Guideline Purpose

To provide guidance and direction for the use of the British Columbia Pediatric Early Warning System (BC PEWS). The PEWS system supports the early recognition, mitigation**,** notification, and response to the pediatric patient identified to be at risk of deterioration.

Practice Level / Competencies

Conducting physical assessments, vital sign measurements and PEWS scoring are foundational level competencies of registered nurses (RN) and licensed practical nurses (LPN).
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.

Background

The PEWS provides evidence-informed methods to assess children in different age groups, using vital signs parameters and risk indicators supported by evidence to be reliable indicators of deterioration. The system is made up of a risk score based on physiological findings, evidence based risk factors (situational awareness), escalation responses, and a communication framework. Together these system parts are designed to provide a standardized framework and language to identify potential deterioration in a child, mitigate that risk, and escalate care as needed as early as possible.

Site Applicability

This practice applies to all pediatric patient care areas that have been designated by your health authority.

Definitions

Pediatric Patient:

- Children up to their 17th birthday (16 years + 364 days) in Hospital emergency departments (EDs) and Health Authority-funded health centres;
  and
- New patients: up to a child’s 17th birthday (16 years + 364 days); and children receiving ongoing care: up to a child’s 19th birthday (18 years + 364 days) in Hospital inpatient settings.

Pediatric Early Warning System Score: Relevant patient assessment findings such as cardiovascular, respiratory, behavioural data as well as persistent vomiting following surgery and use of bronchodilators every 20 minutes is 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 patients is worsening or they are not behaving as they normally would).

"Watcher" Patient: a patient that you identify as requiring increased observations (e.g. unexpected responses to treatments, child different from "normal", surgical risk, abnormal lab results, abnormal neurovitals, aggressive patient, "certified" patient, over/under hydration, pain, oedema, "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 or protocol in the department or by the health care provider (e.g. new and/or low frequency and high risk medication or process). Applying the unusual therapy 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/Urgent Care Setting-RN	
1. At **TRIAGE** complete a full set of vital signs and calculate the **PEWS and CTAS** scores and complete **SEPSIS SCREEN**. **Note:** A patient requiring **EMERGENT** or **RESUSITATION** level of care may not have a PEWS score completed at triage. If the child responds positively to treatment, applying a PEWS score can be considered at any point. Children who continue to be in a decompensated or resuscitated state should be managed according to site procedures and physician orders. Referring to the Escalation aid (red zone) may offer useful support and recommendations in care, planning, consultation and transfer.	*Establishes a baseline and supports the assignment of a CTAS score* *PEWS and the Escalation Aid are not a substitute for clinical judgment but rather tools to aid you in identifying patients at risk, and accessing resources to mitigate that risk as soon as possible*
2. **IDENTIFY** any situational awareness factors present for your patient.	
3. Refer to your sites **ED PEWS ESCALATION AID.** **VERBALLY** report identified at risk patients using SBAR and document time of escalation and steps taken.	*Communication for rest of health care team*
4. **REPORT** the PEWS to the most responsible RN when the patient is moved into a care area.	
5. RN responsible for patient to conduct a primary and secondary **ASSESSMENT.** Including Vital Signs and PEWS observations.	*Establishes a baseline and trending of vital signs*

6. **DOCUMENT** your patient's assessment at the bedside, including the PEWS Score and any identified situational awareness factors. **RE-ASSESS** your patient per the frequency identified in the physician orders, care plan, escalation aid for your agency and Health Authority specific guidelines.	*Communication for rest of health care team* *Ongoing re-assessments to identify early signs of clinical deterioration and support mitigation strategies*
7. **SEPSIS SCREEN** is to be conducted using the Provincial Sepsis Screening Tool if the PEWS score increases by 2 or meets sepsis critical heart rates and/or temperature.	*Early identification and intervention is key*

B. Admitted Inpatient Setting -RN	
1. Prior to shift handover **REVIEW** patients and **NOTE IDENTIFIED** at risk patients. Continue to check status of identified patients throughout the day	*Increase team awareness of unit status for at risk patients.*
2. **VERBALLY** report identified **at risk patients** using SBAR	*Shared communication increases awareness of where resources may be needed.*
3. **BE AWARE** of other patients **at risk**	
4. At beginning of shift, or when you assume responsibility conduct a full head-to-toe **ASSESSMENT** of your patient	*Establishes a baseline*
5. **IDENTIFY** any situational awareness factors present for your patient	
6. **DOCUMENT** your patient's assessment at the bedside, including the PEWS Score and any identified situational awareness factors. **RE-ASSESS** your patient per the frequency identified in the physician orders, care plan, escalation aid for your agency and Health Authority specific guidelines.	*Communication for rest of health care team*
7. **SEPSIS SCREEN** is to be conducted if the PEWS score increases by 2 or meets sepsis critical heart rates and/or temperature.	*Early identification and intervention is key*
C. Charge Nurse or RN Responsible for patient care unit	***Rationale***
1. **ATTEND** handover and **UPDATE** at risk 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 at risk patients are identified.	*Make sure everyone is aware of at risk patients. Establish baseline*
3. **NOTIFY** site manager or delegate of at risk patients. If applicable in your facility, **ATTEND** bed 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 conversation using 6 questions to determine at risk patients, 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 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 to signal all team members of at risk patients*
6. CHECK-IN with manager, supervisor or designate and **REPORT** at risk patients.	*Communicate areas of concern* *Trouble shoot plan of care* *Escalation support*

NOTIFICATION/RESPONSE TO IDENTIFIED AT RISK PATIENTS - RN	*Rationale*
1. **REPORT** using **SBAR** identification of patient at risk and/or progress with patient at risk to the Charge Nurse per the frequency identified in the physician orders, care plan, and escalation aid for your agency.	*Facilitates timely notification to team members*
2. **Actions** for identified risks: a. Follow the escalation aid **for your agency** which may be modified from the Provincial PEWS Escalation Aid, to reflect the resources and processes specific to your site. *NOTE: Provincial PEWS and the Escalation Aid are not a substitute for clinical judgment but rather tools 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**	

BC PEWS Inpatient/Admitted Provincial Escalation Aid

PEDIATRIC EARLY WARNING SYSTEM SCORE	0-1	2	3	4 and/or score increases by 2 after interventions	5-13 or score of "3" in one category
Notify		Review patient with a more experienced healthcare provider Escalate if deemed further consultation required OR resources do not allow to meet care needs	As per PEWS score 2	As per PEWS Score 2 **AND** notify most responsible Physician (MRP) or delegate Consider pediatrician consult if patient deteriorates further	As per PEWS score 4 **AND** MRP to assess patient immediately (& pediatrician if available) If MRP unable to attend call for STAT physician review as per MRP's directions Appropriate "senior" review
Plan				MRP or delegate to communicate a plan of care to mitigate contributing factors of deterioration	As per PEWS Score 4

	Assessment	Continue monitoring & 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 & document as per plan	As per PEWS Score 4
	Resources				Reassess adequacy of resources available and escalate to meet deficits Consider internal or external transfer to higher level of care	Increased nursing (1:1) care with increasing interventions as per plan Reassess care location – consider internal or external transfer to higher level of care
SITUATIONAL AWARENESS		If patient is assessed with one or more of the following situational awareness factors; ☐ Parent concern about child's condition ☐ Watcher patient ☐ Unusual therapy ☐ Breakdown in communication	→ Follow PEWS Score 2 actions			

BC PEWS Emergency/Urgent Care Provincial Escalation Aid

PEDIATRIC EARLY WARNING SYSTEM SCORE		0-1	2	3	4 and/or score increases by 2 after interventions	5-13 or score of "3" in one category
	Notify		RN reviews patient with the ED senior nurse (e.g. charge nurse, PCC) and identifies if escalation is required. If so, notify MRP	As per PEWS score 2	RN notifies the most responsible physician (MRP) or physician delegate. Based on rate of deterioration Emergency Physician (EP) to consider consulting a physician	MRP to assess patient immediately (& pediatrician if available) If MRP unable to attend, RN calls EP for a STAT physician review. Appropriate for "senior" review
	Plan				MRP or delegate to communicate a plan of care to mitigate contributing factors of deterioration	As per PEWS Score 4
	Assessment	Nurse (RN) continues assessments and monitors RN documents VS and PEWS score as per unit/Health Authority guideline	As per PEWS Score 1	Increase frequency of assessments & documentation as per plan from consultation with more experienced healthcare provider	RN increases frequency of assessments & documentation of VS and PEWS score	As per PEWS Score 4
	Resources				ED senior nurse will assess the RN to patient ratio and make changes as needed ED senior nurse assesses care location to ensure the appropriate level of skill mix, equipment, medication and resources available Senior nurse and MRP or physician delegate considers internal or external transfer to higher level of care	Senior nurse arranges increased nursing care (1:1) with increasing interventions as per plan Patient will be moved to an acute care space within the ED Senior nurse and MRP or physician delegate considers external transfer to higher level of care
SITUATIONAL AWARENESS		If patient is assessed with one or more of the following situational awareness factors; ☐ Parent concern about child's condition ☐ Watcher patient ☐ Unusual therapy ☐ Breakdown in communication	→ Follow PEWS Score 2 actions			

b. Situational Awareness Factors • Discuss plan of action with charge nurse or delegate and notify required medical and if required, other health care team members for support.	
3. **IMPLEMENT** actions as indicated by the PEWS escalation aid **for your agency**.	*Delay in response could cause patient harm*
4. **RE-EVALUATE** patient and response to actions	
5. **DOCUMENT** all responses and assessment findings/changes on the PEWS documentation (flowsheet or ENAR) and nursing notes or the electronic health record **used in your agency.**	
6. **Communicate** updated PEWS assessment and level of risk to the charge nurse and members of the healthcare team following each assessment as needed	

Related Documents

1. Provincial PEWS Flowsheets/Emergency Nursing Assessment Records (ENARs)
   1.1. 0-3 months
   1.2. 4-11 months
   1.3. 1-3 years
   1.4. 4-6 years
   1.5. 7-11 years
   1.6. 12 + years
2. Instructions for use of the Provincial Pediatric Patient Flowsheet
3. Instructions For Use Of The Provincial Pediatric Early Warning System Vital Sign Record (emergency/urgent care)
4. Provincial PEWS Vital Sign Assessment and Documentation Guidelines
5. Situational Awareness Poster
6. Sepsis Screening Tool

Document Creation / Review

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Appendices

A. Brighton PEWS Scoring Tool
B. Pediatric Vital Sign Parameters
C. Situational Awareness Poster
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
B	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	
Cardiovasc	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					

(Monaghan, 2005)

Appendix B: Pediatric Vital Sign Parameters

“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.

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Appendix C: Situational Awareness

Situational Awareness

There are five risk factors that contribute to pediatric clinical deterioration:

Patient / Family / Caregiver Concern

A concern voiced about a change in the patient's status or condition. For example:

- A concern that has the potential to impact immediate patient safety
- Family states the patient is worsening or not behaving as they normally would

"Watcher" Patient

A patient that you identify as requiring increased observations. For example:

- Unexpected responses to treatments
- Child different from "normal"
- Aggressive patient
- "Certified" patient
- Over/under hydration
- "Gut" feeling

Communication Breakdown

Describes clinical situations when there is lack of clarity about:

- Treatment
- Plans Responsibilities
- Conversation outcomes
- Language barriers

Unusual Therapy

Includes staff unfamiliar with ward or department, therapy or process. For example:

- Float nurses or break coverage
- High risk infusion
- New medication or protocol for patient or nurse

Pediatric Early Warning System Score 2 or Higher

Relevant patient assessment findings are summated into a score that can be used to identify patient physical deterioration early, so to optimize chances for intervention. These include:

- Cardiovascular, respiratory and behavioural data
- Persistent vomiting following surgery
- Use of bronchodilators

A score of 2 or higher should trigger increased awareness.

Each of the factors is equally important as an indicator of risk and this "system" encourages nursing assessment of both subjective and objective risk. Cincinnati Children's Hospital found these 5 factors to be 100% sensitive (i.e. every child who deteriorated clinically had one or more of these factors when they audited 69 serious safety events in the hospital)

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.