Remote Patient Monitoring Devices Training Course: Signals, Validation and Clinical Integration

26 – 30 April 2027
Tokyo

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Programme Summary

Remote patient monitoring devices are the subject of this one-week training course for digital health, biomedical and clinical informatics leads, ending in a device adoption dossier for one monitoring pathway. Wearable and home devices now send clinical teams continuous signals, yet adoption often proceeds without checked signal quality, agreed alert rules or a defined clinical response. The programme moves from signal diagnosis to validation, alert design and workflow integration, applied to a pathway the participant selects. Mars Training Centre UK delivers this programme on remote patient monitoring devices to mixed-organisation cohorts.

The Business Case

Remote patient monitoring devices extend observation beyond the ward, but only when the signals can be trusted and someone is responsible for acting on them. Where devices are bought before validation and workflow design, clinicians receive noisy alerts, patients disengage and data protection questions surface late. Leads who test devices against defined criteria and plan the clinical response in advance reduce avoidable risk and wasted effort.

- Alert Burden: Falls as thresholds and escalation rules are tested before go-live.
- Clinical Safety Risk: Falls as device validation and software lifecycle controls are documented.
- Patient Adherence: Improves as devices fit daily routines and feedback is clear.

Principles and Evidence Base

- IEC 62304: Its software lifecycle processes for medical device software frame the device software questions in Sessions 2 and 3.
- Signal Detection Theory: The trade-off between missed events and false alarms shapes the alert threshold design in Session 3.
- Human Factors Engineering: Usability principles guide the patient engagement work in Session 4.
- Data Minimisation: The principle of collecting only the data a clinical purpose needs guides the privacy checks in Sessions 2 and 4.

Intended Participants

- Digital health leads who select and introduce wearable and home monitoring devices.
- Biomedical engineering managers who assess device performance and safety.
- Clinical informatics specialists who connect device data to clinical records and alerts.
- Service managers who redesign care pathways around remote observation.
- Quality and risk staff who review device adoption decisions.

Typical settings include hospitals, home care providers, insurers and public health bodies.

Learning Outcomes

1. Participants will be able to diagnose sources of error in wearable sensor signals.
2. Participants will be able to construct a device validation plan with defined acceptance criteria.
3. Participants will be able to evaluate where artificial intelligence adds value to alerts and trend detection.
4. Participants will be able to design alert threshold and escalation rules for a clinical pathway.
5. Participants will be able to justify patient engagement and data privacy measures for home use.
6. Participants will be able to prioritise the steps for safe adoption in a clinical service.

Programme Structure

Day 1: Remote Patient Monitoring Devices and Their Signals

What do wearable and home devices actually measure, and how reliable is it?

- Device Category Map
- Sensor Signal Anatomy
- Motion Artefact Review
- Signal Quality Checklist
- Monitoring Pathway Selection Brief

Day 2: Device Validation and Software Assurance

How is a device shown to be fit for a defined clinical purpose?

- Intended Use Statement
- Validation Plan Template
- Acceptance Criteria Table
- IEC 62304 Lifecycle Questions
- Data Privacy Impact Screen

Day 3: Alerts, Trends and Artificial Intelligence

Which alerts deserve a clinician's attention, and what can algorithms add?

- Alert Threshold Design Sheet
- False Alarm and Missed Event Trade-Off
- Trend Detection Methods
- Algorithm Performance Review
- Escalation Rule Matrix

Day 4: Clinical Workflow and Patient Engagement

Who responds to a signal, and how do patients stay engaged with the device?

- Response Roster and Handover Map
- Clinical Workflow Integration Plan
- Patient Onboarding Journey
- Usability Feedback Interview
- Adoption Risk Register

Day 5: Applying the Tools to One Monitoring Pathway

Do the validation, alert and workflow tools hold together for one pathway?

- Applying the Session 1 Signal Quality Checklist
- Testing the Session 2 Acceptance Criteria Table
- Tuning the Session 3 Alert Threshold Design Sheet
- Checking the Session 4 Adoption Risk Register
- Completing the Device Adoption Dossier

Methodology

The programme uses a data workshop method built on anonymised device traces, validation reports, alert logs and workflow maps. Participants work in teams on one shared pathway, test thresholds against sample signals, and receive written facilitator feedback on each exercise.

- Suggested activity: Marking artefacts and dropouts on a sample heart rate and activity trace.
- Suggested activity: Setting alert thresholds and comparing missed events with false alarms.
- Suggested activity: Role-playing a patient onboarding call and revising the instructions.

Capstone Output

Each participant completes a device adoption dossier for one monitoring pathway. It holds an intended use statement, a validation plan, alert and escalation rules, a clinical workflow plan, a patient engagement approach and a risk register. The dossier is used at work as the basis for a procurement or pilot proposal and as a reference when briefing clinical and technical teams.

Frequently Asked Questions

Are remote patient monitoring devices suitable for leads without an engineering background?

Yes. Remote patient monitoring devices are taught from first principles, so the programme assumes familiarity with a care or digital setting but no signal processing or software development experience.

Which standard do remote patient monitoring devices draw on in the programme?

Remote patient monitoring devices draw on IEC 62304 for the software lifecycle questions in validation, alongside signal detection theory, human factors engineering and data minimisation.

How is the dossier from remote patient monitoring devices training used at work?

You use the device adoption dossier as the basis for a pilot or procurement proposal and as a briefing reference.

How do remote patient monitoring devices differ from health data platform training?

Remote patient monitoring devices centre on sensor signals, validation, alerts and bedside or home workflow, while health data platform training centres on record exchange and data quality across systems.