Site Applicability

The British Columbia Pediatric Early Warning System (BC PEWS) assessment and documentation guidelines are applicable to all areas where BC PEWS and BC PEWS ED have been implemented. This practice applies to all nurses providing care to pediatric patients in areas designated by your health authority.

Practice Level / Competencies

Conducting physical assessments, vital sign measurements and PEWS scoring, are foundational level competencies of registered nurses (RN), licensed practical nurses (LPN) and registered psychiatric nurses (RPN). In areas where various levels of care providers (LPN, Care Aide, Student Nurses, Employed Student Nurses) are assigned to patients, care of a deteriorating patient will be assumed by the RN.

Guideline Purpose

The purpose of this document is to provide direction for the use of the BC PEWS system, to support the early recognition, mitigation**,** notification, and response to the pediatric patient identified to be at risk of deterioration.

Background

Failure to identify and intervene with pediatric patients experiencing clinical deterioration is a source of unintended harm; including death, disability, and prolonged hospital stays or readmission. Internationally, Pediatric Early Warning Systems (PEWS) assist direct care nursing staff with early identification and mitigation of deterioration. The BC PEW system has 5 components: 1) a score based on physiologic assessment that indicates the degree of risk of deterioration (Appendix A), 2) an escalation guide based on the score (Appendix B), 3) pediatric documentation records that include vital signs norms by age groupings (Appendix C), 4) prompts for identification of situational awareness factors and 5) a communication framework (Appendix D). These components of BC PEWS are designed to work together with clinical judgement to provide a standardized framework and language to aid in identification of potential risk or deterioration in a child, mitigate that risk, and/or escalate care as needed, as early as possible.

It is important to remember PEWS is a system; it was designed so there is cumulative impact from using the various components together, alongside clinical judgement. For instance, for the purpose of identifying risk, the score provides a physiologic picture in the moment and a longitudinal picture when trended across time. However, the score will not capture contextual or situational factors surrounding the patient, nor the range of additional risks that may be noted from careful, systematic assessment or practitioner's clinical experience and judgement. Research and quality reviews demonstrate that scores alone may not capture, or only partially capture, risk for the following presentations: surgical risk; abnormal lab values; mental health concerns; changes in neurovital signs, or pain. In these instances, or when a practitioner has concerns about a patient's potential level of risk that is not reflected in the score, they should identify the patient as "watcher" patient to elevate the child's risk profile. In addition, a score will not capture the concerned voice of caregivers who know what is typical for their child (**caregiver concern**) or **communication breakdowns** that prevent critical information from flowing to or between team members. Using the score alongside situational awareness factors, comprehensive assessment guided by the assessment records, and in conjunction with clinical judgement, heightens the team's recognition of the bigger picture of risk. Further, PEWS as a whole promotes the careful documentation, communication and timely mitigation of this risk.

Definitions

Pediatric Patient:

- In emergency departments (EDs) and health authority-funded health centres: children up to their 17th birthday (16 years + 364 days); and
- In inpatient settings: children up to their 17th birthday (16 years + 364 days); and for children receiving ongoing care up to their 19th birthday (18 years + 364 days).

Pediatric Early Warning System (PEWS) Score: Relevant patient assessment findings for cardiovascular, respiratory, behavioural parameters as well as persistent vomiting following surgery and use of bronchodilators every 20 minutes are collected, documented, and summated into a score. The score can be used to identify patient physical deterioration at a single point in time or through trend monitoring, to optimize chances for early intervention.

Situational Awareness: Awareness of the factors associated with the risk of pediatric clinical deterioration. For PEWS this consists of 5 risk factors: Patient/Family/Caregiver Concern, Watcher Patient, Communication Breakdown, Unusual Therapy, and PEWS Score 2 or higher.

Patient/Family/Caregiver Concern: A concern voiced about a change in the patient's status or condition (e.g. concern has the potential to impact immediate patient safety, family states the patient's condition is worsening or they are not behaving as they usually would).

"Watcher" Patient: A patient that you identify as requiring increased observations (e.g. unexpected responses to treatments, a child acting differently from their norm, surgical risk, abnormal lab results, abnormal neurovitals, an aggressive patient, a patient admitted involuntarily under the mental health act, over/under hydration, pain, edema, "gut feeling").

Communication Breakdown: Describes clinical situations when there is lack of clarity about treatment, plan, responsibilities, conversation outcomes and language barriers.

Unusual Therapy: Unfamiliarity with a medication, protocol and/or department by the health care provider (e.g. new and/or low frequency and/or high risk medication or process). Applying the unusual therapy factor brings increased awareness to patient care, support and planning.

PEWS Score 2 or higher: A score of 2 or higher should trigger increased awareness, notification, planning, assessment, and resource review.

SBAR: The Situation-Background-Assessment-Recommendation (SBAR) technique provides a framework for communication between members of the health care team about a patient's condition. SBAR is an easy-to-remember, concrete mechanism useful for framing any conversation, especially critical ones, requiring a clinician's immediate attention and action. It allows for an easy and focused way to set expectations for what will be communicated and how between members of the team, which is essential for developing teamwork and fostering a culture of patient safety.

Procedure

IDENTIFICATION OF PATIENTS AT RISK FOR DETERIORATION	***Rationale***
A. Emergency Setting – RN	
1. At **TRIAGE** complete a full set of vital signs and calculate the **PEWS and CTAS** scores. **Note:** A CTAS 1 patient requiring **EMERGENT** or **RESUSITATION** level of care will not have a PEWS score completed at triage. If the child responds positively to treatment, applying PEWS can be considered at any point.	*PEWS at triage establishes a baseline and can support the assignment of a CTAS score.*

IDENTIFY any situational awareness factors present for your patient.	*Situational awareness is part of the profile of risk and should be used to capture risk beyond the score.*
2. Refer to CTAS and your site's BC PEWS ED ESCALATION AID. **VERBALLY** report identified risk **using SBAR if PEWS score is elevated and/or situational awareness factors are present.** **DOCUMENT** time of escalation and steps taken. If escalation of a patient with an elevated score is delayed temporarily due to a transient issue e.g. upset, effect of medication, **DOCUMENT** decision and your plan for reassessment.	*BC PEWS ED escalation aid is not a substitute for clinical judgment but aids and supports identification and mitigation of risk. SBAR supports communication of risk.*
3. **REPORT** the PEWS score to the most responsible RN when the patient is moved into a care area.	
4. RN to conduct a primary and secondary **ASSESSMENT.** Including Vital Signs, PEWS observations and situational awareness factors.	*Supports standardized assessment.*
5. **DOCUMENT** your patient's assessment at the bedside, including the PEWS Score and situational awareness factors identified.	*Promotes communication and allows for trending throughout patient stay.*
6. **DOCUMENT any steps taken to escalate care if PEWS score is elevated and/or situational awareness factors are present.**	
7. **RE-ASSESS** your patient per the frequency identified in the health authority/agency standards, physician/nurse practitioner orders, CTAS guidelines, and/or escalation aid used in your agency.	*Ongoing re-assessments to identify early signs of clinical deterioration and support mitigation strategies.*
8. **SCREEN for SEPSIS if:** ▪ The patient's heart rate is in the critical PEWS score of 3; or ▪ The PEWS score increases by 2; or ▪ The patient's temperature is above 38°C or less than 36°C	*Early identification and intervention is essential for managing sepsis.*
B. Admitted Inpatient Setting – RN	
1. Prior to shift handover **REVIEW** patients and **NOTE PATIENTS IDENTIFIED AS HIGHER RISK**. Continue to check status of identified patients throughout the shift.	*Increase team awareness of unit status for patients at risk.*
2. Using SBAR, **VERBALLY** report identified **patients at risk** as per hospital protocols or escalation aid	*Shared communication increases awareness of where resources may be needed.*
3. **BE AWARE** of other patients **at risk on unit.**	
4. At beginning of shift, or when you assume responsibility for a patient: conduct a full head-to-toe **ASSESSMENT** of your patient including vital signs and PEWS observations.	*Establishes a baseline.*
5. **IDENTIFY** any situational awareness factors present for your patient.	
DOCUMENT your patient's assessment at the bedside, including the PEWS Score and any identified situational awareness factors.	*Promotes communication and allows for trending.*
6. **DOCUMENT any steps taken to escalate care if PEWS score is elevated and/or situational awareness factors are present.**	
7. **RE-ASSESS** your patient per the frequency identified in the health authority/agency standards, physician/nurse practitioner orders, or escalation aid used in your agency.	*Ongoing re-assessments to identify early signs of clinical deterioration and support mitigation.*

9. **SCREEN for SEPSIS if:** ▪ The patient's heart rate is in the critical PEWS score of 3; or ▪ The PEWS score increases by 2; or ▪ The patient's temperature is above 38°C or less than 36°C	*Early identification and intervention is essential for managing sepsis.*
C. Charge Nurse or RN Responsible for patient care unit	***Rationale***
1. **ATTEND** handover and **UPDATE** patient status on facility tracking system.	*Supports increased awareness and ongoing communication.*
2. During shift report, **LISTEN** to RN's report of patients and ensure patients at risk are identified.	*Make sure everyone is aware of patients at risk. Establish baseline.*
3. **NOTIFY** site manager or delegate of at risk patients. If applicable in your facility, **ATTEND** bedside meeting**.**	*Contribute to system view of patients in hospital.* *Notification of potential resources.*
4. **CHECK-IN** every 4 hours or sooner if required; engage RNs in coaching conversations using 6 questions to determine patients at risk, plan of care, supports required and follow-up: a. What is going on now? b. What have you done already? c. What still needs to be done/What are the barriers to care? d. What are the next steps? e. What support do you need? f. When/How will we follow up? ** If nurses do not check in then the Charge Nurse or delegate is to seek them out for check-ins*	*Understand areas of concern.* *Support plans as required.* *Escalate as required.*
5. **UPDATE** visual cues–using your agency's communication tool.	*Visual cues signal all team members of patients at risk.*
6. **CHECK-IN** with manager, supervisor or designate and **REPORT** patients at risk.	*Communicate areas of concern.* *Trouble shoot plan of care.* *Escalation support.*
NOTIFICATION/RESPONSE TO IDENTIFIED PATIENTS AT RISK-RN	***Rationale***
1. **Using SBAR, REPORT** identification of at risk patient and/or changes to the Charge Nurse.	*Facilitates timely notification to team members.*
2. **Actions** for identified risks: a. Follow the health authority/agency standards, physician/nurse practitioner orders, or escalation aid used in your agency (which may be modified from the BC PEWS Escalation Aid, to reflect the resources and processes specific to your site). b. Document and address Situational Awareness Factors c. Discuss plan of action with charge nurse or delegate and notify required health care team members for support. *NOTE: The BC PEWS Escalation Aids are not a substitute for clinical judgment; but rather tools to be used in conjunction with clinical judgement, to aid you in identifying patients at risk, and accessing resources to mitigate that risk as soon as possible.* **For any patient with a life-threatening condition, escalate care immediately as per your health authority code procedure.**	
3. **IMPLEMENT** and **DOCUMENT** actions to mitigate identified risk. *Note: if no action is being taken in response to identified risk, document reasoning and plan for reassessment.*	*Delay in response could cause patient harm.*

4. **RE-EVALUATE** patient and response to actions.	*Ongoing re-assessments to identify patient response to mitigation strategies and identify status changes.*
5. **DOCUMENT** all responses and assessment findings/changes on: ▪ BC PEWS Vital signs record; and/or ▪ BC PEWS Inpatient Flowsheet; and/or ▪ BC PEWS ED Vital Sign Record; and/or ▪ BC PEWS ED Pediatric Emergency Nursing Assessment Record; or ▪ The designated electronic health record used in your health authority/agency.	*Promotes communication and allows for trending and monitoring.*
6. **Communicate** updated PEWS assessment and level of risk to the charge nurse and members of the healthcare team following each assessment as needed.	*Facilitates timely notification to team members*

Related Documents

** Documents are labelled for ED as 'BC PEWS ED', for inpatients as 'BC PEWS Inpatients', or if applicable to both areas, 'BC PEWS*

For patient documentation:

1. BC PEWS Inpatient Flowsheets/BC PEWS ED Vital Sign Records:
   - 0-3 months
   - 4-11 months
   - 1-3 years
   - 4-6 years
   - 7-11 years
   - 12 + years
2. BC PEWS ED Pediatric Emergency Nursing Assessment Record
3. BC PEWS ED Pediatric Emergency Nursing Assessment Record – Treatment

Support documents:

1. BC PEWS Vital Sign Assessment and Documentation Guidelines
2. Instructions for using the BC PEWS Inpatient Flowsheet
3. BC PEWS ED Instructions for Using the Vital Sign Record
4. BC PEWS Situational Awareness Poster
5. Child Health BC Modified Sepsis Screening Tool

Document Creation / Review

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Appendices

A. Brighton PEWS Scoring Tool
B. BC PEWS Escalation Aid for Inpatient & Emergency Settings
C. Pediatric Vital Sign Parameters by Age Group
D. SBAR Tool
E. Disclaimer

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Appendix A: Brighton PEWS Scoring Tool

Brighton Pediatric Early Warning Score					
	0	**1**	**2**	**3**	**SCORE**
Behaviour	Playing Appropriate	Sleeping	Irritable	Lethargic **&/OR** Confused **&/OR** Reduced response to pain	
Respiratory	Within normal parameters No recession or tracheal tug	10 above normal parameters, *Using accessory muscles,* **&/OR** *30+% FiO2 or 4+ liters/min*	>20 above normal parameters recessing/retractions, tracheal tug **&/OR** 40+% FiO2 or 6+liters/min	5 below normal parameters with sternal recession/retractions, tracheal tug or grunting **&/OR** 50% FiO2 or 8+liters/min	
Cardiovascular	Pink **&/OR** capillary refill 1-2 seconds	Pale **&/OR** capillary refill 3 seconds	Grey **&/OR** capillary refill 4 seconds Tachycardia of 20 above normal rate.	Grey and mottled or capillary refill 5 seconds or above **OR** Tachycardia of 30 above normal rate or bradycardia	
				Q 20 minutes bronchodilators &/OR persistent vomiting following surgery (2 points each)	
				TOTAL PEWS SCORE	

(Modified from: Monaghan, 2005)

Appendix B: *BC PEWS Escalation Aid for Inpatient and Emergency Department Settings*

Always use clinical judgement in conjunction with the Escalation Aid

PEDIATRIC EARLY WARNING SYSTEM SCORE	0 – 1	2	3 * For a score of "3" in any one category consider higher escalation	4 &/or score increases by 2 after interventions	5 – 13 or score of "3" in one category
Notify		• Consider reviewing patient with a more experienced healthcare provider	• As per PEWS Score 2	• As per PEWS Score 2 **AND** notify most responsible physician (MRP) or physician delegate • Based on rate of deterioration, consider pediatrician consult	• MRP to assess patient immediately (& pediatrician if available) • If MRP unable to attend, call for STAT physician review • Appropriate senior review
Plan				• MRP or delegate communicate a plan of care to mitigate contributing factors of deterioration • Communicate plan of care to the patient and/or family	• As per PEWS Score 4
Assessment	• Continue assessment, monitoring and documentation as per orders & routine protocols	• As per PEWS Score 1	• Increase frequency of assessments & documentation as per plan from consultation with more experienced healthcare provider	• Increase frequency of assessments & documentation as per plan	• As per PEWS Score 4

Resources			• Escalate if further consultation required or if resources do not allow for safe monitoring and care	• Reassess adequacy of resources and make changes as needed:
				  • RN to patient ratio
				  • Location: ensure appropriate level of skill, equipment, medication and resources available.
				• Consider internal or external consult or transfer to higher
					• As per PEWS Score 4

SITUATIONAL AWARENESS	
	If patient is assessed with one or more of the following situational awareness factors: ☐ Parent concern ☐ Watcher patient ☐ Unusual therapy ☐ Breakdown in communication Follow PEWS Score 2 actions

Appendix C: Pediatric Vital Sign Parameters by Age Group

"Normal" range determined by using highest of low range and lowest of high range of vital sign parameters

	Age Group	CTAS 4-5	No score	Yellow (Score 1)	Gold (Score 2)	Red (Score 3)
Respiratory Rate	0-3 mos	35-51	31-60	61-70	71 or higher	30 or less
	4- 11 mos	33-44	29-53	54-63	64 or higher	28 or less
	1-3 yrs	29-30	25-39	40-49	50 or higher	24 or less
	4-6 yrs	21-22	17-31	32-41	42 or higher	16 or less
	7-11 yrs	19	15-28	29-38	39 or higher	14 or less
	12 plus yrs	16	12 - 25	26-35	36 or higher	11 or less
Heart Rate	0-3 mos	127-143	104-162		163-172	173 or higher AND 103 or less
	4- 11 mos	127-140	109-159		160-169	170 or higher AND 108 or less
	1-3 yrs	111-120	89-139		140-149	150 or higher AND 88 or less
	4-6 yrs	88-109	71-128		129-138	139 or higher AND 70 or less
	7-11 yrs	78-95	60-114		115-124	125 or higher AND 59 or less
	12 plus yrs	67-85	50-104		105-114	115 or higher AND 49 or less

Blood Pressure	Systolic (mmHg)	Diastolic (mmHg)	Mean Arterial Pressure (mmHg)
0-28 days ***	60-84	30-53	40 or higher
1-3 mos*	73-105	36-68	48 or higher
4- 11mos*	82-105	46-68	58-80
1-3 yrs†	85-109	37-67	53-81
4-6yrs†	91-114	50-74	63-87
7-11 yrs†	96-121	57-80	70-94
12 plus yrs†	105-136	62-87	76-103

*BP ranges modified from American Heart Association (2012). Pediatric emergency assessment, recognition, and stabilization (PEARS), provider manual.
†BP ranges modified from National Heart Lung and Blood Pressure Institute. (2004). The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. Pediatrics. 114(2): 555-576.
** Perinatal Services BC Newborn Guideline 13 Newborn Nursing care Pathway (2013).
*** American Heart Association (2012). Pediatric emergency assessment, recognition, and stabilization (PEARS), provider manual

Appendix D: SBAR Tool

S	**Situation:** *What is the situation you are calling about?* I am (name), a nurse on ward (X) I am calling about (patient X) I am calling because I am concerned that… (e.g. BP is low/high, pulse is XX, temperature is XX, PEWS score is X)
B	**Background**: *Pertinent Information & Relevant History* Patient (X) was admitted on (XX date) with…(e.g. respiratory infection) They have had (X procedure/investigation/operation) Patient (X)'s condition has changed in the last (XX mins) Their last set of vital signs were (XXX)
A	**Assessment:** *What do you think the problem is?* I think the problem is (XXX) and I have…(e.g. applied oxygen/given analgesia, stopped the infusion) OR I am not sure what the problem is but the patient (X) is deteriorating OR I don't know what's wrong but I am really worried
R	**Recommendation:** *What do you want to happen?* I need you to… Come to see the child in the next (XX mins) AND Is there anything I need to do in the meantime? (give a normal saline bolus/repeat vitals/start antibiotics)
Ask receiver to repeat key information to ensure understanding	

Appendix E: Disclaimer

Child Health BC develops evidence-based clinical support documents that include recommendations for the care of children and youth across British Columbia. These documents are intended to give an understanding of a clinical problem, and outline one or more preferred approaches to the investigation and management of the problem. These documents are for guidance only and not intended as a substitute for the advice or professional judgment of a health care professional, nor are they intended to be the only approach to the management of a clinical problem. Healthcare professionals should continue to use their own judgment and take into consideration context, resources and other relevant factors. Neither Provincial Health Services Authority nor Child Health BC assume any responsibility or liability from reliance on or use of the documents.