Physical Assessment: Patients on Cardiac or Cardiac Surgery Inpatient Units

Site Applicability

SPH – Inpatient Cardiac/Cardiac Surgery Units

Practice Level

Specialized: Within the scope of practice of every registered nurse on the cardiac wards 5AB.

Requirements

Consent must be obtained prior to physical assessment in accordance with the British Columbia Health Care (Consent) and Care Facility (Admission) Act.

Need to Know

Comprehensive physical assessment, as outlined in this protocol, is the responsibility of all nurses on the cardiac wards. By recording and comparing physical observations a nurse is able to identify problems early and reduce the likelihood of a critical event. Due to the rapid onset of complications, frequent observation and focused assessments are necessary.

For the purpose of clarification, four types of assessment will be described: Vital Signs, Infectious Illness Assessment, Head-to-Toe Assessment and Focused Assessments.

Protocol:

1. **Vital Signs**: heart rate, respiratory rate, blood pressure, oxygen saturations, temperature, pain, and NEWS2 score (see Appendix A)
   - On admission or transfer to ward
   - At the beginning of each shift
   - Q4H for first 24 hours then TID unless otherwise ordered
   - With any change in the patient's status
   - As outlined in related Providence Health Care nursing standards
   - Note: NEWS2 is to be completed with EACH set of vital signs

2. **Infectious Illness Assessment (including COVID-19):**
   - A review of symptoms for possible infectious illnesses as part of routine Head-to-Toe assessments and PRN with onset of symptoms
   - This includes a Point of Risk Assessment prior to patient interaction to determine appropriate Personal Protective Equipment (PPE) needed to provide safe patient care

3. **Head-to-Toe Assessment:**
   - On admission/transfer to the ward
   - At the beginning of each shift
   - With any significant change in patient status
   - As outlined in associated Providence Health Care nursing standards and pathways

4. **Focused Assessment**:
   - As per vital signs
   - As outlined in related Providence Health Care nursing standards

Assessment Components:

Head-to-Toe Assessment:

1. **Pain**
   - Presence and location of non-cardiac pain
   - Severity of pain using a standardized pain assessment tool
   - Sedation level if on opioids for pain (use Pasero Opioid-Induced Sedation Appendix B)

2. **Neurological System**
   - Level of consciousness (LOC), using Glasgow Coma Scale (GCS):

Best Eye Response	Best Verbal Response	Best Motor Response
4 Spontaneous	5 Oriented	6 Obeys commands
3 To sound	4 Confused	5 Localizing
2 To pressure	3 Words	4 Normal flexion
1 None	2 Sounds	3 Abnormal flexion
(Record "NT" if eyes closed by swelling)	1 None	2 Extension
		1 None

- Observe:
  - Muscle strength and symmetry of limb strength
  - Clarity of speech
  - Facial symmetry
  - For any abnormalities in neurologic assessment, assess pupil reaction and size
  - Note any neurological deficits
- Complete Confusion Assessment Method (CAM) screen every shift as outlined in B-00-13-10065 – *Delirium: Assessment and Care (Acute Care)*
- Assess sleep quality (if appropriate to time of assessment)

3. Cardiovascular System

- Interpret cardiac rhythm (if on cardiac monitoring) and mount strip on ECG Strip Flowsheet
- If on cardiac monitoring – assess telemetry for placement
- Apical heart rate and regularity
- Heart sounds – S1 and S2, quality; presence of abnormal heart sounds and anatomical location best heard
- Presence of chest pain, chest discomfort or other symptoms suggesting cardiac ischemia (determine patient's usual symptoms of ischemia if applicable), as per B-00-13-10032 – *Chest Pain Management (Outside Critical Care)*
- Presence and quality of peripheral pulses: radial, dorsalis pedis, posterior tibial (e.g. weak, bounding, present with doppler)
- Colour, warmth, movement, sensation (CWMS) of extremities
- Obtain daily weight – A.M. only, following first morning void or as per provider orders
- Presence, location, and degree of edema

  1+ = Slight pitting, no visible distortion, and disappears rapidly
  2+ = Deeper than 1+ and disappears in 10 to 15 seconds
  3+ = Noticeably deep and may last more than 1 minute with dependent extremity full and swollen
  4+ = Very deep and lasts 2 to 5 minutes with grossly distorted dependent extremity
- Palpate and inspect capillary refill for 3 seconds
- Temporary Epicardial Pacing wires, if present, are insulated and secured OR attached to temporary pulse generator (Cardiac Surgery ward only)

  Check battery indicator, ensure pacemaker connections and pulse generator secured to patient (Cardiac Surgery ward only). Follow B-00-13-10083 – *Epicardial Pacing and Pacing Wire Care on Cardiac Wards*
- Presence and location of chest tube(s) – See: BD-00-07-40011 – *Chest Tubes and Chest Drainage Systems: Patient Assessment and Interventions* for assessment and management of chest tube

- Ventricular Assist Device (Cardiology ward only) - if present, assess for:

	HeartMate 3 (HM3)	Heart Ware (HVAD)
Physical Bedside Assessment	- Flow (L/min) - Power (Watts) - Speed (RPM) - Pulsatility Index - Sound (auscultate for VAD hum) - Daily System Controller Self-Test Completed - Modular Inline Connector Secure & Inspected	- Flow (L/min) - Power (Watts) - Speed (RPM) - Sound (auscultate for VAD hum) - Backup Controller Assessment - Drive line secured
From Patient's Medical Records	- VAD Vitals Trend - Low Flow Alarm (Manufacturer Setting 2.5 L/min) - Low Set Speed	- VAD Vitals Trend - Low Flow Alarm - High Watts Alarm

For both HeartMate 3 and Heart Ware VADs – ensure drive line secured to anchor, site free from signs of infection, dressing dry and intact.

For Heart Ware VAD, see: B-00-12-10084 – *Ventricular Assist Device (VAD): Dressing Change (WARD)* for details.

For HeartMate 3 VAD, see B-00-12-10184 – *Ventricular Assist Device (VAD) – Heartmate 3 Dressing Change (Ward)* for details.

4. Respiratory System

- Inspect:
  - Respirations – rate, depth, dyspnea, cough or presence of sputum
  - Chest expansion – symmetry and quality
  - Use of accessory muscles
- Auscultate anterior and posterior lung fields for quality, depth and location of any adventitious sounds
- Assess oxygen requirements and delivery method
- Presence and location of chest tube(s). See: BD-00-07-40011 – *Chest Tubes and Chest Drainage Systems: Patient Assessment and Interventions* for assessment and management of chest tube

5. Gastrointestinal System

- Diet type and appetite
- Presence of nausea or vomiting
- Bowel function – most recent bowel movement, quality and quantity

- Abdomen – distension, presence of ascites, presence and quality of bowel sounds
- Abdominal girth if ordered and PRN
- Nasogastric (NG) tube assessment, if present, refer to B-00-13-10045 – *Tube Feeding: Small Bore (Entriflex) ACUTE CARE ONLY*
- Ostomy pouch, if present, - assess for skin integrity, output, consistency and amount
- Intake and output, if appropriate
- Adult Swallowing Screen (i.e. dysphagia screening) completed

6. Genitourinary System

- Volume, colour and quality of urine output
- Assess for urinary retention, signs and symptoms of a UTI. Consider bladder scan if urinary retention suspected
- Urinary catheter - type and size of catheter
- Assess need for catheter and remove promptly. See: B-00-13-10121 - *Urinary Catheters: Management for Prevention of UTI*
- Urostomy pouch, if present, - assess for skin integrity, leakage, and amount of output
- Assess patient's preference for toileting method

7. Integumentary System

- Inspect – colour/pigmentation, temperature, turgor, moisture, ecchymosis
- Braden Scale completed every shift. See: B-00-07-10099 – *Pressure Injury: Prevention and Management in Adults & Children (Summary)*
- Presence and nature of wounds, lesions, or incisions - including Negative Pressure Wound Therapy
- Presence of incision, staples or sutures
- Dressings – location and integrity
- Presence of drains and drainage - amount, colour, consistency, odour (if applicable)

8. Musculoskeletal System

- Inspect - any obvious signs of musculoskeletal abnormalities (e.g. posture, gait, etc.)
- Assess patient's ability to participate in ADLs (e.g. hygiene)
- Range of motion (ROM) – any abnormalities noted during normal care activities
- Muscle strength and symmetry
- Mobility – perform a Quick Mobility Screen prior to transferring patient; assess type of assist required (e.g. no assist required or type of mobility aid required). PT/OT referral, as needed

9. Psychosocial

- Nature of interactions with others
- Mood & affect
- Family and visitor presence

10. Safety

- Ensure Telemetry alarms (i.e. heart rate and arrhythmia) reviewed and appropriate to patient condition
- Call bell within reach
- Bed brakes on
- Side rails in appropriate position
- Bed in lowest position
- Bed/chair alarm on, if appropriate
- Safety equipment at bedside: Yankauer suction, suction tubing and simple face mask
- Functional suction – suction flow meter, disposable suction canister with lid
- Functional oxygen flow meter with nipple adaptor
- Risk alert signage present, if appropriate (e.g. falls, hard of hearing, NPO)
- "Red Socks" on, if appropriate
- Room free from clutter

11. Equipment

- IV Therapy
  - Line type (e.g. PIV, CVC/PICC), location and date of insertion
  - IV line saline locked or TKVO
  - Patency, swelling or redness around site
  - IV tubing dated and not expired
  - Correct medication infusing: drug, concentration, dose and rate

Focused Assessment:

- **Neurological System**
  - Level of consciousness (LOC), using Glasgow Coma Scale
  - Assess for any obvious changes in behaviour, mood, speech, facial symmetry, and gait

- **Pain**
  - Presence and location of non-cardiac pain

- Severity of pain using a standardized pain assessment tool
- Sedation level if on opioids for pain (use Pasero Opioid-Induced Sedation Scale, see Appendix B)

- **Cardiovascular System**
  - Interpret cardiac rhythm (if on cardiac monitoring) and mount strip on ECG Strip Flowsheet if change in rhythm noted
  - Presence of chest pain, chest discomfort or other symptoms suggesting cardiac ischemia (determine patient's usual symptoms of ischemia if applicable)
  - Presence and degree of edema
  - Ventricular Assist Device (Cardiology ward only) - if present, assess for
    - Flow (L/min)
    - Power (Watts)
    - Speed (RPM)
    - Pulsatility Index (for HeartMate 3 only)
    - Auscultate VAD sounds

- **Respiratory System**
  - Inspect:
    - Chest expansion – symmetry and quality
    - Use of accessory muscles
    - Respirations – rate, depth, dyspnea, cough or presence of sputum
  - After inspection auscultate breath sounds prn
  - Oxygen requirements and delivery method

Interventions

Plan and implement nursing care for identified problems

- Evaluate effectiveness of interventions accorded to identified goals or outcomes
- Report any significant changes in condition or any deviation from written parameters to the most responsible member of the health care team
- Refer to specific protocols (e.g., chest pain, cardiac monitoring, cardiac cath lab, temporary pacing, vasoactive infusions etc.) for specific interventions

Documentation:

Use Interactive View and I&O to document:

- Vital Signs including NEWS2 Score
- COVID-19 Screening (if high risk exposure or if directed by IPAC)

- Head-to-Toe Assessment
- Nursing Interventions and Patient Response
- Pacemaker/Cardiac Rhythm Devices
- Intake and Output
- Lines and Devices (including Chest Tubes, Urinary catheter and Gastrointestinal Tubes)
- Environmental Safety Management
- Provider Notification
- Shift Report/Handoff
- Education Provided

- Document medication administration using the Medication Administration Wizard and Medication Administration Record (MAR)
- ECG Strip Flow Sheet: analyze and mount ECG rhythm strip
- Under Mechanical Circulatory Support Band – use Ventricular Assist Devices to document VAD assessment

Patient and Family Education

Explain routine assessment, purpose, and timing of any interventions required. Provide patient and family with relevant educational materials as appropriate.

Related Documents

1. B-00-13-10011 – Cardiac Monitoring
2. B-00-13-10032 – Chest pain Management (Outside Critical Care)
3. B-00-13-10010 – Pain: Postoperative; Patient Care
4. B-00-13-10034 – Inotropic Agents (Infusion) on Cardiology Ward (5A): Administration
5. B-00-13-10059 – Least Restraint: Care of the Patient at Risk for or Requiring Restraint (Acute and Sub Acute Care)
6. B-00-13-10062 – Cardiac Cath Lab: CICU/5A/B Patients Undergoing Percutaneous Transcatheter or Electrophysiology Procedures
7. B-00-13-10065 – Delirium: Assessment and Care (Acute Care)
8. B-00-13-10063 – Cardiac Cath Lab: Post-Procedure Care
9. B-00-13-10083 – Epicardial Pacing and Pacing Wire Care on Cardiac Wards
10. BCD-11-13-41001 – National Early Warning Score (NEWS2) for Clinical Deterioration in Adults

References

1. Ball, J., Dains, J.E., Flynn, J.S., Solomon, B.S., Stewart, R.W. (2015). Seidel's Guide to Physical Assessment, (8th ed). St. Louis, MO: Elsevier.
2. Jarvis, C. (2016). Physical Examination & Health Assessment (7th ed.). St. Louis, MO: Elsevier.

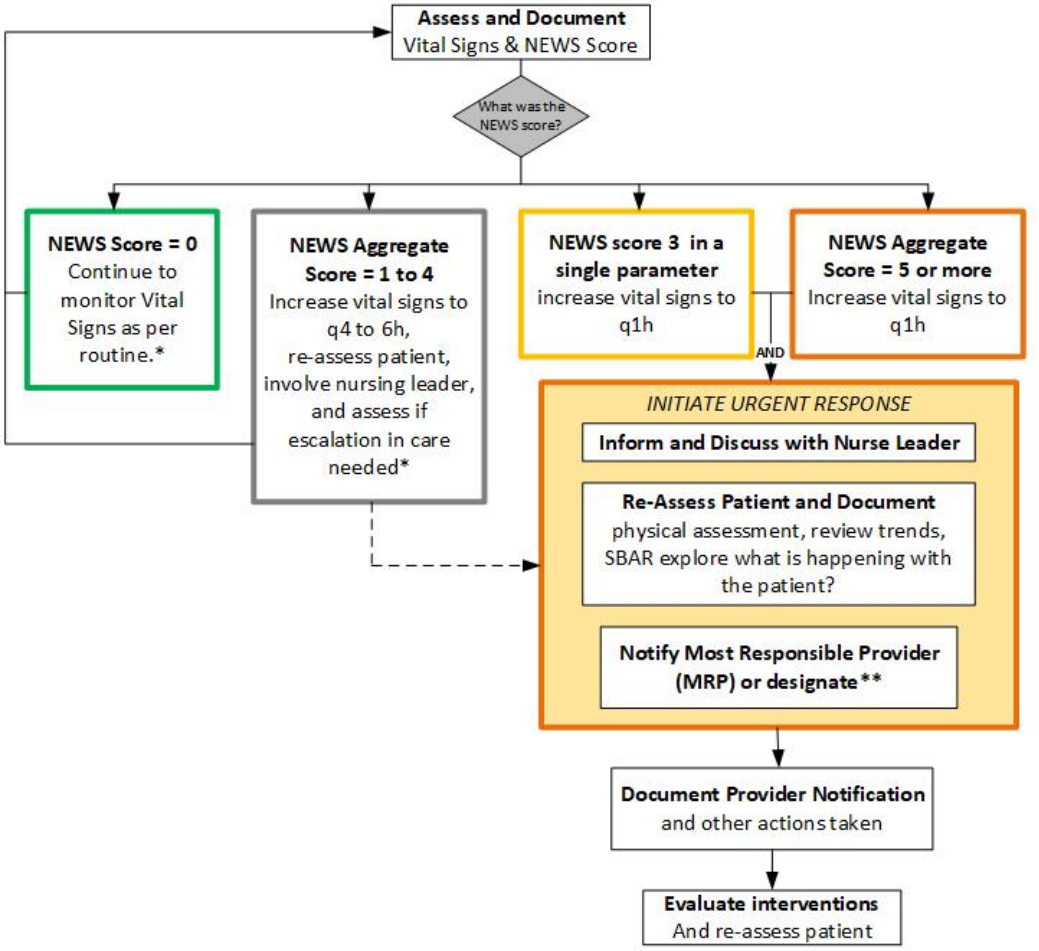
3. Perpetua, E. M., & Keegan, P. (2020). Cardiac Nursing (7th ed.). Wolters Kluwer Health. https://wolterskluwer.vitalsource.com/books/9781975106348
4. Teasdale, G., Prof, Maas, A., Prof, Lecky, F., Prof, Manley, G., MD, Stocchetti, N., Prof, & Murray, G., Prof. (2014). The Glasgow coma scale at 40 years: Standing the test of time. *Lancet Neurology, the, 13*(8), 844-854. doi:10.1016/S1474-4422(14)70120-6
5. Elsevier Clinical Skills – Assessment: Cardiovascular – CE
6. Elsevier Clinical Skills – Assessment: Thorax and Lungs – CE

Appendices

Appendix A: National Early Warning Score (NEWS2) Algorithm

Appendix B: Pasero Opioid-Induced Sedation Scale

Appendix A: National Early Warning Score (NEWS2) Algorithm



Clinician Responsibilities

Nurses will:

- **Ensure all care aligns** with the patient's goals of care.
- **Involve other members** of the care team when NEWS score is elevated as appropriate
- **Notify MRP** as appropriate, and urgently when NEWS score is elevated
- **Review and complete any orders** received, and perform interventions as appropriate.
- **Re-assess the patient** and evaluate the effect of care / interventions
- **Document** care delivered and assessments
- **Continue to escalate** care as appropriate until resolved or patient is transferred to a higher level of care (see escalation aid)

Providers will:

- **Ensure all care aligns** with the patient's goals of care.
- **Once notified,** make decisions about Initial treatment and next steps and **re-assess** the patient in person in a timely manner
- **Place orders,** provide instructions to the care team and perform interventions as needed.
- **Document** assessment and interventions
- **Evaluate/Re-evaluate** the care /interventions provided, which may include reassessing the goals of care.
- **Escalate care** (e.g., consult critical care) as needed

Notes: * = you can activate A Rapid Response or Clinical Resource Team (e.g. CCOT/NAR) if you are worried about your patient for any reason. You do not need to wait for an elevated NEWS value to raise any issues or concerns with the patient's care team or rapid response team; ** = both NEWS of 3 in a single parameter OR an aggregate NEWS of 5 or more meets the CCOT/NAR call criteria for activation

Appendix B: Pasero Opioid-Induced Sedation Scale

Pasero Opioid-Induced Sedation Scale (POSS)		
Score	**Meaning of Score**	
S	Sleep, easy to rouse	**Acceptable**; no action necessary; may increase opioid dose if needed
1	Awake and alert	**Acceptable**; no action necessary; may increase opioid dose if needed
2	Slightly drowsy, easily roused	**Acceptable**; no action necessary; may increase opioid dose if needed
3	Frequently drowsy, rousable, drifts off to sleep during conversation	**Unacceptable;** • remove PCA button if in use, hold next oral dose of opioid **and** NOTIFY prescriber /MD for adjustment of opioid orders • monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory • consider administering a non-sedating, non-opioid analgesic for pain i.e. acetaminophen or NSAID
4	Somnolent, minimal or no response to verbal and physical stimulation (use trapezius muscle squeeze for physical stimulation - do not use sternal rub)	**Unacceptable;** • stop opioid • oxygen by mask 10 L/min (if not COPD) and monitor vital signs • administer naloxone as per order • IMMEDIATELY page MD/ Prescribing Service physician STAT • **PROVIDE AIRWAY and BREATHING SUPPORT** • **DO NOT re-commence opioid therapy prior to patient being seen by the prescribing service physician**

Persons/Groups Consulted:

Clinical Nurse Leaders, 5AB

Nurse Educators, 5AB

Heart Centre Clinical Nurse Specialists

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