

### BC PEWS Vital Signs Reference Card

| Age                   | Heart Rate<br>Beats per minute  | Respiratory Rate<br>Breaths per minute | Systolic / Diastolic BP | MAP mmHg     |
|-----------------------|---|--|-------------------------|--------------|
| <b>0 – 28 days*</b>   | 104 – 162   | 31 – 60                                | 60 – 80 / 30 – 53       | 40 or higher |
| <b>1 – 3 months*</b>  | 104 – 162   | 31 – 60                                | 73 – 105 / 36 – 68      | 48 or higher |
| <b>4 – 11 months*</b> | 109 – 159   | 29 – 53                                | 82 – 105 / 46 – 68      | 58 – 80      |
| <b>1 – 3 years†</b>   | 89 – 139  | 25 – 39                                | 85 – 109 / 37 – 67      | 53 – 81      |
| <b>4 – 6 years†</b>   | 71 – 128  | 17 – 31                                | 91 – 114 / 50 – 74      | 63 – 87      |
| <b>7 – 11 years†</b>  | 60 – 114  | 15 – 28                                | 96 – 121 / 57 – 80      | 70 – 94      |
| <b>12 plus years†</b> | 50 – 104  | 12 – 25                                | 105 – 136 / 62 – 87     | 76 – 103     |
| <b>Temperature °C</b> | <b>Oral: 35.5 – 37.5, Axilla: 36.5 – 37.5, Rectal: 36.6 – 38.0, Temporal: 36.3 – 37.8</b> |  |                         |              |

HR and RR ranges: CTAS 2013

Temperature ranges: CPS 2015

BP ranges: \*Modified from American Heart Association (2012). *Pediatric emergency assessment, recognition, and stabilization (PEARS) provider manual.* † 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), 555-556.



### BC PEWS Vital Signs Reference Card

| Body Weight (kg)   | Fluid Requirements Per Day                 |
|--------------------|--|
| Below 10 kg        | 100 mL per kg                              |
| 10 – 20 kg         | 1000 mL + 50 mL per kg over 10 kg          |
| Greater than 20 kg | 1500 mL + 20 mL per kg over 20 kg          |
| Body Weight (kg)   | Fluid Requirements Per Hour                |
| Below 10 kg        | 4 mL per kg                                |
| 10 – 20 kg         | 2 mL per kg for each kg greater than 10 kg |
| Greater than 20 kg | 1 mL per kg for each kg greater than 20 kg |
| Urine Output       | 0.5 – 1.0 mL per kg per hr                 |

Pickard, G. & Abernathy, A.P. (2013). *Dosage calculations, Ninth edition.* Delmar, Cengage Learning.

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## BCEHS Adoption of BC Pediatric Early Warning Systems

Pediatric Early Warning Systems (PEWS) are used internationally to promote early identification and mitigation of deterioration in hospitalized pediatric patients. BC health authority leaders and clinicians have identified the implementation of PEWS as a high priority in hospitals that care for children across sites at all [Tiers of Service](#).

The Child Health BC Steering Committee endorsed a standardized approach to the development, implementation and evaluation of PEWS in BC hospitals (BC PEWS) .

BC PEWS is a five-component system that provides a standardized framework and language to identify potential

deterioration in a child, mitigate the risk and escalate care as needed as early as possible.

Child Health BC in collaboration with the BC Regional Health Authorities, have become the first jurisdiction in North America to adapt a province-wide standardized early warning system for pediatrics. To date:

- 50 hospitals have implemented BC PEWS in their inpatient units.
- 97 hospitals/health centers & 7 First Nations Health Authority Nursing Outposts have implemented BC PEWS ED in their Emergency Departments
- The inpatient implementation was [comprehensively evaluated](#) after one year, showing positive outcomes overall with some opportunity for further development.
- A [research pilot](#) at Richmond Hospital Emergency Department (ED) demonstrated the potential value of using PEWS in the ED and has been published in [BMC Emergency Medicine](#).

#### References

ChildhealthBC. (2023). Pediatric early warning system (PEWS). CHBC.  
<https://www.childhealthbc.ca/initiatives/pediatric-early-warning-system-pews>

