Telemetry: Remote Monitoring

Site Applicability

SPH and MSJ as outlined in this guideline

Practice Level: Specialized

- Registered nurses providing care **in medical/surgical/Maternity inpatient units** who have received orientation to the care of the patient receiving ECG monitoring by remote telemetry including: application of equipment (MSJ), patient care and monitoring, and emergency procedures.
- Registered nurses providing care in **MSJ High Acuity Unit [HAU] and SPH Cardiac Intensive Care Unit [CICU]** who have completed a recognized cardiac monitoring course and have demonstrated competency in basic ECG interpretation. Completion of a competency review and validation of ECG rhythm interpretation skills is required every 2 years. Nurses must possess competency in identifying rhythms listed in Appendix A.

  Note: Care of the patient requiring ECG monitoring via telemetry is a ***shared*** responsibility between the assigned critical care/HAU RN and the assigned medical-surgical or Maternity unit RN. (See 'Roles and Responsibilities')

Requirements

- Patients requiring ECG monitoring via telemetry require the care of a registered nurse.
- Patients requiring ECG monitoring with remote telemetry are cared for on medical and surgical units 3B, 3C & 4W – preferably 3B/C (MSJ) and 3MC Maternity (SPH).
- A physician's order is required to initiate ECG monitoring via telemetry (Class 1 and 2 and to discontinue Class I telemetry monitoring). See Appendix B for criteria.
- Where telemetry monitoring is part of a pathway or complex care plan; ECG monitoring with remote telemetry may be nurse-initiated.
- All patients requiring ECG monitoring via telemetry require a patent intravenous (IV) access
- Patients requiring ECG monitoring with remote telemetry are assigned to rooms close to the HAU (MSJ) or rooms 3606 and 3607 (3MC Maternity SPH).
- When patients are transferred to other sites for tests or procedures, the telemetry pack must remain on the inpatient unit and alternative methods of ECG monitoring are used when indicated.
- Change electrodes Q48 hours or more frequently if no longer secured to chest or if skin irritation develops.

Need to Know

Clinical Indication: This standard applies to patients with continuous cardiac monitoring by nurses [in HAU (MSJ) or CICU (SPH)] and who are physically located on another inpatient unit [Med/Surg (MSJ), Maternity (SPH)].

ECG monitoring with telemetry allows health care professionals to continuously monitor electrical activity of the heart in patients. Telemetry can be utilized on units where the nursing staff has ECG rhythm interpretation competencies or remote monitoring can be utilized, necessitating a shared care or partnership model of care between staff on critical care/HAU units and staff on identified medical-surgical/Maternity units.

A telemetry system consists of electrodes and lead wires that are attached from the patient to a battery pack which transmits impulses to a central monitor via radio-wave transmission. From the central monitor the information can be viewed, analyzed, printed, and stored.

ECG monitoring with telemetry is used to:

- Detect abnormalities in cardiac conduction (arrhythmias)
- Monitor effectiveness or side effects of anti-arrhythmic and other cardiac medications
- Correlate signs and symptoms with cardiac rate and rhythm
- Detect cardiac ischemia
- Allow assessment of patients' tolerance of increasing physical activity in a safe environment

Ambulation and activity can cause distortion of the ECG tracing.

At MSJ, the HAU nurse communicates via a dedicated telemetry telephone to the medical/surgical inpatient units.

The telemetry software is capable of ST analysis, QTc measurement, and continuous SpO_2 monitoring; however, these options are defaulted to "off". Registered nurses providing care to medical/surgical/ Maternity patients will not utilize these options; they may be used in the critical care settings.

Physician order must include the following:

1. Indication for remote ECG monitoring by telemetry (Appendix B)
2. Categorization of monitoring requirements into one of the following:
    - Class I – patient to be cardiac monitored at all times, including transport off unit accompanied by an RN with cardiac monitoring skills
    - Class II – telemetry monitoring may be suspended for transport off unit (except for initial transfer from ER to the units and *inter- hospital transports). Inform HAU/CICU RN if patient is leaving the unit. Telemetry monitoring may be discontinued after 48 hours if no arrhythmia noted.

    ***For inter-hospital transports**: consult the most responsible physician for transport orders including whether or not a telemetry trained RN is required for accompaniment. Consider if the destination unit has cardiac monitoring capabilities and if they have had no ischemic or other events relating to original indication for monitoring within past 24 hours.
3. Frequency of vital signs monitoring

Equipment and Supplies

Batteries

A rechargeable battery (available on 3rd floor medicine at MSJ and CICU for SPH) is placed in the telemetry pack prior to initiating ECG monitoring with remote telemetry. Change telemetry pack battery at the start of each shift (Q12H) and PRN.

If the rechargeable battery station is to fail, please contact Bio Med to obtain battery attachment for 3 AA batteries.

PROTOCOL

Assessment (See 'Roles and Responsibilities' table below for assessment)
ECG Rhythm Assessment (HAU/CICU RN)

1. Analyze rhythm including the following:
    - Rate (atrial and ventricular)
    - Regularity
    - PR interval
    - QRS duration
2. Identification of rhythm

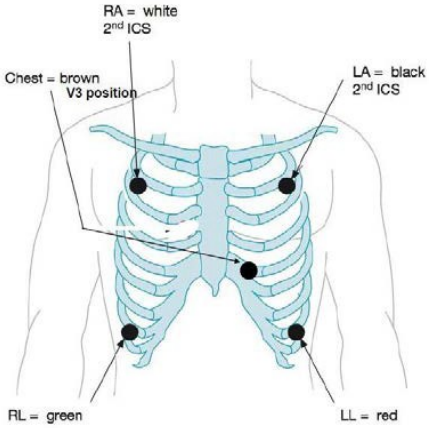
Interventions

- See 'Roles and Responsibilities' table below for interventions
- The medical-surgical/Maternity RN will call CODE BLUE for a sudden deterioration in condition (e.g. decreased LOC, respiratory distress, hemodynamic instability)
- See Appendix A for trouble shooting cardiac monitors

Steps

Initiation of ECG monitoring via telemetry:

1. Prepare skin (cleanse with soap and water and clip hair as required). Only use sites where there is adequate skin integrity.
2. Position electrodes (mark V3 lead placement with skin marker):



Right Arm (white) – just below right clavicle

Left Arm (black) – just below left clavicle

Left Leg (red) -- on lower chest, level of lowest rib
on the thorax or on hip

Right Leg (green)-- below rib cage on right side of abdomen

Chest (brown) -V3 - V_3 equidistant between V_2 and V_4
V_2 at the fourth ICS, left sternal border
V_4 at the fifth ICS, midclavicular line

*Write date on electrodes to indicate when last changed

3. Admit patient to telemetry monitoring system as per manufacturer's instructions.
4. Use the following guidelines when admitting patient to the central monitoring system:

Name:

Enter patient first and last name.

- To disguise a patient's name (i.e. the patient does not want their surname visible on the screen or patient is classified 'do not disclose'), enter "Patient A" in the alias field. When disguising more than one name, use "Patient B", "Patient C", etc.

Medical Record Number (MRN) - SPH only

Code Status:

Do not indicate DNAR status in the screen notes. Enter DNAR status using the Resuscitation field only. Depending on what is chosen, the following will appear on the screen:

- No star indicates full code
- A star not filled in indicates modified code. A filled in star indicates DNAR

Class:

Use the group field to specify whether the patient is class 1 or class 2.

- A red box around the name indicates a Class 1 patient
- A yellow box around the name indicates a Class 2 patient

Screen Notes:

The Screen Notes field option should be used for the following information only:

- Room number and name alert (if applicable)

Patient location:

To specify the patient location when the patient is known not to be in their room, select transport/standby, then select the appropriate location. When the patient has returned to their room, select transport/standby, and then select tele.

Documentation (See 'Roles and Responsibilities' table below for appropriate documentation)

Site Specific Practices

- Mount St. Joseph's Hospital
- St. Paul's Hospital

MOUNT ST. JOSEPH

ROLES AND RESPONSIBILITIES		
On Admission/Initiation	**Daily**	**On Discontinuation**
Physician (most responsible physician [MRP] outside critical care)		
• Orders ECG monitoring with telemetry, using order set CARD Remote Telemetry Monitoring PowerPlan • Order 12-lead ECG before initiating telemetry monitoring	• Reviews ECG monitoring data over previous 24 hours • Re-assesses need for continuing ECG monitoring via • Telemetry and monitoring class • Directs patient care and treatment in response to ECG findings	• Orders discontinuation of ECG monitoring via telemetry for Class 1 patients
ED RN		
• If telemetry is prescribed, ensures patient is on continuous ECG monitoring • ED CNL or CSC confirms telemetry pack available and provides HAU with patient name or MRN • Once bed is assigned, ED CNL/CSC notifies inpatient unit at least 30 minutes prior to patient transfer ED RN transports patient with Porter (and transport monitor or telemetry pack) to inpatient unit for both Class I and Class IItelemetry • Marks V3 lead placement with marker on patient chest • Places electrodes & leads on patient in standard lead • placement, initiates telemetry monitoring • Calls HAU to ensure patient is on the central monitor		

On Admission/Initiation	Daily	On Discontinuation
HAU RN		
• Has telemetry package available (telemetry unit, telemetry carry bag, skin marker, & electrodes) with patient label applied **For Ward Patient:** • Sees patient and initiates telemetry within 60 minutes of being notified by unit of new order • Confirms that the physician has prescribed telemetry for patient • Marks V3 lead on patient's skin • Places electrodes & leads, initiates telemetry **For ED Admission:** • Sees new patients on the unit from ER with telemetry within 60 minute of admission **For Ward and ED Admissions:** • Documents telemetry unit number, assessment, and • Analyzes and mounts initial ECG strip on the ECG Strip Flowsheet and files in the Assessments section of chartlet. A photocopy of this form is made for HAU telemetry binder. • Enters patient information into central monitor as mentioned above in point 4 of Initiation of ECG monitoring via telemetry • Sets appropriate alarm limits on central monitor • Communicates assessment of ECG rhythm with patient's assigned RN and with MRP • Reviews activity level with the patient. • Ensures patient receives telemetry pamphlet as available and addresses confidentiality	• Prints, analyses and mounts ECG rhythm strip in patient record once per shift and with any ECG rhythm changes. Puts original copy in patient's chartlet and puts a photocopy in HAU Telemetry binder. Documents cardiovascular assessment (Q12H and PRN) in Interactive View. Also completes Documentation for Remote Telemetry. • Ensures alarms set and modifies alarm parameters based on patient condition every shift • Completes an alarm review for the last 12 hours at the end of each shift • When an arrhythmia occurs: ○ Analyzes the ECG rhythm and directs assigned RN to complete a set of vitals and rapid CV assessment (LOC, perfusion); and upon arrival, the HAU RN completes a full cardiovascular assessment to assess patient's response to rhythm change. ○ Notifies MRP of rhythm change (in collaboration with patient's assigned nurse) ○ Call for assistance and notify physician immediately of any hemodynamically unstable rhythm (decreased LOC, new SOB, chest pain, hypotension). Provide supportive care. ○ Notify physician immediately of the following arrhythmias, even if not initially hemodynamically unstable: ▪ ventricular tachycardia ▪ supraventricular tachycardia ▪ Following arrhythmia identification, documents assessment and interventions in Documentation and updates telemetry care plan	• Communicate with the physician via phone when HAU is discontinuing class II telemetry monitoring • If a class II telemetry monitoring is being discontinued by HAU as per standard, HAU to enter discontinue order • Discharges patient from central monitor

On Admission/Initiation	Daily	On Discontinuation
Medical-surgical unit RN assigned to patient		
For Ward Inpatient: • Notifies HAU with patient name when telemetry is prescribed **For New ED Admission:** • Obtains telemetry package that has been identified with patient label from HAU • Inserts rechargeable battery into telemetry unit & has package available for ER **For Ward and ED Admission:** • Ensures patient has patent IV access, confirms correct patient identification by comparing patient's ID armband to order sheet • Identifies patient is on telemetry by placing heart magnet (or drawing a red heart) by patient name on bed assignment board in nursing work station.	• Assesses skin and provides skin care daily; changes electrodes as per guideline • Monitors vital signs at 08:00, 15;00 and 20:00 (at minimum) or as prescribed and PRN • Immediately performs a cardiovascular assessment (LOC, vital signs, capillary refill, cardiac symptoms [chest pain, SOB, palpitations]) when notified by HAU RN that patient is experiencing an arrhythmia • Addresses the need for continuing ECG monitoring via telemetry daily with the physician • Change battery in telemetry unit at the start of each shift (Q12H) and confirm telemetry unit operational with HAU RN once battery changed. Documents on InteractiveView under Cardiac Rhythm Analysis when battery is changed • Maintains communication with telemetry assigned HAU RN. Reports symptoms and other changes in patient condition to HAU RN: • chest pain, dyspnea, or dizziness (also refer to Chest Pain Management (Outside Critical Care) • Change in cardiac medications (started or discontinued) • Any discontinuation, suspension, or initiation/re-initiation of ECG monitoring by telemetry • Patient departure and return to unit (e.g. for tests/ procedures, cafeteria, wanderers, etc.) • Deterioration (e.g. chest pain, vertigo, dyspnea, decline in level of consciousness, hemodynamic instability) Also refer to Chest Pain Management (Outside Critical Care) • Change in patient's location (e.g. room assignment)	• Ensures physician or HAU RN when appropriate (Class II patient with no Arrhythmia in past 48 hours) has ordered discontinuation of telemetry • Communicates with telemetry assigned HAU RN when telemetry is discontinued and CNL provides updates in the team care rounds regarding discontinuation. • Removes and discards electrodes, returns battery to recharging station • Ensures the telemetry pack is cleaned and returns telemetry unit to the HAU (this task can be delegated to ward aid)

ST. PAUL'S HOSPITAL

On Admission/Initiation	Daily	On Discontinuation
Physician responsible for cardiac management of the Maternity patient (PACH Cardiology – PACH Cardiologist can be reached via Switchboard)		
• Participates in care planning for Maternity patients with cardiac conditions • PACH/Cardiac Obstetrics Clinic (COB) coordinates care planning	• Reviews ECG monitoring data over previous 24 hours • Re-assesses need for continuing ECG monitoring via telemetry • Directs patient care and treatment in response to ECG findings	• Provides direction for discontinuation of ECG monitoring via telemetry (per care plan)
CICU RN		

• Ensures new battery in telemetry unit prior to initiation of monitoring.
• Analyses and mounts ECG strip in patient record
• Enters patient information into central monitor
• Communicates assessment of ECG rhythm with patient's assigned RN and with MRP
• Sets appropriate alarm limits and any specific measurements to be monitored on central monitor
• Obtain and review complex obstetrical care plan from Maternity Unit for patient specific guidelines
• Assesses patient for potential cardiac signs and symptoms as indicated in complex obstetrical care plan
	• Prints, analyses and mounts ECG rhythm strip in patient record each shift and when arrhythmia identified
	• Ensures alarms are set and customized to patient's condition and modifies alarm parameters as required each shift
	• Changes telemetry pack battery at the start of each shift (Q12H) and PRN
	• Follows complex obstetrical care plan and modifies plan of care as patient condition requires
	• Assesses patient each shift for potential cardiac signs and symptoms as indicated in complex obstetrical care plan
	• When an arrhythmia occurs:
	  ○ Analyzes the ECG rhythm and notifies the patient's assigned Maternity RN
	  ○ Documents assessment and interventions
	• In collaboration with Maternity RN, call for assistance and notify physician immediately of any hemodynamically unstable rhythm (decreased LOC, new SOB, chest pain, hypotension) or any monitored values outside of prescribed limits (prolonged QTc)
	• Provide supportive care
	• In collaboration with Maternity RN notify physician immediately of the following arrhythmias, even if not initially hemodynamically unstable:
	  ○ Ventricular tachycardia
	  ○ Supraventricular tachycardia
		• Discontinues patient monitoring

On Admission/Initiation	Daily	On Discontinuation
Maternity RN assigned to patient		

• Ensures patient has patent IV access while receiving ECG monitoring by telemetry
• Notify CICU when telemetry is prescribed
• Review complex obstetrical care plan for patient specific guidelines
	• Assesses skin and provides skin care daily; Monitors vital signs as prescribed and PRN
	• Performs a rapid cardiovascular assessment (LOC, vital signs, capillary refill, cardiac symptoms [chest pain, SOB, palpitations]) when notified by CICU RN that patient is experiencing an arrhythmia and notifies physician responsible for cardiac care of rhythm change
	• Addresses the need for continuing ECG monitoring via telemetry daily with the physician and/or Complex Obstetrical Care Plan
	• Collaborates with CICU RN to assess telemetry parameters prior to specific interventions as indicated in complex obstetrical care plan
	• Maintains communication with telemetry assigned CICU RN. Reports patient symptoms and status updates to CICU:
	  ○ Patient complaints of chest pain, dyspnea, or dizziness (also refer to Chest Pain Management (Outside Critical Care) for management)
	  ○ Change in cardiac medications (started or discontinued)
	  ○ Any discontinuation, suspension, or initiation/re- initiation of ECG monitoring by telemetry
	  ○ Patient deterioration (e.g. complaints of chest pain, vertigo, dyspnea, decline in level of consciousness, etc.) Also refer to Chest Pain Management (Outside Critical Care).
	  ○ Patient is in second stage of labour (i.e. actively pushing)
	  ○ Patient has delivered
		• Ensures physician has prescribed to discontinue ECG monitoring by telemetry
		• Communicates with telemetry assigned CICU RN that telemetry is being discontinued
		• Remove and discard electrodes.

Patient and Family Education

- Provide telemetry brochure: "Telemetry – A Patient and Family Guide" (FD.114.T236.PHC)
- Explain the purpose of ECG monitoring via remote telemetry
- Inform patient of confidentiality concerns related to name and room number being displayed on monitors in the hallway
- Review activity level with patient. Ensure patient is aware they must inform the medical- surgical RN if leaving the unit
- Reassure patient/family that cardiac rhythm is being observed in High Acuity Unit/Cardiac Intensive Care Unit
- Instruct patient to report any symptoms (chest discomfort, sensation of rapid heart rate/palpitations, nausea, dizziness, sweatiness or SOB)

Related Documents

1. B-00-13-10011– Cardiac Monitoring
2. B-00-13-10032– Chest Pain Management (Outside Critical Care)

References

1. Sandau, K.E. et al. (2017). Update to Practice Standards for Electrocardiographic Monitoring in Hospital Settings. A Scientific Statement From the American Heart Association. *Circulation*. 2017;136:e273–e344
2. Cardiac Monitor Set Up and Lead Placement. Elsevier Clinical Skills (2021). St. Louis, MO. Elsevier. Retrieved September 15 2021 from www.elsevierskills.com

Appendices

1. Appendix A – Competency Requirements for Cardiac Monitoring
2. Appendix B –Troubleshooting Cardiac Monitors
3. Appendix C - Criteria for Telemetry at MSJ

Persons Consulted:

Physicians Medicine MSJ CNL,
Medicine MSJ

Physician Lead HAU MSJ

Nurse Educator, CICU

Nurse Educator 5A, 5B.

Nurse Educator Maternity

Developed By:

Clinical Nurse Specialist, Adult Congenital Heart

Clinical Nurse Specialist-Medicine/Ambulatory Nurse Educator, HAU, MSJ

Clinical Nurse Specialist, Critical Care

Revised By

Nurse Educator, HAU MSJ

Initial Effective Date:	APR-2005
Posted Date:	14-DEC-2021
Last Revised:	14-DEC-2021
Last Reviewed:	14-DEC-2021
Approved By:	PHC
	Professional Practice Standards Committee
Owners:	PHC
	Medicine/Cardiac/HAU

Appendix A: Specific ECG Abnormalities Nurses Must Be Competent in Recognizing

Normal rhythms

- Sinus rhythm
- Sinus bradycardia
- Sinus arrhythmia
- Sinus tachycardia

Intraventricular conduction defects

- Bundle-branch block
- Aberrant ventricular conduction

Bradyarrhythmias

- Inappropriate sinus bradycardia
- Sinus node pause or arrest
- Nonconducted atrial premature beats
- Junctional rhythm

AV blocks

- 1st degree
- 2nd degree
- Mobitz I (Wenckebach)
- Mobitz II
- Advanced (greater than 2:1)
- 3rd degree (complete AV block)

Tachyarrhythmias

- Supraventricular
- Paroxysmal supraventricular tachycardia
- Atrial fibrillation
- Atrial flutter
- Multifocal atrial tachycardia
- Atrial tachycardia with 2:1 block

Ventricular

- Accelerated ventricular rhythm
- Nonsustained/sustained monomorphic ventricular tachycardia
- Nonsustained/sustained polymorphic ventricular tachycardia
- Prolonged QT interval-associated ventricular ectopy, torsades de pointes
- Ventricular fibrillation
- Asystole, pulseless electrical activity

Premature complexes

- Supraventricular (atrial, junctional)
- Ventricular

Pacemaker electrocardiography

- Failure to capture
- Failure to pace (no pacer output)
- Failure to sense

ECG abnormalities of acute myocardial ischemia

- ST-segment elevation, depression
- T-wave inversion

Other

- Muscle or other artifact simulating arrhythmias

Appendix B – Trouble Shooting Cardiac Monitors

Problem	Possible Cause	Solution
False high heart rate alarm	▪ Monitor interprets peaked T waves as QRS complexes, double counting ▪ Skeletal muscle activity	▪ Reposition electrodes ▪ Place electrodes away from major muscle masses
False low heart rate alarm	▪ Shift in electrical axis from patient movement, making QRS complexes too small to register ▪ Low amplitude QRS ▪ Poor contact between electrode and skin	▪ Reapply electrodes ▪ Set size or gain control so height of complex is greater than 1 millivolt
Low amplitude or no waveform	▪ Size or gain control dial set too low ▪ Poor contact between skin and electrode; dried gel, broken or loose lead wires, poor connection between patient and monitor, malfunctioning monitor, physiological loss of QRS amplitude	▪ Increase size or gain control ▪ Check connections on all lead wires and monitoring cable. ▪ Reapply electrodes if required ▪ Check battery and replace if necessary
Wandering baseline	▪ Poor position or contact between electrodes and skin ▪ Thoracic movement	▪ Reposition or replace electrodes
Artifact (waveform interference)	▪ Patient experiencing seizures, chills or anxiety ▪ Patient movement ▪ Electrodes applied improperly ▪ Static electricity ▪ Electrical short circuit in lead wires or cable	▪ Notify doctor and treat patient as ordered. Keep patient warm and reassure ▪ Help patient relax ▪ Check electrode placement & readjust as necessary ▪ Make sure cables do not have exposed connectors. Change static causing bedclothes ▪ Unplug bed or IV pumps. ▪ Replace broken equipment. Send any broken equipment to Biomed department
Broken lead wire	▪ Lead wires and cables cleaned with alcohol or acetone cause brittleness	▪ Replace wires, send broken wires to Biomed department
Skin excoriation under electrode	▪ Patient allergic to electrode ▪ Electrode left on skin too long	▪ Remove electrode, clean off any excess gel, replace electrode with non-allergenic/ pediatric electrode ▪ Remove electrode, clean site and reapply electrode at a new site

Appendix C: Criteria for Use of Cardiac Monitoring MSJ

i. Duration of cardiac monitoring by indication for critical care admission

Note that many of these reasons will not apply to the MSJ but are included for completeness

Reason	Duration
1. Reasons requiring critical care admission not listed below	At discretion of ICU/CICU/HAU critical care physician – usually until hemodynamically stable and weaned from mechanical ventilation
2. Post cardiac arrest	Continue unless reversible cause corrected, or unless directed by Cardiology
3. Moderate- to high-risk non-ST elevation acute coronary syndrome	Until 12 hours after successful, uncomplicated PCI and no recurrent ischemia, or discharge, whichever comes first. If no or incomplete revascularization, (significant residual ischemic lesions – see Interventional Report), continue for 24-48 hours post-PCI.
4. STEMI	At least 48 to 72 hours post reperfusion therapy (at least 24 of those hours in an ICU/CICU setting for uncomplicated STEMIs)
5. Temporary (epicardial, transvenous or transcutaneous) pacemaker	Until pacing no longer indicated or replaced with a permanent device (12 to 24 hours after pacemaker implanted if pacemaker dependent)
6. High-grade AV block (i.e. Mobitz II, 3rd degree AV block)	Until 12 to 24 hours after pacemaker implanted if pacemaker dependent; telemetry may also be reasonable for patients who are not pacemaker dependent
7. Sustained ventricular dysrhythmias	Until intervention (i.e. ischemia resolved, reversible cause corrected) or deemed safe by cardiology
8. Arrhythmias complicating WPW syndrome (i.e. antegrade conduction over accessory pathway)	Until intervention (e.g., electrophysiology study with ablation)
9. Intra-aortic balloon counterpulsation	Until weaned from aortic balloon pump
10. High risk coronary anatomy (i.e. critical left main disease)	Until intervention (i.e. revascularization)
11. After percutaneous coronary intervention (PCI) with complications (i.e. vessel dissection, no-re- flow, sub- optimal angiographic result, hemodynamic instability)	At least 24 hours, longer if clinically indicated or until deemed safe by Cardiology
12. Need for procedures that need critical care monitoring	During procedure and until awake, alert and hemodynamically stable

Reason	Duration
13. Respiratory failure requiring positive pressure ventilation or high O_2 requirements	Until respiratory status returns to baseline
14. Significant QTc prolongation or initiation of drugs known to prolong QTc (dofetilide, ibutilide, sotalol, disopyramide, procainamide, quinidine)	Until QTc has returned to baseline for 12 to 24 hours* Other factors to consider: • Drug half-life • Time to drug elimination dependent on hepatic or renal function • Presence of QT-related arrhythmias *Continue for 48 to 72h for pts initiating or increasing dose of disopyramide, procainamide, quinidine sotalol

i. Indications for cardiac monitoring via telemetry without critical care admission

Reason	Timeframe
Any patient with:	
1. Chest pain, "rule out MI", low risk non-ST-elevation acute coronary syndrome/NSTEMI	Until 24 to 48 hours without ischemia, persistent or recurrent positive biomarkers, arrhythmia, or 12 hours after successful, uncomplicated PCI and no recurrent ischemia, or discharge, whichever comes first. If no or incomplete revascularization (significant residual ischemic lesions – see Interventional Report), continue for 24 to 48 hours post-PCI
2. Significant QTc prolongation or initiation of drugs known to prolong QTc (dofetilide,ibutilide, sotalol, disopyramide, procainamide, quinidine)	Until QTc has returned to baseline for 12 to 24 hours* Other factors to consider: Drug half-life Time to drug elimination dependent on hepatic or renal function Presence of QT-related arrhythmias *Continue for 48 to 72H for pts initiating or increasing dose of disopyramide, procainamide, quinidine sotalol
3. Acute decompensated heart failure	At least 24 hours with no significant arrhythmias noted
4. Coronary vasospasm	Until definitive therapy initiated and no events for 12 to 24 hours
5. Confirmed or Suspected drug overdose with risk of arrhythmias	Until patient clinically stable and no arrhythmias noted for 24 hours
6. Suspected pacemaker malfunction in patient who is not pacemaker dependent	Until pacemaker interrogation and definitive management complete

Reason	Timeframe
7. Atrial dysrhythmias requiring ongoing drug titration	Until drug dose and rhythm stable x 12 to 24 hours
8. Suspected cardiac cause of syncope	At least 24 to 48 hours after admission
9. Suspected arrhythmias as a cause or complication of stroke	Up to 24 to 48 hours after admission, at the discretion of physician