policies to shape safe, appropriate use of VBPMS as part of their care.

VBPMS Information Resource Pack

This report includes version 1.0 of The VBPMS Information Resource Pack (to be referred to as the "Resource Pack" for the remainder of this report) – to facilitate patient and carer information, communication, and engagement for the use of VBPMS.

The Resource Pack includes:

- Ready-made patient and carer information leaflet templates for use on the ward
- Ready-made patient and carer signage/poster templates, for use in public areas of the ward
- Ready-made additional "information sheet" templates for use to support with staff and patient conversations
- An image repository to support localisation of ready-made templates
- Guidance on how to undertake localisation of these templates.

For more information on the purpose and approach taken to develop the Resource Pack, as well as the ready-made templates and process for template localisation please refer to the document itself.

Version 1.0 of the VBPMS Resource Pack was created through co-production within the Working Group set up to develop this Report, and included service user, carer, director of nursing and industry representation.

It should be noted that there will be further national co-production taking place over the second half of 2022 to create a version 2.0 of the VBPMS Resource Pack. This is to ensure that this version has taken a well-evidenced and robust approach to national co-production given the recommendation for limited co-production of these materials at a local level.

It is the recommendation of this report that organisations initially adopt version 1.0 of the VBPMS Resource Pack and then adopt version 2.0 once it is published.

The VBPMS Resource Pack can be accessed here: https://mhforum.org.uk/oxehealth-resource-pack.

3. Consent for use

The Working Group includes service user and carer groups representation. The service user and carer group, supported by a Chief Nurse, worked on the issue of consent and came up with the views expressed in this document.

Context

Regarding consent, it remains challenging for the staff and patient groups to recommend an approach for healthcare providers to adopt. The Working Group had a lot of discussions within the Group and outside the Group with a range of stakeholders.

Whilst several arguments have been raised around human rights and ethical issues, there are equal arguments on the use of VBPMS to support saving lives and establishing this as a standard way of delivering a safe service.

It is unfortunately the case that serious and untoward incidents occur within inpatient settings; bedrooms are a particular area of concern. Despite significant developments in how services identify and dynamically manage risk, it remains the case that any process of risk assessment/management no matter how robust or expertly delivered will at times be unable to predict all eventualities.

This is particularly evident in some mental health settings where patients may experience thoughts or compulsions which they are unable to predict or unwilling to articulate. This particular group can and do benefit significantly from the presence of a VBPMS. There are numerous examples from across the country where catastrophic events have been avoided among such individuals when staff use a VBPMS as an assistive tool.

The challenge of managing consent on an acute ward where a patient may not necessarily be in a position to consent creates a challenge, especially when they are in an acute phase of illness.

To this end, there is concern that offering patients an option as to whether they wish to have such a system activated or otherwise within their bedroom significantly reduces the effectiveness of the system and therefore compromises patient safety should individuals choose to deactivate the system. Furthermore, it increases the risk for deactivated rooms to be overlooked by staff should risk change, where discharge and subsequent admission occur or there are shift changes, resulting in continued deactivation and false assurances.

We also considered the issue of privacy. Whilst some people view these systems as an intrusion into an individual's privacy, we considered the practice of regular hourly (or more frequent) sleep checks or staff undertaking specialist observations of patients in their bedrooms during which they leave the bedroom door open continuously to see if the patient is safe.

There is the issue of language in which these systems are described. The Working Group see VBPMS as an assistive technology which supports clinical care for patients. The Group noted that some view these technologies as a form of surveillance technology and that this concern, where it exists, needs to be taken into account by providers deploying the technology. Similarly, the system can raise human rights and ethical concerns for some individuals and these need to be explored with stakeholders where these concerns exist.

The sole interest of clinicians is to protect patients and keep them safe.

Whilst there is rightly a focus on the individual identification and management of risk, providing safe inpatient environments crucially relies upon constantly being aware of a range of potential risks, including risks posed by others receiving healthcare within the same setting (i.e., sexual safety, exploitation, bullying/harassment, the principles of trauma-informed care etc.).

Vision-based patient monitoring systems (VBPMS) cannot and should not replace positive engagement with patients and the visible presence of staff within inpatient settings.

Information that is captured by these systems, and provided to clinicians, is of a nature that helps clinicians in the management of the health and safety of patients within the ward environment – for example, by providing staff with vital information and insights to facilitate earlier intervention to reduce the probability of an incident of harm occurring.

It is evident however that, on occasion, the introduction and implementation of the VBPMS has been below the best-practice standard. As a result, this has raised concerns and issues of trust between patients and staff.

Recommendations

As per the preceding section, service users and carers must be informed and told of the use of VBPMS including the use of video data, both on admission and throughout their stay in hospital. This must be the case regardless of the consent position decided by an organisation.

We have provided two options for how to implement an informed consent regime for healthcare providing organisations to consider. The consideration should ensure that there is no mixture of positions as this will be confusing and a challenge.

It is recommended that each organisation has a single system approach to their consent regime across all their services. Staff should then be trained on that position and how to fulfil it in practice.

Whilst we put two positions regarding informed consent here that providers may consider, we are in no way recommending either of the approaches. Our view is that each organisation should make their decision in conjunction with the wishes and agreement of their stakeholders and most especially carers and service user groups. This agreement should regularly be revisited to ensure continuous sharing of information that enables clear and informed decision making.

The two informed consent positions below each have advantages and disadvantages and need clarity and proper structure in their implementation to ensure the guidelines are followed.

1. **Implicit consent:** all service users are opted in upon admission as part of the standard practice on the ward. Service users can raise questions and concerns, and there should be regular opportunities for service users to be engaged by staff in conversation about their questions and concerns. Objections can be raised at any time. Objections should be handled by the responsible clinician as per existing clinical practice. The responsible clinician will decide whether to withdraw the use of the technology if in the best interest of the patient, taking into account the balance with individual preference, safety/risk management and other alternatives, just as

they would other treatment approaches. This approach needs open and honest communication including the frequent reiteration of the existence and purpose of the system so staff can be sure that patients' informed implicit consent remains in place. The flowchart in Appendix 3 lays out how such a system can be maintained. It should be noted that most providers who have deployed VBPMS to date have made use of some form of this informed implicit consent model.

2. **Explicit consent:** service users opt in upon admission, with due consideration given to an individual's capacity to make this decision, especially for acute presentations. For individuals that lack capacity to consent, this decision should be handled as per existing clinical practice. Consent can be withdrawn at any time for individuals that have capacity. This approach requires significantly more staff confidence and competence to administer in practice. In choosing this approach, it is important to ensure the framework is clearly published, and the capacity and structure to manage different choices especially on a single ward needs to be managed carefully.

It is recommended that all healthcare providing organisations receive their own legal and ethical advice on their position, and that they ensure that patients' rights to privacy and dignity are adequately considered and protected.

4. Staff engagement, education and training

Context

As with any system or tool (e.g., a blood pressure monitor), it is critical for staff to understand what it can and cannot do (including its intended use and limitations) and how to use it in practice. Without this understanding, service providers can introduce unintended risks into their system of care.

Staff engagement, education and training not only includes training staff on what a system can and cannot do and how to use it in practice but also the Standard Operating Protocol (SOP) and related policies that govern safe and appropriate use of the system as part of their day-to-day clinical practice.

Staff engagement and training need to be constantly revisited due to staff turnover and the use of temporary (i.e., bank and agency) staff on inpatient wards.

Whilst technology providers of these systems can support organisations to meet their staff training needs during the implementation process prior to “go-live”, organisations will need to consider how to embed a sustainable training programme that provides assurance to Boards that staff operating these systems continue to be appropriately trained in their use as part of clinical practice.

Ensuring staff feel comfortable and confident in using these systems as part of their daily clinical practice is important as they will be required to engage with patients and carers and answer questions and concerns they may have.

Several organisations have followed a “champions” approach, whereby 3-4 individuals per ward are trained as “super users” who undertake training responsibilities for new joiners and temporary staff, and provide ongoing support for all ward staff. These individuals can also become a useful cohort for raising risks or issues and sharing best practices across their organisation.

Training materials for VBPMS were reviewed and assessed to identify best practice and areas for improvement. This focused on “what the system can and cannot do” and “how to use the system”.

This included:

- Staff training materials as part of a dedicated training portal which included:
    - Introduction to VBPMS
    - Functionality “reminder sheets” and explainer videos – for intended use, what the system can & cannot do and limitations of the system
    - “How To” guides – simple step-by-step guides on how to operate the system
- Staff training materials for initial on-site training.

Recommendations

This report makes the following recommendations:

1. All staff who use VBPMS must be trained and deemed competent prior to use. This training must include:
    - The purpose for use
    - The Standard Operating Protocol

- What the system can and cannot do, including intended use and limitations
- How to use the system
- How to talk to service users and carers about the system and its use as part of their care, including handling concerns and objections.

Staff training competencies must ensure not only clear understanding of these topics but also confidence to have conversations with service users and carers and be able to answer any questions, concerns, or objections they may have.

2. Every organisation should share key documents with technology providers, including standard operating procedures and any localised training and information materials they create.

3. There should be clear responsibility within ward management for ensuring all staff are appropriately trained and continue to have this capability.

4. The Forum recommends nominating “champions” per ward who act as “super users” and can provide ongoing training support for staff on the wards.

5. The Forum recommends that a system does not go-live until at least 85% of staff on a ward have received training. All staff attendance must be centrally stored and reported through organisational governance pathways.

6. All technology providers of VBPMS must make available and have a process for ensuring service providers can access and remain up to date with the latest training materials on what their system can and cannot do and how to use it.

7. Every organisation must have a process for onboarding new joiners and temporary staff, as well as providing ongoing training to permanent staff. This should include senior clinical governance oversight to provide assurance to Boards and Patient Safety Specialists that staff are trained appropriately in safe use of these systems.

8. The Forum recommends that, in addition to staff on a ward, the following individuals also undertake training specific to their needs:
    - SIRO / Executive Clinical Sponsor(s) including Chief Nurse and Chief Medical Officer
    - Individuals responsible for clinical governance of the SOP and related policies
    - Information Governance, including the Data Protection Officer
    - Patient Safety Lead
    - Staff Education Leads

9. It is advisable to create a sharing forum or forums for ward staff to raise risks and issues and learn from each other on best practice in the use of these systems as part of day-to-day clinical practice. This should be incorporated into agendas for existing ward or clinical meetings (i.e., not as separate meetings).

5. Use of data in investigations

Context

Despite significant attempts to improve patient safety, incidents where patients come to significant harm, or worse, still occur in inpatient mental health settings.

Furthermore, mental health service providers are often challenged by a lack of objective data and information as to what exactly happened prior to an incident – relying on data from multiple sources and human testimonials to piece together a timeline of events.

The primary purpose of VBPMS is to assist staff in enhancing and supporting patient safety in real-time.

Whilst not their primary purpose, VBPMS can assist in providing data (including but not limited to video data) to support incident investigations. In doing so, these systems have the ability to support patients, carers, staff and organisations to learn from these events – therefore providing assurance that the right actions are taken to prevent them from occurring in the future.

However, there is a balance that needs to be struck by mental health service providers to support patients, families, staff and organisations to learn from these incidents whilst protecting everyone's privacy, data and human rights.

Given VBPMS have the capability to record video data that includes personal data, there is a need for organisations to provide protocols governing the use of the data in areas including but not limited to the following:

- Family requests
- Coroners' investigations
- Criminal investigations
- Professional negligence or human resource related issues.

Current practice across mental health service providers today seriously limits the use of video data that includes personal data from VBPMS. Specifically, use of these data is limited to supporting serious incident investigations where a patient has come to serious or catastrophic harm as a result of a patient safety incident. Consideration should be given to how data can support Patient Safety Incident Investigations (PSIIs) and Patient Safety Reviews (PSRs) as part of the Patient Safety Incident Response Framework (PSIRF)

Organisations need to implement clear governance processes around how data from these systems is stored, retained, accessed, and shared. Data governance arrangements within the organisation should ensure the staff adhere to the policy on data handling and usage.

Recommendations

This report makes the following recommendations:

1. Every organisation should create a policy to ensure that they have clearly defined what data can be used for what purposes (including use by entrusted third parties, e.g., coroners, police, families) and retained for what timeframe, with particular emphasis paid to video data that includes personal data and its use in incident

investigations. Service users, carers and families should be engaged in the development of this policy.

2. The use of video data that includes personal data should be limited to incident investigations where a patient has come to serious harm or death as a result of a patient safety incident. Consideration should be given to how data can support Patient Safety Incident Investigations (PSIIs) and Patient Safety Reviews (PSRs) as part of the Patient Safety Incident Response Framework (PSIRF).

3. Data access, recording, usage, disclosure, retention, and deletion should be clearly recorded in an organisation's Data Protection Impact Assessment (DPIA), Privacy Notice, patient information materials and other relevant documents to ensure accurate and consistent messaging around use of personal data.

4. Staff who use the system should be made aware of these policies and trained on their content, including how to recognise requests from patients and carers for data and data handling, usage, and retention arrangements.

6. Operationalising into practice

Context

It is important for organisations to carefully consider how to operationalise use of these VBPMS to ensure a consistent and auditable approach and safe, ethical and effective use of such systems within their inpatient services. Audit should also consider any emerging trends which may be unintended consequences of the use of VBPMS.

As with any digital technology, there are legal and professional implications of their use in care delivery.

When implementing a digital technology, there are organisational culture, staff development, and staff behaviours/practices to take into account – all of which can impact the success of an implementation. Implementation of vision-based technologies is no different.

In the case of vision-based technologies, and especially when these technologies are used within patient bedrooms in inpatient wards, additional consideration needs to be paid to how organisations train staff and govern the appropriate use of video-based capabilities (i.e., capabilities that allow staff to use a video stream to view a patient in their room).

Recommendations

This report makes the following recommendations:

1. Every organisation should ensure that they have a written SOP for the use of their VBPMS, and that the SOP has been co-produced with service user and carer representation/groups.

2. All policies or protocols related to the use of VBPMS should be signed off under the organisation's appropriate, existing governance regimes to ensure there is collective responsibility and clear rationale for their decisions.

3. Every organisation should have a governance process for reporting, reviewing, and auditing adherence of the SOP in practice, which should include staff use of video-based functionality.

4. Every organisation should develop, as a minimum, annual joint audit reviews with technology providers to ensure that there is appropriate governance on adherence to purpose for use and standard operating procedures and that staff continue to be well trained. This may include joint visits to wards where the systems are in use.

5. As a minimum, the local SOP should clearly articulate the following:

    - Purpose for use, including referencing related policies and operational procedures
    - Scope of use, including:
        - Where the system is being used
        - Indications for use (when the VBPMS is considered to be a medical device)
    - Use of the system, including:
        - What the system can and cannot be used for by staff, including use of video, use at night-time, and use for physical health monitoring

    - Who can use the system
    - How staff use the system
- Patient and carer communication and engagement, including locally adapted information materials
- Explanation of the process for patient consent
- Staff training and support, including:
    - Staff training materials
    - Process for onboarding new joiners and temporary staff
    - Process for ongoing training and assurance for permanent staff
    - How to report an issue with the system
    - What to do if the system is not available (i.e., business continuity)
- Use of data in investigations
- Governance, including the agreed process for reviewing and updating the SOP on a regular basis.

6. As part of continuous improvement, organisations should liaise with technology providers of VBPMS to identify areas for improvement including but not limited to reporting and workflow developments that can build further auditing and risk management for the use of video data.

7. Evaluating impact

Context

While CCTV has been used in communal areas in mental health inpatient services for several years, VBPMS is a relatively new development in mental health services and there is a need for further research into this field (Sathyanarayana et al., 2018; Lloyd-Jukes et al., 2021) [1,3].

Healthcare providers using these systems have a responsibility to ensure that they clearly define the outcomes, methods, and frameworks they intend to use to evaluate the impact in their services. Evaluations should include standardised and locally co-produced service user and carer feedback as well as the impact on numbers and severity of patient safety incidents.

At the time of writing, the Working Group is aware of three research projects underway:

1. An NHS funded multi-site study led by Anglia Ruskin University in partnership with Essex Partnership University NHS Foundation Trust (EPUT), funded for 12 months and due to complete in July 2023.

2. A multi-site study funded by VBPMS supplier Oxehealth in partnership with London South Bank University to analyse anonymised incident data related to self-harm, with the aim of identifying potential precursors to these incidents, funded for 24 months and due to complete in 2023.

3. A research project led by an NHS manager and academic researchers, and supported in kind by VBPMS supplier Oxehealth, to review widely-used observation practices, with the aim of identifying opportunities to enhance standard processes in light of technology now available to support staff, due to complete in 2023.

Recommendations

This report makes the following recommendations:

1. Further collaborative research into the field should continue between healthcare providers, academics and developers of VBPMS.

2. This research should prioritise robust evaluation of the impact of the system on:

    - Service users (including satisfaction with treatment, perceptions of safety, therapeutic engagement, privacy, trust)
    - Staff (including perceptions of safety, use of the system, job enablement and integration with day-to-day clinical practices, behaviour, job satisfaction, morale, and therapeutic engagement)
    - Carers (including satisfaction with treatment and communication with staff)
    - Ward environment (including rates and severity of incidents)
    - Cost (economic evaluation).

3. Organisations should implement a standardised, locally co-produced approach to evaluation to maximise the potential for their data to effectively guide practice in their own services and throughout the NHS.

4. As with all evidence-based practice, where findings from research have implications for day-to-day use of VBPMS, organisations should review their standard operating procedures considering these findings.

8. Future engagement

Context

Mental health service providers are developing strategies to deliver local priorities and capabilities that enhance the use of digital technologies, tools, and services to drive improvements in care delivery and outcomes for people in their services.

To date, digital technologies have predominantly been used to support community and outpatient care; increasingly, service providers are digitising their inpatient services.

Digitising services and building digital skills and capabilities represents a financial investment for service providers. Within the Forum there is significant interest to better understand the value of digital technology (i.e., what tool can be used where to improve patient outcomes) and the digital transformation (i.e., change management, culture, governance) required to realise that value within their services.

As more organisations deploy and learn from their use of digital technologies, local systems are learning and developing their skills and capabilities.

Whilst VBPMS represent a type of digital technology, the Forum recognises a need for service providers to learn more broadly from one another as digitisation across their services and systems proliferates.

Furthermore, as more service providers gain experience in using digital technologies within patient care, this represents an evolving area of interest for future research opportunities.

Recommendations

This report makes the following recommendations:

1. Create a Digital Special Interest Forum within the Forum that meets periodically on an ongoing basis with the following purpose:
    - Discussion on clinical ways of working around use of digital tools
    - Sharing of best practice including local policies/protocols, service user engagement, approaches to implementation, ongoing governance and assurance of digital tools
    - Discussion on potential issues associated with use of digital tools
    - Opportunities to start specific working groups, if required, on particular topics.

    Building on this review, it is advised that a Digital Special Interest advisory group is also set up.

2. As part of quality assurance oversight for VBPMS, undertake a periodic review and update of this document, with the first review no earlier than one year after the report is published.

3. Create and maintain a password-protected area within the Forum's website for sharing of documentation, including locally produced SOPs, the VBPMS Resource Pack, clinical safety documents, evaluation tools, etc.

Reviewing this report

It is proposed that, upon creation of the Digital Special Interest Forum within the Forum, a review timeframe is set for this report.

Future reviews should follow a similar approach and ensure broad stakeholder engagement from service user and carer communities.

It is recommended that the Forum and the system provider build a contact database of service user and carer individuals/panels/groups/involvement teams who would be interested and willing in participating in future reviews. This is of particular importance when it comes to reviewing service user and carer information materials given the approach is to undertake national co-production and limit local co-production in this domain.

Any future reviews of the Resource Pack should undertake a similar approach whereby national co-production for revising information materials occurs by utilising third party review from at least two different service user and carer “user panel review groups” from different regions of the country. This is critical for demonstrating high standards of involvement and evidencing national co-production. This approach can also be applied to future digital innovations.

Furthermore, it is recommended that a review process is undertaken should there be a future need for a national response to an issue, and that the Forum act as the conduit in which to support discussion, debate and decision across stakeholder groups to formulate a national response and resolve any issues.

Conclusions

Vision-based patient monitoring systems (VBPMS) are devices to support and enable safer patient care and should be seen and implemented within that context. They should be used in conjunction with other interventions, tools and clinical practices that improve patient safety.

This report acknowledges that there is variation across the country in the standard of practice and implementation of VBPMS, and it is therefore important that organisations start to standardise areas of policy, practice and use – working alongside national networks, NHS England, and technology providers.

It also acknowledges that, like with any digital technology, consideration must be given to organisational culture, staff behaviours/practices and staff development. Organisations must consider how to navigate these areas to ensure successful deployment of VBPMS.

It is important the staff are trained not only in the functions of VBPMS and the protocols that define their safe and appropriate use in practice, but also have the required capabilities to engage their service users and carers in conversations about the systems' use. This applies to temporary staff as well as permanent staff who are working in inpatient environments.

The views of service users regarding the use of VBPMS as part of their care need to be acknowledged and heard. They must be discussed in a meaningful manner such that there is an appropriate and agreed course of action that is in their own best interests for their safety and care.

These technologies give clinical staff opportunities to receive objective, longitudinal data and information on a patient's physical and physiological status that can improve personalised care planning and decision making. Clinical staff should use the opportunities that this data provides to engage service users in a discussion about their care and how to personalise it during their stay in hospital.

As VBPMS are a relatively new technological development in mental health services, future research into this area is encouraged, with the expectation that the NHS, academic establishments, researchers and industry would continue to work together.

In this post-Covid environment, mental health service providers are rapidly engaging in a digital approach to enhance and support ways of working. This is also the case in inpatient services.

As mental health service providers continue on this journey of digitisation, organisations need to clearly set out their vision and strategy for digitisation and to begin to engage service users, carers, staff and their stakeholder communities in that journey.

Organisations should continue to emphasise the principles of basic humanity, compassionate care, staff accountability and professional responsibility when deploying digital technologies – including VBPMS.

This report encourages NHS England to consider setting up an Advisory Group for mental health service providers in relation to this type of technology, which will enable patient groups, carer groups, NHS service providers, industry and other stakeholder communities to engage in open and confidential dialogue on potential issues with a view to resolution and new developments.

Appendices

Appendix 1: Background information on the currently available Vision-based patient monitoring system (VBPMS)

Vision-based patient monitoring systems (VBPMS) have been described extensively in the clinical engineering literature for some time. A useful survey of such systems, then almost exclusively deployed in research environments, can be found in Sathyanarayana et al. (2018) [1].

Recent years have seen a growth in academic publications concerning VBPMS deployed in mental health settings. Academic work has also been published on how to specify the VBPMS functionality required to support the work of clinicians in a given mental health setting and patient group (Lloyd-Jukes et al., 2021) [3].

For the purpose of this guidance, VBPMS are assistive tools that enable staff to enhance and support patient safety in inpatient services by delivering noncontact measurement of physiological parameters such as pulse and breathing rate, some degree of patient location, activity or behaviour data and some form of contextual video information (which may be blurred) either in real time or through subsequent reviews. The use of these systems is intended to enhance existing clinical practice and not replace the need for good nursing interventions.In some cases, VBPMS can be classified as a medical device regulated by the Medicines and Healthcare products Regulatory Agency and have specific indications for use.

At the date of writing, approximately 50% of the 54 mental health Trusts in England had deployed a VBPMS called Oxevision which is manufactured by Oxehealth Ltd. The system is also in use by several care providers in Sweden. The system has supported over 20 million hours of patient care.

Oxehealth was founded by Professor Lionel Tarassenko CBE FREng FMedSci whilst working at the University of Oxford. Professor Tarassenko was Head of the Department of Engineering Science (Dean of Engineering) at the University of Oxford from 2014 to 2019 and is the Founding President of Reuben College, the University of Oxford's newest college. Professor Tarassenko was the Editor-in-Chief for the Topol Review of NHS Technology and its impact on the workforce.

The technology underlying the Oxevision system was first developed through the work of Tarassenko in collaboration with Oxford University Hospitals NHS FT (Tarassenko et al., 2014) [34]. The technology was subsequently developed further within Oxehealth Ltd. through research in the UK including with NHS providers, patients, nurses and doctors (Lloyd-Jukes et al., 2021) [3 and see also 2 & 8-23].

Oxevision is a contact free, VBPMS for use in single occupancy rooms on inpatient wards. It is an assistive tool to enhance and support patient safety and clinical practice and does not replace the need for nursing interventions.

It provides clinical teams actionable data to support planning patient care and intervening proactively to help their patients.

It includes a regulated medical device that incorporates an infrared sensitive camera.

It helps staff to visually confirm a patient is safe and measure their pulse and breathing rate without disturbing their sleep.

It provides staff with notifications to predefined activities within a room (e.g., a patient getting out of bed) and information on a patient's active and resting periods (e.g., how long a patient spent in bed, how frequently they went to the bathroom overnight).

Staff on the ward receive information and notifications on a screen in the nursing office or tablet devices they can carry on the ward.

Staff on the ward can see a clear image of the room for up to 15 seconds only when checking a patient's pulse and breathing rate. They can see an anonymised, blurred image of the room for up to 15 seconds only when a notification has been received to support the completion of an additional safety check.

Usage reports for Oxevision can be provided to support governance and auditing processes within organisations.

Appendix 2: Terms of Reference and Working Group membership

Terms of Reference

The following Terms of Reference were established for the Working Group:

Aim: to review how vision-based patient monitoring systems (VBPMS) are being used across the country and to make recommendations that will support safe use for patients, staff and organisations.

Objectives: The purpose of this Group is:

1. To gather lessons learned and good practice from use of vision-based patient monitoring (VBPM) across mental health wards

2. To develop a report on recommendations that will support safe use for patients, staff and organisations. This may include the development of national guidance on appropriate use and system monitoring to support with local adoption and implementation

3. To identify and share best practice for patient engagement and education, and develop a framework for consent that supports local decisions on the most appropriate consent model

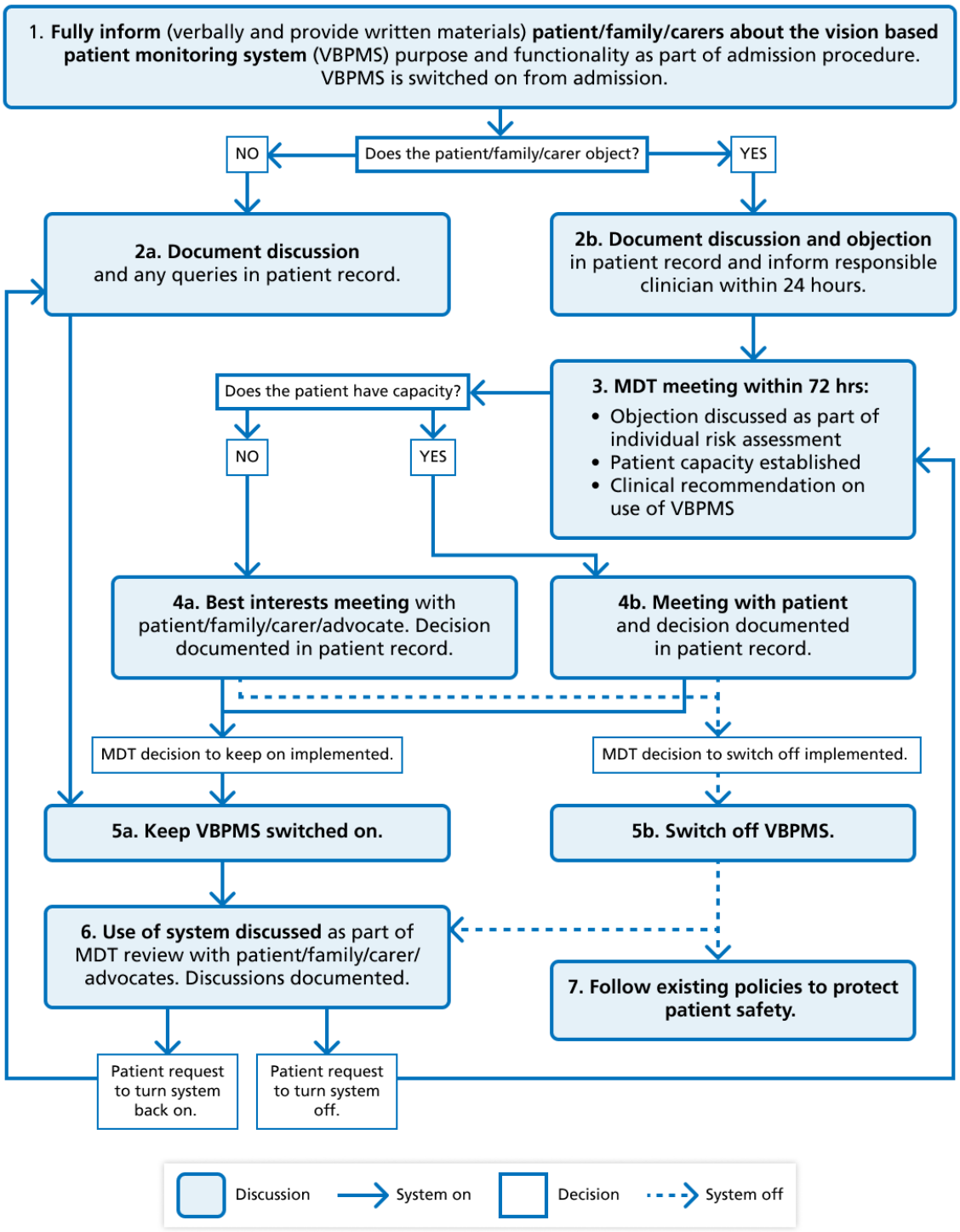
4. To look at opportunities for future engagement and research in the field to inform future developments and continuous improvement.

Governance: the Group will report directly to the Forum's Council ("Steering Group"), providing updates, reports, and escalating appropriately.

Members of the Working Group

- Ade Odunlade – Chief Operating Officer, Derbyshire Healthcare NHS Foundation Trust (Joint Chair)
- Amanda Pithouse – Chief Nurse, Barnet, Enfield and Haringey Mental Health NHS Trust / Camden and Islington NHS Foundation Trust (Joint Chair)
- Elizabeth Moody – Chief Nurse, Tees, Esk and Wear Valleys NHS Foundation Trust
- Ron Weddle – Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust
- Fiona Nolan – Chair, Mental Health Nurse Academics UK/ Clinical Professor Anglia Ruskin University/ Essex Partnership University NHS Foundation Trust
- Steve Martin – Midlands Partnership Foundation Trust
- Mary Mumvuri – Coventry and Warwickshire Partnership NHS Trust/ CQC National Professional Advisor (Mental Health Nursing)
- Maria O'Brien – Chief Nurse, Central and North West London NHS Foundation Trust
- Ken Edwards – Cheshire and Wirral Partnership NHS Foundation Trust
- D.T – Patient Representative, Central and North West London NHS Foundation Trust Patient Involvement Forum
- Janet Seale – Carer Representative, Central and North West London NHS Foundation Trust Carers Council
- Charlotte Wood – UK Managing Director, Oxehealth
- Peter Hasler – Forum Development Officer

Appendix 3: Consent flowchart



Notes

1. Fully inform: make use of materials contained within the Resource Pack. These materials should be made available in all accessible formats i.e., different languages, video, easy read, Braille etc. VBPMS will be switched on upon admission and will be left switched on until a decision is made in step 3 or 4.

2. Document discussion in patient record.
3. Multidisciplinary team (MDT) meeting should reach a clinical decision regarding the use of the VBPMS considering the risk of patient harm and, if relevant, the particular risk of retraumatisation based on patient history. MDT meeting should also consider whether the patient is admitted informally or formally (subject to the Mental Health Act). The risk(s) and rationale for the decision should be documented in the patient record.
4. The best interests meeting will involve patients/family/carers/advocates to discuss the clinical recommendation and rationale and to ensure all views have been taken into account. Where possible, consent should be obtained from the patient or representatives. A final decision confirmed about whether the system is kept on or switched off will be made.
5. Decision to keep VBPMS on or off should be documented in patient record.
6. The use of the VBPMS should be discussed weekly with the patient/family/carers as part of their MDT care review. If a consenting patient subsequently withdraws consent, the provider should discuss this at the MDT meeting and follow the process from step 3.
7. If the system is switched off, the providers should follow their own existing operational procedures.

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Summary table: Themes and recommendations

Theme 1: Purpose of using VBPMS	
1.1	The sole purpose of VBPMS is to support patient and staff safety in inpatient services.
1.2	VBPMS cannot and should not replace positive and therapeutic engagement with patients and the visible presence of staff within inpatient settings. Staff must remain responsible for the patient and clinical judgement must be used at all times. Emergency intervention where self-harm is suspected should not be delayed by first checking the VBPMS.
1.3	Service users and carers should be engaged early on regarding the purpose and use of VBPMS, and the co-production of "guiding principles" that can be used as part of service user and carer engagement and education during implementation.
1.4	More broadly, when defining the digital strategy for an organisation, due process should include engagement with service user, carer and staff groups to ensure all groups are clear on the vision, reason and purpose behind certain digital choices from the outset.
1.5	This report suggests an approach to the issue of consent and considers the implications of choice that each organisation makes.
1.6	Organisations should provide clear and concise information to staff and patients, one policy or guidance, training of 85% of staff before implementation, and regular oversight of adherence to policy, protocol, and training.

Theme 2: Service user and carer engagement, information and communication	
2.1	Service users and carers must be informed of the use of VBPMS, including the use of video data: • Upon admission (or readmission) to a ward • At regular times throughout their length of stay on the ward. Informing should take place not only by providing information leaflets and signage on the wards, but service users (and where relevant, carers) must also be engaged and informed, as not all service users and carers will read information leaflets or signage.
2.2	Information materials should be taken from nationally co-produced best practice templates to avoid creating inaccuracies or confusion across the country, with localisation limited to account for local service variation and needs only.
2.3	Local co-production of how to engage and inform service users and carers on the ward should take place throughout implementation with organisations working in collaboration with service user and carer groups. Starting from the VBPMS

	Information Resource Pack (see below), this can focus on facilitated co-production of local Standard Operating Procedures and policies to shape safe, appropriate use of VBPMS as part of their care.

Theme 3: Consent for use	
3.1	**Implicit consent:** all service users are opted in upon admission as part of the standard practice on the ward. Service users can raise questions and concerns, and there should be regular opportunities for service users to be engaged by staff in conversation about their questions and concerns. Objections can be raised at any time. Objections should be handled by the responsible clinician as per existing clinical practice. The responsible clinician will decide whether to withdraw the use of the technology if in the best interest of the patient, taking into account the balance with individual preference, safety/risk management and other alternatives, just as they would other treatment approaches. This approach needs open and honest communication including the frequent reiteration of the existence and purpose of the system so staff can be sure that patients' informed implicit consent remains in place. The flowchart in Appendix 3 lays out how such a system can be maintained. It should be noted that most providers who have deployed VBPMS to date have made use of some form of this informed implicit consent model.
3.2	**Explicit consent:** service users opt in upon admission, with due consideration given to an individual's capacity to make this decision, especially for acute presentations. For individuals that lack capacity to consent, this decision should be handled as per existing clinical practice. Consent can be withdrawn at any time for individuals that have capacity. This approach requires significantly more staff confidence and competence to administer in practice. In choosing this approach, it is important to ensure the framework is clearly published, and the capacity and structure to manage different choices especially on a single ward needs to be managed carefully.
It is recommended that all healthcare providing organisations receive their own legal and ethical advice on their position, and that they ensure that patients' rights to privacy and dignity are adequately considered and protected.	

Theme 4: Staff engagement, education and training	
4.1	All staff who use VBPMS must be trained and deemed competent prior to use. This training must include: • The purpose for use • The Standard Operating Protocol • What the system can and cannot do, including intended use and limitations • How to use the system • How to talk to service users and carers about the system and its use as part of their care, including handling concerns and objections.

	Staff training competencies must ensure not only clear understanding of these topics but also confidence to have conversations with service users and carers and be able to answer any questions, concerns, or objections they may have.
4.2	Every organisation should share key documents with technology providers, including standard operating procedures and any localised training and information materials they create.
4.3	There should be clear responsibility within ward management for ensuring all staff are appropriately trained and continue to have this capability.
4.4	The Forum recommends nominating “champions” per ward who act as “super users” and can provide ongoing training support for staff on the wards.
4.5	The Forum recommends that a system does not go-live until at least 85% of staff on a ward have received training. All staff attendance must be centrally stored and reported through organisational governance pathways.
4.6	All technology providers of VBPMS must make available and have a process for ensuring service providers can access and remain up to date with the latest training materials on what their system can and cannot do and how to use it.
4.7	Every organisation must have a process for onboarding new joiners and temporary staff, as well as providing ongoing training to permanent staff. This should include senior clinical governance oversight to provide assurance to Boards and Patient Safety Specialists that staff are trained appropriately in safe use of these systems.
4.8	The Forum recommends that, in addition to staff on a ward, the following individuals also undertake training specific to their needs: • SIRO / Executive Clinical Sponsor(s) including Chief Nurse and Chief Medical Officer • Individuals responsible for clinical governance of the SOP and related policies • Information Governance, including the Data Protection Officer • Patient Safety Lead • Staff Education Leads
4.9	It is advisable to create a sharing forum or forums for ward staff to raise risks and issues and learn from each other on best practice in the use of these systems as part of day-to-day clinical practice. This should be incorporated into agendas for existing ward or clinical meetings (i.e., not as separate meetings).

Theme 5: Use of data in investigations	
5.1	Every organisation should create a policy to ensure that they have clearly defined what data can be used for what purposes (including use by entrusted third parties, e.g., coroners, police, families) and retained for what timeframe, with particular emphasis paid to video data that includes personal data and its use in incident investigations. Service users, carers and families should be engaged in the development of this policy.
5.2	The use of video data that includes personal data should be limited to incident investigations where a patient has come to serious harm or death as a result of a patient safety incident. Consideration should be given to how data can support Patient Safety Incident Investigations (PSIIs) and Patient Safety Reviews (PSRs) as part of the Patient Safety Incident Response Framework (PSIRF).
5.3	Data access, recording, usage, disclosure, retention, and deletion should be clearly recorded in an organisation's Data Protection Impact Assessment (DPIA), Privacy Notice, patient information materials and other relevant documents to ensure accurate and consistent messaging around use of personal data.
5.4	Staff who use the system should be made aware of these policies and trained on their content, including how to recognise requests from patients and carers for data and data handling, usage, and retention arrangements.

Theme 6: Operationalising into practice	
6.1	Every organisation should ensure that they have a written SOP for the use of their VBPMS, and that the SOP has been co-produced with service user and carer representation/groups.
6.2	All policies or protocols related to the use of VBPMS should be signed off under the organisation's appropriate, existing governance regimes to ensure there is collective responsibility and clear rationale for their decisions.
6.3	Every organisation should have a governance process for reporting, reviewing, and auditing adherence of the SOP in practice, which should include staff use of video-based functionality.
6.4	Every organisation should develop, as a minimum, annual joint audit reviews with technology providers to ensure that there is appropriate governance on adherence to purpose for use and standard operating procedures and that staff continue to be well trained. This may include joint visits to wards where the systems are in use.
6.5	As a minimum, the local SOP should clearly articulate the following: • Purpose for use, including referencing related policies and operational procedures • Scope of use, including:

	○ Where the system is being used ○ Indications for use (when the VBPMS is considered to be a medical device) • Use of the system, including: ○ What the system can and cannot be used for by staff, including use of video, use at night-time, and use for physical health monitoring ○ Who can use the system ○ How staff use the system • Patient and carer communication and engagement, including locally adapted information materials • Explanation of the process for patient consent • Staff training and support, including: ○ Staff training materials ○ Process for onboarding new joiners and temporary staff ○ Process for ongoing training and assurance for permanent staff ○ How to report an issue with the system ○ What to do if the system is not available (i.e., business continuity) • Use of data in investigations • Governance, including the agreed process for reviewing and updating the SOP on a regular basis.
6.6	As part of continuous improvement, organisations should liaise with technology providers of VBPMS to identify areas for improvement including but not limited to reporting and workflow developments that can build further auditing and risk management for the use of video data.

Theme 7: Evaluating impact	
7.1	Further collaborative research into the field should continue between healthcare providers, academics and developers of VBPMS.
7.2	This research should prioritise robust evaluation of the impact of the system on: • Service users (including satisfaction with treatment, perceptions of safety, therapeutic engagement, privacy, trust) • Staff (including perceptions of safety, use of the system, job enablement and integration with day-to-day clinical practices, behaviour, job satisfaction, morale, and therapeutic engagement) • Carers (including satisfaction with treatment and communication with staff) • Ward environment (including rates and severity of incidents) • Cost (economic evaluation).
7.3	Organisations should implement a standardised, locally co-produced approach to evaluation to maximise the potential for their data to effectively guide practice in their own services and throughout the NHS.
7.4	As with all evidence based practice, where findings from research have implications

	for day-to-day use of VBPMS, organisations should review their standard operating procedures considering these findings.

Theme 8: Future engagement	
8.1	Create a Digital Special Interest Forum within the Forum that meets periodically on an ongoing basis with the following purpose: • Discussion on clinical ways of working around use of digital tools • Sharing of best practice including local policies/protocols, service user engagement, approaches to implementation, ongoing governance and assurance of digital tools • Discussion on potential issues associated with use of digital tools • Opportunities to start specific working groups, if required, on particular topics. Building on this review, it is advised that a Digital Special Interest advisory group is also set up.
8.2	As part of quality assurance oversight for VBPMS, undertake a periodic review and update of this document, with the first review no earlier than one year after the report is published.
8.3	Create and maintain a password-protected area within the Forum's website for sharing of documentation, including locally produced SOPs, the VBPMS Resource Pack, clinical safety documents, evaluation tools, etc.