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| Virtual wards enabled by technology |
| Guidance on selecting and procuring a technology platformAugust 2023 |

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# Introduction

Integrated Care Systems (ICSs) have been asked to develop and deliver virtual wards, working towards the priorities outlined in the Urgent and Emergency Care (UEC) Recovery Plan (May 2023). Namely, scale up capacity to above 10,000 virtual ward ‘beds’, increase utilisation to 80%, increase the range of conditions treated on virtual wards and reduce the variation in provision.

A virtual ward is a safe and efficient alternative to NHS bedded care that is enabled by technology. Virtual wards support patients who would otherwise be in hospital to receive the acute care, monitoring and treatment they need in the place they call home, including care homes. They can both prevent avoidable admissions into hospital and support early discharge out of hospital. While all models of virtual wards, including Hospital at Home, provide clinical support to people in their own homes, they vary in their use of technology in line with patient needs and preferences.

A virtual ward enabled by technology consists of (as a minimum):

1. The ability for patients to measure and input agreed health data for example vital signs into an app or website (this may also be done automatically for example with wearable/Bluetooth technology).
2. These data feed into a digital platform / dashboard which is reviewed remotely by a clinical team.
3. The clinical team are alerted when a patient moves outside of agreed parameters so they can take appropriate and timely action.

Technology used within a virtual ward may go beyond this definition. This guidance supports ICS leads and providers to consider the key requirements when selecting and procuring a technology platform for a virtual ward, and to develop a specification for virtual wards, and will be kept under review and updated as appropriate.

This technical guidance should be read alongside our [guide to setting up technology-enabled virtual wards](https://transform.england.nhs.uk/key-tools-and-info/a-guide-to-setting-up-technology-enabled-virtual-wards/) and virtual ward [supporting information](https://www.england.nhs.uk/wp-content/uploads/2021/12/B1207-i-supporting-guidance-virtual-ward-including-hospital-at-home.pdf). The [example specification](https://future.nhs.uk/InnovationCollaborative/view?objectId=128845093) referenced in Appendix 2 can be accessed on the FutureNHS platform, via the Innovation Collaborative workspace, and may be tailored to meet local needs.

# Approach to procurement

### Overview

Once a clinical pathway has been agreed, you should seek advice and guidance from your local procurement team on the appropriate procurement approach and requirements specification development.

Depending on local circumstances, a formal procurement may not be necessary. If this is the case, your procurement team can advise on compliance with relevant legislation.

If a formal procurement process is necessary for remote monitoring / virtual ward solutions, please use the CCS Spark DPS RM6904 agreement, as this is the only endorsed route to market for these products[[1]](#footnote-2).

It may be useful to include time for market engagement in the delivery timeline. This timeline will vary but a useful planning assumption is 8–12 weeks from inception to contract award.

### Developing a requirement specification

Which digital platform you chose to support a virtual ward will depend on local need and local system digital maturity and strategy. To support you in making this decision, NHS England has introduced a set of [Digital Technology Assessment Criteria](https://www.nhsx.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/) (DTAC) for health and social care that all digital platforms are expected to meet. Systems procuring new digital platforms should ensure these are included in their requirement specification. This gives staff, patients and people confidence that the digital health tools they use meet NHS England’s clinical safety, data protection, technical security, interoperability, and usability and accessibility standards.

Once the clinical and business needs are determined, you can develop a requirement specification for the use of technology in the virtual ward. This should ideally be completed at an ICS level, even if different technology platforms are used in the short term to facilitate an ICS level solution longer term.

The MoSCoW approach (Appendix 1) can be helpful in defining what is needed to support your delivery model. This enables identification of the following requirements:

1. must have
2. should have
3. could have
4. won’t have.

An [example specification](https://future.nhs.uk/InnovationCollaborative/view?objectId=128845093), which includes example shortlisting criteria (MoSCoW), is referenced in Appendix 2, linking to an editable document on the [Innovation Collaborative workspace](https://future.nhs.uk/InnovationCollaborative/) on the FutureNHS platform, to enable local customisation once local requirements have been defined.

### Supplier engagement

You may consider a market engagement session to give potential bidders a better understanding of the ICS vision and likely requirement specification before tendering. The Crown Commercial Service provides [two scenarios](https://www.crowncommercial.gov.uk/news/conducting-pre-tender-market-engagement-virtually) on how to approach supplier engagement, one where draft requirements have been agreed and one where these are not yet available.

# Selecting and Procuring a Technology Platform

The following questions will help you consider what is required for your virtual ward enabled by technology. These high-level questions include setting up, and procuring technology to support, a virtual ward. These questions should be considered in conjunction with ['A guide to setting up technology-enabled virtual wards'.](https://transform.england.nhs.uk/key-tools-and-info/a-guide-to-setting-up-technology-enabled-virtual-wards/)

Further detail is given in the [example specification](https://future.nhs.uk/InnovationCollaborative/view?objectId=128845093) referenced in Appendix 2.

1. What is the current and longer-term plan for your virtual ward and technology enablement?
* Are you likely to want to use the same technology platform for long-term condition monitoring at a later date?
* Is your plan consistent with your ICS digital strategy?
* Does your plan align to those of your partner organisations?
1. What monitoring equipment do you need to meet the needs of your clinical pathways?
* What monitoring equipment do you need for the initial rollout?
* What equipment might you require at a later date?
* Do you want patients to have the option to use their own device, e.g. their own smartphone or monitoring equipment, to reduce costs?
* Do you want to be able to continually monitor patients with proactive alerts using wearable devices or to do spot monitoring?[[2]](#footnote-3)
1. How will you involve patients and carers in co-producing the technology design of your service?
2. Have you completed an [Equality and Health Inequalities Impact Assessment](https://future.nhs.uk/InnovationCollaborative/view?objectId=140103333) (EHIA) which considers the lived experiences of patients and the public and defines the purpose of the project?
3. Does the use of a remote monitoring solution need further data protection impact assessments (DPIAs) or the updating of data sharing agreements (DSAs) / data processing agreements (DPAs)?
4. Have you contacted your clinical safety officer (CSO) to start collating the necessary files / evidence for your clinical safety assessment?
* Trusts should appoint an appropriately trained CSO to ensure compliance with the mandated clinical safety standards DCB 0129 and DCB 0160. This will ensure that a comprehensive clinical risk assessment of any digital technologies for use within a virtual ward environment has been considered and appropriate mitigating action taken. It is the responsibility of the trust’s CSO to sign off any associated clinical safety case reports.
* Trusts will also have to ensure that a robust reporting system is in place for any digital clinical safety incidents associated with virtual ward technologies, to ensure both that they are reported and opportunities for learning from events are maximised.
1. What systems and devices does your remote monitoring platform need to link to or be interoperable with?
* What systems and devices will it need to link to in the future?
* Are there any additional costs associated with this?
1. Who will require access to any monitoring data you collect, and where will they be working?
* Will it only be shared within the host organisation?
* Do other system partners require access, or will they as part of a future roadmap?
* How will they access the data?

# Appendix 1: The MoSCoW approach

This enables identification of the following requirements:

1. must have
2. should have
3. could have
4. won’t have.

The following sections give examples of how this approach might be used in practice.

### a. Must have

‘Must have’ requirements are critical to the successful delivery of a technology platform. If even one ‘must have’ requirement is not included, the platform should be deemed unsuitable. (Note: requirements can be downgraded from ‘must have’ by agreement with all relevant stakeholders, e.g. when new requirements are deemed more important).

The remote monitoring platform must be able to record all the necessary clinical measurements for the chosen clinical pathway(s). As an example, if required to deliver a National Early Warning Score (NEWS) 2 for every patient, the measurements are:

* respiration rate
* oxygen saturation
* systolic blood pressure
* pulse rate
* level of consciousness or new confusion
* temperature.

The frequency of monitoring required for your virtual ward service must also be specified. In some cases, you might require continuous monitoring via wearables – where observations are sent from a wearable device without the patient needing to take these; and in others spot monitoring – where the patient takes readings at set times or on an ad-hoc basis. This should be considered as not all technology platforms support wearables.

A blended model with some spot monitoring and some continuous monitoring via devices may also be appropriate, e.g. continuous monitoring of oxygen saturation and pulse but once daily recording of blood pressure.

Depending on their clinical use, remote monitoring devices / platforms are likely to be classed as a medical device and require compliance with the UK Medical Device Regulations. Local clinical engineering / medical device management teams can advise on this and other medical device issues. Compliance with the national [Digital Technology Assessment Criteria](https://www.nhsx.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/) (DTAC) is a ‘must have’ requirement for remote monitoring platform suppliers, as is the need to meet the [DCB0129 clinical risk management standard.](https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/standards-and-collections/dcb0129-clinical-risk-management-its-application-in-the-manufacture-of-health-it-systems)

Interoperability requirements should also be ‘must have’ to enable data flows between relevant systems, e.g. between remote monitoring platforms and Electronic Patient Record (EPR) systems or local shared care record systems. Required compliance with specific data standards, e.g. ICD-10, Read or SNOMED CT, should also be included.

Questionnaires such as patient reported outcome measures (PROM), patient reported experience measures (PREM), Friends and Family Test or generalised anxiety disorder assessment (GAD-7 score) may also be a ‘must have’ requirement. Not all systems have the capability to record these so if they are a ‘must have’ requirement it is important to identify them at this stage.

### b. Should have

‘Should have’ requirements are important but not essential for initial go live. While they can be as important as ‘must have’ requirements, ‘should have’ requirements are often not as time-critical or there may be another way to satisfy them so they can be held back for future development.

‘Should have’ requirements may include any additional functionality your pathway or ICS digital strategy requires, e.g. integration with:

* spirometers for COPD
* scales for heart failure
* ECG recording devices
* other Point of Care testing devices.

### c. Could have

‘Could have’ requirements are desirable but less important than ‘should have’requirements. These may support the monitoring of specific long-term conditions, rather than the acute exacerbations specified as at the core of the virtual ward’s purpose; that is, useful to have to enable greater benefits but of lower importance for virtual ward success at this time. They can also include things that improve the user experience.

### d. Won’t have

‘Won’t have’ requirements will have been agreed by stakeholders to be the least critical, lowest payback items, or not appropriate currently. They are either dropped or their inclusion reconsidered at a future date. The agreement of ‘won’t haves’ is important to avoid scope creep.

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# Appendix 2: Virtual wards guide specification

This [‘Virtual wards guide specification’](https://future.nhs.uk/InnovationCollaborative/view?objectId=128845093), adapted from the London Region guide specification, details the minimum requirements for a remote monitoring solution. Given the rapid roll out of virtual wards across England, it was compiled to support ICSs and providers in upcoming procurement exercises. It also supports the longer-term vision for remote monitoring, increased collaboration, and interoperability to improve outcomes and create a genuine learning health system based on high-quality and system-wide health data.

This specification is not mandated by NHS England; it aims to support local ICS/provider teams during procurement exercises and can be tailored to local needs. As the remote monitoring market is in a growth phase, currently no single product can meet all system needs, and this specification should be modified to reflect that. Furthermore, to ensure ICSs/providers can procure solutions once the market matures, it may be advantageous at this stage to seek short contracts or contracts with break clauses.

The tables within the document present a comprehensive set of requirements for the provision of a range of remote monitoring use cases. They include a ‘Guidance’ column to assist suppliers by clarifying which requirements overlap with DTAC. The [MoSCoW criteria](https://en.wikipedia.org/wiki/MoSCoW_method) are suggestions for guidance only, as each provider should assess the criteria locally. However, the ‘must’ criteria indicate the ‘minimum viable product’.

# To access the ‘[Virtual wards guide specification’](https://future.nhs.uk/InnovationCollaborative/view?objectId=128845093) you will need to be a signed up to the FutureNHS platform and be a member of the Innovation Collaborative for digital health workspace. This document is restricted to health and social care members of the Innovation Collaborative workspace only and may not be viewable depending on your membership role.

# These questions should be considered in conjunction with ['A guide to setting up technology-enabled virtual wards'.](https://transform.england.nhs.uk/key-tools-and-info/a-guide-to-setting-up-technology-enabled-virtual-wards/)

# Appendix 3: Further guidance

### Virtual ward and remote monitoring specific

* [NHS England Virtual ward resources](https://www.england.nhs.uk/virtual-wards/)
* [NHS England What is a virtual ward?](https://www.england.nhs.uk/virtual-wards/what-is-a-virtual-ward/)
* [NHS England Guide to setting up technology-enabled virtual wards](https://transform.england.nhs.uk/key-tools-and-info/a-guide-to-setting-up-technology-enabled-virtual-wards/)
* [NHS Blueprint: Remote monitoring of COVID-19 patients using cloud-based digital solution – primary care (escalated care clinic) and secondary care](https://future.nhs.uk/GDEcommunity/view?objectId=80998949#80998949)

### Guidance for digital technologies

* [DTAC](https://transform.england.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/)
* [Health App Assessment Criteria](https://www.gov.uk/government/publications/health-app-assessment-criteria/criteria-for-health-app-assessment)
* [MHRA device regulations](https://www.gov.uk/topic/medicines-medical-devices-blood/medical-devices-regulation-safety) ([software applications guidance](https://www.gov.uk/government/publications/medical-devices-software-applications-apps))
* [NHS England Architecture principles](https://digital.nhs.uk/about-nhs-digital/our-work/nhs-digital-architecture/principles)
* [Best practice guidance for data-driven and healthcare technologies](https://www.gov.uk/government/publications/code-of-conduct-for-data-driven-health-and-care-technology/initial-code-of-conduct-for-data-driven-health-and-care-technology)
* [Government Design principles](https://www.gov.uk/guidance/government-design-principles)
* [HFMA Digital technology resources map](https://www.hfma.org.uk/docs/default-source/publications/delivering-value-with-digital-technology/hfma-digital-technologies-resources-map---may-2022-publication.pdf?sfvrsn=1ddf76e7_0)
* [Digital clinical safety strategy](https://transform.england.nhs.uk/key-tools-and-info/digital-clinical-safety-strategy/)

### Data and interoperability

* [Data saves lives](https://transform.england.nhs.uk/key-tools-and-info/data-saves-lives/)
* [Interoperability Standards (Draft)](https://www.england.nhs.uk/digitaltechnology/connecteddigitalsystems/interoperability/)

### Procurement

* [Procurement framework strategy recommendations](https://transform.england.nhs.uk/key-tools-and-info/procurement-frameworks/procurement-framework-strategy-recommendations/#pillar-descriptions)
* [NHS service standard](https://service-manual.nhs.uk/standards-and-technology/service-standard)

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1. The NHS CCF (Central Commercial Function) team are currently updating the guidance to show this as an endorsed route to market on the relevant pillars. [↑](#footnote-ref-2)
2. Spot monitoring is the recording of data using standalone devices, not wearable devices. This can be done on a scheduled or an ad-hoc basis. [↑](#footnote-ref-3)