Date: August 14, 2025

PREPARED FOR:	**Medicine CARE Network**
STANDARD TITLE:	Remote Cardiac Monitoring Acute Care – Risk and Mitigation Strategy
Escalating Committee/ Council	LMH Acute QOEC Cardiac Services SSA, Emergency Medicine, Critical Care

Situation

In 2023, the Cardiac Clinical Nurse educators advanced the development of Continuous Cardiac Monitoring Regional Standards. During this process and following a review of previous efforts and discussions with current educators, concerns arose about the lack of standardized guidelines for remote cardiac monitoring across acute care sites within Island Health. Clinical Nurse Educators highlighted ongoing safety and workflow concerns and requested that remote cardiac monitoring be reviewed and standardized alongside continuous cardiac monitoring standards.

The CCU and CVU Clinical Nurse Educators, who were leading the Continuous Cardiac Monitoring Standards work, reviewed Patient Safety Learning System (PSLS) reports related to cardiac monitoring. They discovered that various Island Health units were using remote monitoring to compensate for gaps in local cardiac expertise. Because Heart Health (Cardiac Services SSA) does not provide remote cardiac monitoring at local sites, leadership input was needed to clarify which network should oversee review, appropriateness, and completion of this work.

Since the Continuous Cardiac Monitoring Standards were finalized, Clinical Nurse Educators across the region have continued to express concerns regarding the absence of clear standards, patient acuity considerations, and monitoring needs specific to remote cardiac monitoring. To address these issues, a Remote Cardiac Monitoring Clinical Nurse Educator working group was established in May 2025 to facilitate collaboration, review safety concerns and the benefits of remote cardiac monitoring.

Engagement with the lead secretariats also began to support collaboration with impacted care networks, including Cardiac Services SSA, Medicine Care Network, Critical Care, and Emergency Medicine. Currently, confusion remains around:

1. Who holds ownership and accountability for this work.
2. The impacts of remote cardiac monitoring on provider workflow and ordering practices.
3. The impacts of discontinuation of remote cardiac monitoring practices to patient care.
4. Impact to Biomedical Engineering in setting of equipment availability if practice changes occur.

5. Development of standardized guidelines and determination of network leadership for decision-making.

The Medicine CARE Network has been identified by the Policy Subcommittee as the group best positioned to determine whether this practice should continue and, if so, under what standards, competencies, and training requirements. While there is no immediate recommendation to cease the practice, the risks require urgent, system-wide risk mitigation strategies and robust governance oversight.

Background

Remote cardiac monitoring is currently in use at CDH, CRH, CVH, SPH, Lady Minto, and West Coast General Hospital. Although the practice has been in place for over 10 years at some sites, there are currently no formal guidelines or standardized protocols governing its use. While some sites are actively working to reduce reliance on remote monitoring, they continue to face persistent operational barriers. Key challenges include a shortage of trained staff, inconsistent application of contingency protocols, equipment limitations, and unresolved impacts on staffing ratios.

Responsibility for monitoring remote cardiac patients varies by site:

1. ICU monitoring a ward patient located anywhere in the hospital or other towers.
2. Cardiac Step-down unit monitor ward patients' hospital-wide including admitted emergency department patients requiring cardiac monitoring.
3. Emergency department monitoring an admitted patient.

Two Patient Safety Learning System (PSLS) reviews, covering the periods 2017–2023 and 2023–2025, identified a total of 46 patient safety incidents related to remote cardiac monitoring across multiple sites. These incidents were primarily associated with communication breakdowns, equipment malfunctions, and missed clinical assessments. In addition to PSLS reports, Clinical Nurse Educators (CNEs) at the affected sites reported ongoing challenges and safety concerns related to the implementation and oversight of remote cardiac monitoring. Notably, CNE feedback suggests that the actual number of incidents may be underreported. For example, one site had no PSLS entries during extended remote monitoring use, but began reporting incidents after additional staff education was provided, highlighting gaps in awareness and reporting practices. This aligns with the findings from the meta-analysis by Archer et al. (2017), which estimates that 50-96% of patient safety incidents in the US are not reported. This underscores the importance of not focusing solely on the 46 reported events, but on the recurring themes identified through reports and feedback.

1. **Communication issues**:
    a. Remote cardiac monitoring orders are not communicated to the unit responsible for monitoring.

b. ICU staff may monitor a patient unaware they have been relocated within the hospital due to inconsistent bed assignments.
c. Pts not being monitored because monitoring unit has not initiated monitoring.
d. Monitoring units are frequently not informed when patients go for tests during which monitoring waveforms are not transmitted.
e. Discharges home sometimes occur without notification to the monitoring unit.
f. Orders to treat arrhythmias (e.g., atrial fibrillation) may not be communicated to the monitoring unit, and ward staff lack familiarity with cardiac medication management.
g. Monitoring units report difficulty reaching ward staff by phone during urgent situations such as lethal arrhythmias, leads off, or dead batteries.
h. Delays in calling Code Blues have been reported due to lack of connection between the patient and monitoring ward units.

2. **Workload concerns:**
    a. Cardiac Step-down units may monitor their own patients (approximately 4) plus up to 8 additional remote monitored patients' hospital-wide.
    b. ICU units monitor their own patients plus additional remote patients.
    c. ER departments monitoring admitted patients.
    d. Lack of direct communication between monitoring RNs and ward RNs results in frequent calls, often 10-20 per shift, to address issues.
    e. When unable to connect remotely, monitoring staff leave their assigned patients to assess remote patients in person, increasing risk and workload.
3. **Documentation challenges:**
    a. Incorrect patient errors occur when monitors are not updated correctly after reassignment.
    b. Providers often must travel between units to review ECG strips, with inconsistent practices regarding where ECG documentation is maintained or sent.

The errors identified in these PSLS reports are clinically significant and could lead to severe harm, as monitoring nurses are responsible for detecting lethal arrythmias. Although this appears to be low frequency it is riddled with high risk. Philip Mach has reviewed the issue and acknowledged the substantial risk. Currently, there is no recommendation to cease the use of remote cardiac monitoring. Instead, the focus is on:

1. Prevention through appropriate resourcing and training cardiac competent staff.
2. Mitigation by the development of regionally endorsed clinical guidelines to support safe practice.

Assessment

Remote cardiac monitoring has been implemented at various Island Health sites primarily as a strategy to address gaps in cardiac trained RNs, lack of designated cardiac monitoring units, and to support clinical assessments in patients with complex, non cardiac conditions.

During periods of critical staffing shortages, particularly in remote areas like Lady Minto, agency RNs are frequently utilized. However, many of these nurses lack cardiac monitoring training, resulting in inconsistent levels of expertise and significant knowledge gaps during certain shifts.

Over time, remote cardiac monitoring has also become a workaround for broader system issues such as limited training opportunities and insufficient support for competency maintenance. Clinical Nurse Educators (CNEs) have consistently identified the absence of standardized cardiac monitoring education and lack of support for ongoing training. The new cardiac monitoring standards include a three-tiered framework to align training with patient acuity and unit needs:

- **Level 1:** Basic ECG monitoring with no intervention required (beyond BLS).
- **Level 2:** Intermediate monitoring requiring unit-specific training, including cardiac medications, infusions, and defibrillator use.
- **Level 3:** Advanced monitoring intended for Critical Care and Emergency Department RNs.

While CCU and CVU CNEs have made significant progress by developing regional clinical standards and a dedicated intranet site Cardiac Monitoring: Telemetry, further work is needed to ensure consistent training and practice across all cardiac monitoring capable units within the region.

Time constraints during onboarding have hindered new staff from completing the 30-hour Mosby's ECG course in a timely manner, contributing to ongoing knowledge gaps. To address this gap, development of a Basic ECG course using the Affinity platform began in December 2024, led by the CCU CNE. This course was approximately 75% complete and had entered the editing and assessment phase in June. Unfortunately, progress was halted due to fiscal constraints, leaving this critical training resource unfinished and currently on hold.

Technical infrastructure also requires attention. Biomedical Engineering has indicated that a review of sector capacity and licensing is necessary to support any expansion or centralization of remote cardiac monitoring systems. Some sites have required equipment upgrades, and reliable waveform transmission remains a foundational need. Biomedical input is essential to assess the technical feasibility and long-term sustainability of either continuing or discontinuing remote cardiac monitoring services.

There are ongoing and significant patient safety risks due to inconsistent remote cardiac monitoring practices and the variable application of mitigation strategies. Effective risk reduction requires coordinated efforts across multiple clinical care networks and operational leadership teams. Current contingency tools and staffing models are inadequate to fully mitigate these risks. The Minimum Nurse to Patient Ratio Initiation does not recognize the oversight of remote telemetry patients as additional workload as the patient care is provided outside of the monitoring unit. Given the scope and complexity of the issue, along with challenges related to nursing ratios, this represents a broader organizational risk that demands oversight beyond the Medicine CARE Network. Since Critical Care and Emergency

departments frequently provide this monitoring, system wide management and accountability are essential to ensure patient safety and effective risk mitigation.

Recommendation

Define Ownership and Accountability: Clarify and assign organizational ownership for remote cardiac monitoring oversight including:

a. Clinical appropriateness
b. Policy development
c. Quality assurance
d. Operational leadership and implementation

Evaluate Continuation vs. Centralization: Based on the outcomes of ownership and accountability, infrastructure assessment, and safety reviews, determine whether:

a. Remote cardiac monitoring should continue as a decentralized practice
b. A centralized cardiac monitoring hub model should be explored
c. Certain sites or units should be phased out of remote monitoring use if deemed clinically or operationally unsafe

Monitor Quality and Risk

a. Provide governance oversight and guidance on the remote cardiac monitoring risk mitigation strategy.
b. Support escalation and coordination across affected clinical networks and operational leaders.
c. Advise on any additional risk controls, policy development, or monitoring necessary to ensure patient safety.
d. Endorse and monitor the ongoing work of the regional working group co-led by Emergency, Critical Care, Medicine, and local AQOEC representatives.
e. Establish a reporting and review mechanism (e.g., quarterly PSLS review) specific to remote cardiac monitoring incidents if practice continues.
f. Use data to continuously evaluate clinical risks, workload impacts, and patient safety outcomes.
g. Include monitoring of communication failures, Code Blue response delays, and missed monitoring events if practice continues.

Support Education and Competency Development

a. Education for ordering providers for updates for the use of remote cardiac monitoring versus central monitoring and cessation of the resource when no longer required.

b. Resume and complete the Basic ECG course utilizing the Affinity platform, ensuring it is accessible across all acute sites to allow for reduced-time onboarding alternatives to Mosby's ECG course.
c. Create interim educational resources for agency and short-term staff who may not meet full competency standards.

Appendix A:

Practice Standards-Cardiac Mc

Appendix B:

Cardiac Monitoring: Telemetry

Resource:

Archer S, Hull L, Soukup T*, et al* (2017). Development of a theoretical framework of factors affecting patient safety incident reporting: a theoretical review of the literature. *BMJ Open, 7*, 12. Development of a theoretical framework of factors affecting patient safety incident reporting: a theoretical review of the literature | BMJ Open.

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DRAFT - Awaiting approval on September 3rd : Clinical Governance Improvement Initiative meeting