

Site Applicability

The British Columbia Pediatric Early Warning System (BC PEWS) assessment and documentation guidelines are applicable to all areas where BC PEWS has been implemented. This practice applies to all nurses providing care to pediatric patients in areas designated by the 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 clear, standardized instructions for use of the BC PEWS Emergency Department Vital Sign Record. The BC PEWS supports 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 PEWS 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 knows 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 Score: Relevant patient assessment findings including 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 normally 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 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.

Abbreviations

Use only abbreviations that are included in the legend on the document and do not use any abbreviations or symbols that are on the "DO NOT USE" list (e.g. @, <, >) from Institute of Safe Medication Practice (ISMP)-Canada. Abbreviations used in this document:

BB	Blow by	mL	Milliliters
BiPAP	Bi-level Positive Airway Pressure	N	No
°C	Degrees Celsius	N/A	Not Applicable
cm	Centimeter(s)	NN	Nurses' Notes
CPAP	Continuous Positive Airway Pressure	NP	Nasal prongs
FT	Face Tent	NRB	Non-rebreather mask
HHF	Heated Humidified High Flow	PRB	Partial Rebreather Mask
M	Mask	q_h	Every ___ hours
MAP	Mean Arterial Pressure	RA	Room Air
MRP	Most Responsible Practitioner	SM	Simple Mask

Note: If your Health Authority has standards on Clinical Abbreviations, please follow those.

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Graphic Section

1. **Date: RECORD** date at top **Left** of page ensuring day, month and year are included (e.g. 12 SEP 2020 or SEP 12, 2020) spelling out the month using first 3 letters
2. **PATIENT IDENTIFICATION:** Addressograph or label BC PEWS ED Vital Sign Record in top **right** corner of each page.
3. **INITIAL** in the space provided above the time. Ensure that *full signature* has been recorded on the signature identification record located on the PEWS ED Vital Sign Record.
4. **Time: RECORD** the actual time of the assessment or intervention in the assigned space running across the top of the page. Use 24-hour clock format e.g. 0030
5. **RESPIRATORY SECTION:**
 - a. **RECORD** respiration rate using a • symbol. **NOTE:** draw a line to connect each subsequent rate symbol to create a visual trend. May record numerical value under dot.
 - b. **RECORD** oxygen saturations percentage.
 - c. **RECORD** any supplemental O₂ concentration delivered in litres per minute or oxygen percentage delivered in appropriate spaces.
 - d. **RECORD** supplemental O₂ mode of delivery (Room Air [RA], Nasal Prongs [NP], Mask [M], Blow By [BB], Heated Humidified High Flow Therapy [HHHF].

NOTE: The use of oxygen delivery via the blow by method is not recommended, as it is difficult to determine the exact percentage of oxygen and the actual dose received by the patient. If blow by method is used please document in the nurse's notes and provide clinical rationale.

- e. For Patients receiving **Heated Humidified High Flow Therapy (HHHF)**. **Record** the actual numerical value of oxygen % being delivered in the supplemental O₂ concentration box. **Record** the prescribed L/min flow in the mode of delivery box, noting 'HHHF' in front of 'mode of delivery'. Patients receiving HHHF will be scored based on the FiO₂ % delivered.
- f. **RECORD** level of respiratory distress using ✓ symbol to indicate **as** per Canadian Triage and Acuity Scale (CTAS) manual 2013 (p.42) definitions:

Severe: Excessive work of breathing, cyanosis; lethargy, confusion, inability to recognize caregiver, decreased response to pain; single word or no speech; tachycardia or bradycardia; tachypnea or bradypnea; apnea irregular respirations; exaggerated retractions, nasal flaring, grunting; absent or decreased breath sounds; upper airway obstruction (dysphagia, drooling, muffled voice, labored respiration's and stridor); unprotected airway (weak to absent cough or gag reflex); poor muscle tone.

Moderate: Increased work of breathing, restlessness, anxiety, or combativeness; tachypnea; hyperpnea; mild increased use of accessory muscles, retractions, flaring, speaking phrases or clipped sentences, stridor, but airway protected, prolonged expiratory phase.

Mild: Dyspnea; tachypnea; shortness of breath on exertion; no obvious increased work if breathing; able to speak in sentences; stridor without obvious airway obstruction; mild shortness of breath on exertion; frequent cough.

g. **CALCULATE** RESPIRATORY CATEGORY PEWS SCORE:

Document assessment findings on the BC PEWS ED Vital Sign Record for: respiratory rate, supplemental oxygen concentration/delivery and respiratory distress. The Respiratory PEWS score is calculated based on the most severe score in the category. The maximum score a patient can receive for the respiratory category is 3. Always score using the highest number in each category.

PEWS Scoring Legend:

0	1	2	3
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h. **RECORD** PEWS score for respiratory category in the appropriate box. **NOTE** if PEWS score is zero please record **0**.

NOTE: When caring for patients with Asthma PRAM score will be calculated and recorded on page 2 in the **CARE** section of the BC PEWS ED Vital Sign Record.

Date	July 19/19	Initials	MC	MC	MC	MC
Time	0600	0700	0800	0900		
Respiratory						
	O ₂ Saturation (%)	100	100	97	96	
	Supplemental O ₂					
	Concentration					
	Delivered					
	Mode of Delivery	RA	RA	RA	RA	
	Respiratory Distress					
	PEWS Score for Respiratory (record highest score)	2	1	2	2	

6. **CARDIOVASCULAR SECTION:**

- a. **RECORD** apical heart rate using • symbol. **NOTE:** draw use a line to connect each subsequent rate symbol to create a visual trend. May record numerical value under dot.
- b. **RECORD** blood pressure (BP) using ∨ symbol (BP is measured and documented but not included in the score).

Note: Indicate limb used for BP measurement (if other than arm), and patient position using the following symbols:

Lying Sitting Standing

- c. **RECORD** mean arterial pressure (MAP). Note: calculate MAP use the following equation:

$$\text{MAP} = \frac{\text{Systolic Pressure} + (2 \times \text{Diastolic Pressure})}{3}$$

- d. **RECORD** capillary refill time in seconds by pressing lightly on a peripheral site such as a nail or a central site such as the sternum. Normal capillary refill time is less than 2 seconds.
- e. **INDICATE** skin colour using a ✓ symbol in the appropriate box.

PINK/NORMAL – typical skin colour for the patient. Skin should be warm and well perfused.

PALE – lack of typical skin colour for the patient in the skin or mucous membranes.

GREY/CYANOTIC – bluish discolouration/tone throughout skin.

GREY & MOTTLED – irregular or patchy discolouration of the skin.

NOTE: Refer to the *BC PEWS Vital Sign, Assessment & Documentation Guidelines: Appendix D Skin Colour Terminology* for additional information.

- f. **CALCULATE** CARDIOVASCULAR CATEGORY PEWS SCORE (refer to instruction above in section 5. g).
- g. **RECORD** PEWS score for the cardiovascular section in the appropriate box. **NOTE** if PEWS score is zero please record **0**.

7. BEHAVIOUR SECTION:

- a. **INDICATE** assessed patient behaviour using a ✓ symbol in the appropriate box.
Behaviour is scored exactly as observed. If you are unsure about what is expected, please review the patient's behaviour with their family/caregiver and/or a more experienced health care provider.
PLAYING/APPROPRIATE- is the patient behaving as expected based on the current circumstances and the child's developmental level?
SLEEPING- is the patient sleeping? If the patient is sleeping (even at expected times) they receive a score.
IRRITABLE- is the patient inconsolable, restless, or agitated?
LETHARGIC/CONFUSED- does the patient have an altered mental status? Are they confused, disoriented, or presenting with severe drowsiness?
REDUCED RESPONSE TO PAIN- does the patient have an altered mental status? Do they respond only to pain?
- b. **CALCULATE** BEHAVIOUR CATEGORY PEWS SCORE (refer to instruction above in section 5. g).
- c. **RECORD** PEWS score for the behaviour section in the appropriate box. **NOTE** if PEWS score is zero please record **0**.

8. OTHER PEWS INDICATORS (score of 2 for each factor identified):

- a. **INDICATE** if the patient has **unexpected** persistent vomiting following surgery using a ✓ symbol in the corresponding box. **NOTE:** if this score is zero please record **0**.
Postoperative nausea and vomiting (PONV) is defined as any nausea, retching, or vomiting occurring during the first 24–48 hours after surgery. PONV is a common complication for pediatric patients, and is often expected. Persistent Vomiting refers to more than expected emesis. If you are unsure about what is expected, please review with a more experienced health care provider (Hohne, 2014; Pierre & Whelan, 2013).
- b. **INDICATE** if the patient is receiving a bronchodilator every 20 minutes using a ✓ symbol in the corresponding box. **NOTE:** if this score is zero please record **0**.

9. TOTAL PEDIATRIC EARLY WARNING SYSTEM (PEWS) SCORE:

- a. To obtain a total PEWS score, **ADD** the category scores together (respiratory + cardiovascular + behaviour + other PEWS indicators: persistent vomiting following surgery + bronchodilator every 20 minutes = maximum achievable score of 13).
- b. **CALCULATE** and **RECORD** total PEWS score with every set of vital signs. **NOTE** if PEWS score is zero please record **0**.

10. SITUATIONAL AWARENESS FACTORS:

- a. With each set of vital signs **ASSESS, IDENTIFY, and DOCUMENT** using a ✓ symbol any situational awareness factors present for your patient.

11. When the Escalation Process is activated:
 - a. **RECORD** the actual time using 24-hour clock format e.g. 0030.
 - b. **REVIEW** recommended actions in the *BC PEWS Escalation Aid for Inpatient & Emergency Settings*
 - c. **CONSULT** and **PLAN** with team members to determine appropriate steps to escalation care based on the escalation aid and health authority/agency standards.
12. **DOCUMENT** escalation actions taken to mitigate identified risk, the patient's response to interventions, and additional actions in the nursing note section of the Emergency Nursing Assessment Record (ENAR).
Note if no action is being taken in response to identified risk, document reasoning and plan for reassessment.
13. **TEMPERATURE:**
 - a. **RECORD** temperature in Celsius using • symbol. **NOTE:** draw a line to connect each subsequent symbol to create a visual trend. May record numerical value under dot.
 - b. **RECORD** route of temperature measurement: oral (O), axilla (A), rectal (R), temporal (T) and esophageal (E).

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1. **PATIENT IDENTIFICATION:** Addressograph or label BC PEWS ED Vital Sign Record in top **right** corner of each page.
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3. **INITIAL** in the space provided above the time. Ensure that *full signature* has been recorded on the signature identification record located on the PEWS ED Vital Sign Record.
4. **Time: RECORD** the actual time of the assessment or intervention in the assigned space running across the top of the page. Use 24-hour clock format e.g. 0030
5. **RECORD** using a ✓ symbol to indicate when a sepsis screen was completed. *Please use the sepsis screening tool identified by your health authority/agency.* Use NN to indicate that there is further documentation in the nursing notes section of the ENAR.
NOTE Sepsis Screening is recommended 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
6. **RECORD** the pain score, tool used and location of pain under the time column when pain was assessed. Pain score will be recorded as a numeric value. Name of tool and location of pain to be written in space provided. If more space is required document NN and record observations in the nurses notes section of the ENAR. If patient is on a continuous opioid infusion, epidural analgesia or PCA, refer to your health authority/agency specific documentation guidelines.
7. **RECORD** the patient's level of arousal score following the guidelines used in your health authority/agency.
8. When caring for patients with Asthma **CALCULATE** and **RECORD PRAM** scores per the guidelines used in your health authority/agency.
9. **RECORD** the End Tidal Carbon Dioxide (EtCO₂ or capnography) reading ____ mmHg per the guidelines used in your health authority/agency.

10. **RECORD** bedside numeric glucose value in _____ mmol/L **per** the guidelines used in your health authority/agency.

11. **NEUROLOGICAL**

- a. **ASSESS** Neurovital signs as ordered, clinically indicated or per the guidelines used in your health authority/agency.
- a. **Pupils: RECORD** pupil size using guide located on the bottom left corner of form. **RECORD** pupillary response using the following letters to indicate B = Brisk, S = Sluggish, and/or F = Fixed under the corresponding time column.
- b. Glasgow Coma Scale (GCS): **RECORD** using ✓ symbol to indicate the score for eye, verbal and motor response under the time column when the assessment was completed.
- c. **RECORD** total numeric score for GCS in the total score box under the corresponding time column.
- d. Muscle Strength: **RECORD** numeric score in appropriate box for each limb under corresponding time column.
- e. Color, Sensation and Warmth of Extremities: **RECORD** using ✓ symbol under the corresponding time column to indicate Normal or NN to indicate that there is further documentation in the Nursing Notes section of the ENAR.
- f. Bladder Function: **RECORD** using ✓ symbol under the corresponding time column to indicate Normal or NN to indicate that there is further documentation in the Nursing Notes section of the ENAR.

12. **RECORD** full signature and initials in space provided.

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 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 Clinical Decision Support Tool
2. BC PEWS Vital Sign Assessment and Documentation Guidelines
3. BC PEWS Situational Awareness Poster
4. BC PEWS Escalation Aid for Inpatient & Emergency Settings
5. Child Health BC Modified Sepsis Screening Tool

Document Creation / Review

Adapted from BC Children's Hospital by Child Health BC

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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

References

- American Heart Association. (2012). *Pediatric emergency assessment, recognition, and stabilization (PEARS), provider manual*. South Deerfield, MA: Author.
- BC Children's Hospital. (2013, December 31). *Instructions for use of BCCH inpatient flowsheet*.
- BC Children's Hospital. (2018, July 11). *Nursing assessment of pediatric patients and related documentation: Inpatient units*. Retrieved from <http://policyandorders.cw.bc.ca/resource-gallery/Documents/BC%20Children's%20Hospital/CC.03.01%20Nursing%20Assessment%20Of%20Pediatric%20Patients%20And%20Related%20Documentation%20Inpatient%20Units.pdf>
- Bradman, K., Borland, M., & Pascoe, E. (2012). Predicting patient disposition in a paediatric emergency department. *Journal of Paediatrics and Child Health*, 50, E39–E44.
- Brady, P.W. et al. (2013). Improving situational awareness to reduce unrecognized clinical deterioration and serious safety events. *Pediatrics*, 131(1), e298-e308.
- Breslin, K., Marx, J., Hoffman, H., McBeth, R., & Pavuluri, P. (2014). Pediatric early warning score at time of emergency department disposition is associated with level of care. *Pediatric Emergency Care*, 30(2), 97-103.
- Canadian Association of Emergency Physicians. (2013, November). *Canadian triage and acuity scale (CTAS) participant manual* (version 2.5b). Chaiyakulsil, C., & Pandee, U. (2015). Validation of pediatric early warning score in pediatric emergency department. *Pediatrics International*, 57, 694-698. doi: 10.1111/ped.12595.
- Duncan H., Hutchison J., & Parshuram C. (2006). The pediatric early warning system score: A severity of illness score to predict urgent medical need in hospitalized children. *Journal of Critical Care*, 21, 271-279.
- Gold, D. L., Mihalov, L. K., & Cohen, D. M. (2014). Evaluating the pediatric early warning score (PEWS) system for admitted patients in the pediatric emergency department. *Academic Emergency Medicine*, 21, 1249-1256. doi: 10.1111/acem.12514.
- Emergency Nursing Association. (2018). *Emergency nursing pediatric course (ENPC) provider manual* (5th ed.) Burlington, MA: Emergency Nursing Association.
- Fleming, S., Gill, P., Jones, C., Taylor, J.A., Van den Bruel, A., Heneghan, C., & Thompson, M. (2015). Validity and reliability of measurement of capillary refill time in children: a systematic review. *Archives of Disease in Childhood*, 100(3), 239-249. doi: 10.1136/archdischild-2014-307079.
- Heart & Stroke Foundation of Canada. (2011). *Pediatric advanced life support provider manual*. Ottawa, ON: Author.
- Hockenberry, M. J., Wilson, D., Rodgers, C. C. (2019). *Wong's nursing care of infants and children*. St. Louis, MO: Elsevier.
- Hohne, C. (2014). Postoperative nausea and vomiting in pediatric anesthesia. *Current Opinion in Anesthesiology*, 27(3), 303-308.
- Irish National Clinical Programme for Paediatrics and Neonatology (2017). *Irish Pediatric Early Warning System (PEWS) User Manual 2nd Edition*. Retrieved: <https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/pews-user-manual.pdf>
- Lillitos, P. J., Hadley, G., & Maconochie, I. (2016). Can paediatric early warning scores (PEWS) be used to guide the need for hospital admission and predict significant illness in children presenting to the emergency department? An assessment of PEWS diagnostic accuracy using sensitivity and specificity. *Emergency Medicine Journal*, 33, 329–337. doi:10.1136/emmermed-2014-204355.
- McElroy, T., Swartz, E.N., Hassani, K., Waibel, S., Tuff, Y., Marshall, C., Chan, C., Wensley, D., O'Donnell, M.

- (2019). Implementation study of a 5-component pediatric early warning system (PEWS) in an emergency department in British Columbia, Canada, to inform provincial scale up. *BMC Emergency Medicine*, 19 (74). doi:10.1186/s12873-019-0287-5
- Monaghan, A. (2005). Detecting and managing deterioration in children. *Paediatric Nursing*, 17(1), 32–35.
- National High Blood Pressure Education Program Working Group on High Blood Pressure in Children and Adolescents. (2004). The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. *Pediatrics*, 114 (Issue 2 Suppl), 555-576.
- Oldroyd, C., & Day, A. (2011). The use of pediatric early warning scores in the emergency department. *Journal of Emergency Nursing*, 37 (4), 374-375.
- Parshuram, C.S., et al. (2011). Multicentre validation of the bedside pediatric early warning system score: A severity of illness score to detect evolving critical illness in hospitalized children. *Critical Care*, 15, R184.
- Perry, S. E., Hockenberry, M. J., Lowdermilk, D. L., Wilson, D., Keenan-Lindsay, L. & Sams, C. A. (2017). *Maternal child nursing care in Canada* (2nd ed.). Toronto: Elsevier.
- Pierre, S., & Whelan, R. (2013). Nausea and vomiting after surgery. *Continuing Education in Anaesthesia, Critical Care & Pain*, 13(1), 28-32.
- Samson, R. A. (2017). *Pediatric Emergency assessment, recognition, and stabilization (PEARS) provider manual*. Dallas, TX: American Heart Association.
- Seiger, N., Maconochie, I., Oostenbrink, R., & Moll, H. A. (2013). Validity of different pediatric early warning scores in the emergency department. *PEDIATRICS*, 132(4), e841-e852. doi: 10.1542/peds.2012-3594.

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, <i>Using accessory muscles,</i> &/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	
Cardiovascula	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

PEDIATRIC EARLY WARNING SYSTEM SCORE		0 – 1	2	3	4	5 – 13
				* For a score of "3" in any one category consider higher escalation	&/or score increases by 2 after interventions	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 level of care	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)	*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	
	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		

Appendix D: SBAR Tool

S	Situation: <i>What is the situation you are calling about?</i> 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: <i>Pertinent Information & Relevant History</i> 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 minutes) Their last set of vital signs were (XXX)
A	Assessment: <i>What do you think the problem is?</i> 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: <i>What do you want to happen?</i> I need you to... Come to see the child in the next (XX minutes) 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.