Physiologic Monitoring Policy

Revised Oct 2011
Clinical Educators
Objectives

- Understand the physiologic monitoring principles at LHSC
  - Location of policy on website
  - Unit specific guidelines
  - Learning packages

- Review physiological monitoring accountability for regulated health professionals at LHSC

- Brief review of remote telemetry practice standard – as an example of a physiological monitoring standard
  - Initiating process
  - Nurses responsibility
  - Documentation
What is Physiologic Monitoring:

- The use of technology to monitor and assess the physiologic parameters of a pt.

- Physiologic monitoring is used to detect changes in a pt’s condition before they become clinically evident and significant.
Guiding Principles

• Physiologic monitoring is an adjunct to pt care for the purpose of therapeutic intervention

• Clinical assessment/observation of pts are vital to pt care and monitoring cannot replace this

• Pts need to be reassessed after a specific period of time to ensure pts are being monitored appropriately

• Activation of appropriate alarm parameters
Guiding Principles

• Documentation and communication of monitoring data promoting collaboration and communication between services and disciplines

• Standardized education

• Education for staff – all staff must have the requisite knowledge, skill and judgment to safely care for monitored pts
LHSC INCLUSIVE LIST OF Monitoring Standards

- Arterial Pressure
- Bedside ECG – Adult
- Bedside ECG – Paediatric
- Central Venous Pressure
- CO2 – End Tidal
- CO2 – Transcutaneous
- Heart Rate Monitoring – Paediatric
- Intracranial Pressure
- Noninvasive Blood Pressure (NIBP)

- Pulmonary Artery Pressure
- Pulse Oximetry
- Respiratory Rate/Apnea
- Telemetry – Local
- Telemetry – Remote
- Temperature – Continuous
- 12 Lead ECG and ST Segment Monitoring
LHSC Practice Standards

Outline the minimum requirements expected for the performance of a skill and use of monitoring equipment to ensure that the pt receives safe and competent care.

Each standard includes:

- Considerations
- Definition
- Patient criteria
- Responsibilities Health Care Team
- Level of observation

**Continuous** – nurse or qualified allied health care provider in room at all times; this does not include 1:1 nursing

**Close** – patient will be in close proximity to nursing station, alarm activated, volume audible at the nursing station

**Intermittent**

- Assessment and vital sign monitoring
- Education requirements
Resources
On-Line Manual
http://www.lhsc.on.ca/priv/p_monitr/
Physiological Monitoring

Monitoring Standards

A framework was developed to guide the creation of monitoring standards to support the healthcare practitioner when caring for patients requiring physiological monitoring. The standards were developed with the aim of establishing appropriate conditions to ensure that every monitored patient would receive safe and consistent care, from shift to shift and care provider to care provider.

As defined in the policy, the practice standards for monitoring are the minimum requirements expected for the performance of a skill and use of monitoring equipment to ensure that the patient receives safe and competent care. The standards include level of observation, frequency of vital sign monitoring, and assessment, patient criteria, responsibilities and education requirements.

In total 16 standards have been created in the organization.

Index of Standards

- Basic Bedside ECG Monitoring - Paediatric
- Basic Heart Rate Monitoring: Paediatric
- Bedside ECG Monitoring - Adults
- Continuous 12 Lead and ST Segment Monitoring
- Continuous Central Venous Pressure Monitoring (CVP)
- Continuous Temperature Monitoring
- Direct Arterial Pressure (Arterial Line)
- Intracranial Pressure
LHSC’s goal is to ensure that monitoring occurs for the *Right* patient, on the *Right* unit, by the *Right* health care providers for the *Right* reasons.
Remote Telemetry
What is Telemetry?

- Form of cardiac monitoring
- Allows for early detection of abnormal cardiac rhythms (arrhythmias)
- Allows increased mobility of patient
- Used whenever cardiac rhythm disorders are suspected or anticipated
- ECG signals detected by chest electrodes, and transmitted to Central monitoring station (CMS)
  - CMS may be local or remote
  - Can also be called the Central Information Centre (CIC)
Remote Telemetry Monitoring Standards

Cardiac rhythm monitoring in another unit, (e.g., CCU) outside of where the pt is being cared for

- CCU nurse monitors the \textit{rhythm only} – the bedside nurse is responsible for the overall care of the pt
What Equipment is Used?

- GE Medical Apex Pro telemetry system consists of:
  - Transmitter
  - Electrode/Lead system
  - Central Monitor Station
  - Notification system
Equipment

• **Transmitter:**
  • Worn by patient
  • Ceiling antennae pick up the signal from transmitter
  • Uses 2 AA batteries
  • If battery low: battery LED will display, indicates **one hour** of power remaining

• **Electrode/Lead system:**
  • Connects the patient to transmitter
  • Provides a signal to Central Information Centre
  • Five lead

• **Central Information Centre (CIC):**
  • Main station where patient’s ECG is displayed
  • Demographics are entered into system
  • Remote or Local
Equipment

Notification System:

- Pager system
- Carried by bedside nurse
- Used to notify staff nurse of lethal arrhythmias (example: ventricular tachycardia)
  - If RN is off of floor, pager is handed off to covering RN
  - If there is an arrhythmia, low battery signal, poor reception etc., telemetry nurse will call the patient’s nurse, who then checks on the patient, trouble shoots, etc.
- Stat view paging system is carried in CCU if someone is not sitting in front of the CIC
Who Needs Remote Telemetry?

• Patients hemodynamically stable but at risk of developing a cardiac arrhythmia
• Patients classified according to high or low priority

• High Priority
  • Patients known or suspected of having increased risk of life threatening arrhythmias
  • Reevaluation required q 48 hours

• Low Priority
  • Patients with low risk or documented non-life threatening arrhythmias on medical management which would be facilitated by ECG monitoring
  • Reevaluation required q 24 hours
  • Outlined in the remote telemetry monitoring standard
How to Initiate Remote Telemetry

- Written order and a completed requisition by physician or NP/CNS (APN)
  - Order includes indications for use
  - VH: requisition req’d; sticky label req’d

- Contact ECG technician by pager to initiate telemetry
  - ECG tech will set up monitoring system
  - Bring telemetry pack and pager
  - Set up and contact CCU & bring information to CCU
  - Patient information entered into CIC, & strip obtained

- At VH, text page the tech, including priority for response
- At UH, enter ID number, e.g., 21.
### Priority Levels and Response Times:

The following priority levels will be used when ordering any ECG:

<table>
<thead>
<tr>
<th>Priority Level</th>
<th>Response Time</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Percutaneous Coronary Intervention (PPCI)</strong> Code STEMI</td>
<td>≤ 10 minutes</td>
<td>Any patient being considered for PPCI (including any patient experiencing chest pain)</td>
</tr>
<tr>
<td><strong>STAT</strong></td>
<td>≤ 15 minutes</td>
<td>Emergency situation. Patient requires immediate testing for diagnosis and/or treatment</td>
</tr>
<tr>
<td><strong>ASAP</strong></td>
<td>≤ 60 minutes</td>
<td>Patient situation is pressing, requires attention but it is not an emergency. This would include all remote telemetry to support timely monitoring and/or patient access</td>
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<tr>
<td><strong>ROUTINE/SCHEDULED</strong></td>
<td>≤ 4 hours</td>
<td>Regularly scheduled test, there is no urgency of testing. A specific time may be ordered in advanced for timed testing due to patient specific procedures</td>
</tr>
<tr>
<td><strong>OUTPATIENT</strong></td>
<td></td>
<td>Where possible please send patients to the ECG department, if this is not possible, every effort will be made to minimize the wait time</td>
</tr>
</tbody>
</table>
Lead Placement

White *

Brown

Green

Black *

Red
What are my responsibilities?

• Assess skin under electrodes daily and PRN
• Apply new electrodes daily
  • Change the electrode location slightly
• Ensure lead placement is correct and contact is adequate
• Ensure batteries in unit are functioning correctly
• Review patients status daily and reassessed for continued telemetry
What are my responsibilities? Cont’d

- Obtain order if the patient can be off telemetry
  - Notify CCU when patient off
- Contact CCU prior to administration of IV cardiac medications or the initiation or d/c of cardiac meds
- If your patient develops signs of decreased cardiac output call CCU to ask for analysis of the rhythm
- Test pager each at the end of each shift and obtain report from CCU nurse
Communication

**RN caring for patient**

By telephone when:
- Cardiac IV medication being administered
- Cardiac medications are initiated or changed
- Change in patient’s condition
- Change in patient’s location
- Patient off telemetry
- Telemetry discontinued
- Obtain report at end of each shift
- Responding to test

**Telemetry Nurse**

By telephone when:
- Change in rhythm that is non-life threatening
- Rhythm not clearly visible
- Low battery signal

By pager when:
- Life threatening arrhythmia
- Testing of the telemetry pager at the end of the shift
- Phone assigned only for telemetry
  - Ext.55751
Documentation

RN caring for patient:

- Document q shift and PRN the report(s) received from CCU on the Adult Floor Remote Telemetry Flowsheet
- Skin integrity at electrode sites
- Any issues related to telemetry or contact with telemetry nurse

Telemetry Nurse:

- Record a rhythm strip
  - q 12 hours
  - Change in patient’s rhythm
  - When patient’s rhythm returns to normal
  - IV cardiac medications administered
  - Prior to D/C telemetry
- Document in telemetry binder on the CCU Adult Remote Telemetry Flowsheet:
  - When patient care unit notified of any changes in the signal
  - Changes in patient’s rhythm
  - When patient receives IV cardiac medications
  - Low battery signal
  - Name of nurse spoken to
## London Health Sciences Centre
### ADULT FLOOR REMOTE TELEMETRY FLOWSHEET

**CCU Remote Telemetry Numbers:** UH 35643 / VH 55751

*See Significant Findings*

<table>
<thead>
<tr>
<th>Telemetry Initiated:</th>
<th>Date: _____________________</th>
<th>Time: _____________________</th>
<th>TX# _____________________</th>
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<tbody>
<tr>
<td>Telemetry Discontinued:</td>
<td>Date: _____________________</td>
<td>Time: _____________________</td>
<td>Pager #: _____________________</td>
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**Clinical information**

### REMOTE TELEMETRY REMINDERS:

**Orders to include**
- review need for telemetry q 24 or 48 hours; order required to discontinue
- if telemetry can be removed for patient to shower or to leave the unit

**Pager / Phone**
- to be carried by an RN at all times
- check the patient immediately when receiving a page or call from CCU

**Communication**
- call CCU:
  - to receive shift telemetry report
  - when a cardiac medication is being administered that may change the patient's heart rate or rhythm
  - if telemetry removed for changing of electrodes, patient to shower or leave the floor and returns

**Change in Status**
- notify CCU when:
  - there is an addition or change in diagnosis
  - patient is moved to another bed, room or unit
  - telemetry is discontinued

**Resources:**
- To view Monitoring Policy: http://www.lhsc.ca/privp_monitr/policy.htm
- Telemetry Standard: http://www.lhsc.ca/privp_monitr/remotetm.htm

<table>
<thead>
<tr>
<th>DATE</th>
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<th>ANALYSIS</th>
<th>ACTION</th>
<th>COMMENTS</th>
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How is Remote Telemetry Discontinued?

- Written order from physician
- Central Telemetry Station must be notified
- ECG technician is notified by nurse caring for patient
- RN caring for the patient removes all equipment from patient
- RN caring for the patient documents discontinuation
- Telemetry nurse sends rhythm strips to patient care unit once the patient is discharged from telemetry to be placed in chart
- If the patient goes to OR:
  - Do **not** send telemetry unit
- Cleaning: non-alcohol based product
Troubleshooting

CCU not receiving an ECG signal from patient

What are the Possible Causes?
• Low battery
• Telemetry signal out of range
• Leads/electrodes off

What are your Actions?
• Replace batteries
• Review with patients where they are monitored
• Check leads and electrodes, replace as necessary
Troubleshooting

CCU not receiving a clear signal

What are the Possible Causes?

• Excessive patient movement
• Electrodes/leads loose or incorrectly applied
• Interference from ungrounded equipment
• Broken lead wire (may need to palpate to id break)

What are your Actions?

• Treat underlying cause
• Replace electrodes/leads
• Plug in equipment to ground and avoid ungrounded equipment
• Use a new lead wire system and return old to Biomed
Troubleshooting

Patient discomfort under electrodes

What are the Possible Causes?

• Allergy to adhesive tape
• Sensitivity to gel material

What are your Actions?

• Use micropore electrodes
• Rotate sites q24h and wash off old gel
What do I do when…..

• Mr. Smith has been admitted to your patient care unit. Remote Telemetry has been ordered due to his past cardiac history.

• How do you initiate the telemetry?

• Once ECG requisition completed, contact ECG tech

• Telemetry unit and pager will be issued by ECG tech

• ECG tech will place telemetry on patient and notify CCU
What do I do when…..

• The next day you are again assigned to Mr. Smith who remains on telemetry, what will your care include?

• Report from the previous shift should include:
  • Pager tested
  • Rhythm of Mr. Smith

• Assess skin

• Change electrode placement

• During patient care rounds review need for continued telemetry

• Assessment, observation and VS per patient’s acuity

• Notify CCU during shift if:
  • Patient off telemetry
  • IV cardiac meds, or cardiac meds started or d/c

• Respond to pager test at end of shift

• Obtain report on patient and communicate to on-coming shift
What do I do when.....

• During your vital signs, you note that Mr. Smith’s apical heart rate is tachycardic, upon further assessment you note he is diaphoretic and SOB.

• What do you do?

• Complete assessment

• Notify CCU of patient status and to run rhythm strip and ask for an analysis

• Contact MD to report change in status
What do I do when.....

• While you are at the nurse’s station processing Mr. Smith’s orders, the pager sounds, and voice message states, “Check patient, ventricular fibrillation noted”.

What do you do?

• Go to Mr. Smith’s room immediately
• Assess Mr. Smith
• You note he is not breathing.
• Call for help (55555)
• Initiate BCLS
ACKNOWLEDGEMENTS

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  • Deb Wolski, Clinical Educator
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  • Tracey Brown, Clinical Educator

Risk Management:
  • Mary Anne Davies, Patient Safety Specialist

Professional Practice:
  • Heather Tales, Professional Practice Specialist

References
  Listed on Remote telemetry standard
    • Revised Sept 2011 Betty Malloy–Nantais
“Excuse me. The machine is making a funny noise and the little light is going in a straight line.”
References

Mary Anne Davies, RN, MScN, Patient Safety Specialist, Heather Tales RN, MN, Manager, Cardiac Care: Victoria Hospital

Standardizing Monitoring Practices to Ensure Patient Safety; January 2008

Physiologic Monitoring Policy, LHSC website, Manuals/Guides; http://www.lhsc.on.ca/priv/p_monitr/