

Severe hypernatremic dehydration in term and late preterm neonates

CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

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REPORTING INFORMATION

(To be completed by the CPSP)

Report number: _____

Month of reporting: _____

Province: _____

Today's date: _____

Please complete the following sections for the case identified above. If the information asked for below is not readily available, please leave it blank. Strict confidentiality of information will be assured. For further information, refer to our [privacy notice](#).

CASE DEFINITION FOR SEVERE HYPERNATREMIC DEHYDRATION IN TERM AND LATE PRETERM NEONATES

Report any neonates born at ≥ 35 weeks gestation and aged ≤ 30 days who meet **ALL three** of the following criteria:

- 1) Were admitted to hospital
- 2) Had weight loss $> 12\%$ of birthweight
- 3) Had a peak serum sodium level > 150 mmol/L

Exclusion criteria

Neonates born in hospital who were never discharged from hospital after birth

SECTION 1 – PATIENT DEMOGRAPHIC INFORMATION

A) Infant

- 1.1 Month/year of birth: _____ / _____
MM YYYY
- 1.2 Sex assigned at birth: Male Female Intersex/Not assigned Unknown
- 1.3 Province/territory of infant's birth: _____
- 1.4 Does the family require a flight to access a hospital? Yes No Unknown
- 1.5 Location of birth (Select ONE):
- | | |
|---|---|
| <input type="radio"/> Birthing centre | <input type="radio"/> Planned midwife- or physician-attended home birth |
| <input type="radio"/> Emergency birth outside of hospital | <input type="radio"/> Planned unattended birth outside of hospital |
| <input type="radio"/> Hospital | <input type="radio"/> Other, specify: _____ |
- 1.6 Does the infant have provincial, territorial, or federal healthcare coverage? Yes No Unknown

B) Mother/Birthing parent

- 1.7 Mother's/birthing parent's province/territory of residence: _____
- 1.8 Age at delivery: _____ years
- 1.9 Gravida: _____ Para: _____
- 1.10 Maternal/birthing parent postpartum hemorrhage requiring transfusion: Yes No Unknown
- 1.11 History of maternal/birthing parent breast surgery: Yes No Unknown

SECTION 2 – FAMILY HISTORY

- 2.1 Was the mother/birthing parent born in Canada: Yes No Unknown
- 2.1.1 If No, number of years since immigrating to Canada: _____ months _____ years Unknown
- 2.2 Does the mother/birthing parent speak the language of the healthcare institution (English or French)? Yes No
- 2.3 Has the mother/birthing parent breastfed previous children? Yes No Unknown Not applicable (first child)
- 2.4 Is there a history of difficulty breastfeeding previous children? Yes No Unknown Not applicable (first child)
- 2.5 How much prenatal care was received during the pregnancy? ≥ 6 visits 3–5 visits 0–2 visits Unknown

SECTION 3 – MEDICAL HISTORY

- 3.1 Gestational age of infant at birth: _____ weeks _____ days
- 3.2 Multiple birth: Singleton Twin Triplet Other, specify: _____
- 3.3 Type of delivery: Vaginal Instrumental – Forceps Vacuum Caesarean section
- 3.4 Birth weight: _____ grams
- 3.5 Age of infant at time of discharge from hospital/birthing centre: _____ hours Unknown Not applicable
- 3.6 Neonatal intensive care unit (NICU) admission after birth: Yes No Unknown

- 3.6.1 *If Yes*, length of stay in NICU after birth: _____ days _____ hours Unknown
- 3.7 Weight at time of discharge from hospital/birthing centre: _____ grams Unknown Not applicable
- 3.8 Did the infant/parent access lactation consultation during the birth encounter? Yes No Unknown
- 3.8.1 *If No*, was lactation consultation available? Yes No Unknown
- 3.9 Was the infant/parent seen by lactation consult services between discharge from the birth encounter and admission for hypernatremic dehydration? Yes No Unknown
- 3.10 Was the infant assessed by a healthcare provider between discharge from the birth encounter and admission for hypernatremic dehydration? Yes No Unknown
- 3.10.1 *If Yes*, indicate the type of healthcare provider seen: (Select all that apply)
- Emergency physician Nurse practitioner Other, specify: _____
- Family physician Paediatrician Unknown
- Midwife Public health nurse
- 3.10.2 *If Yes*, how many times was the infant assessed between discharge and this admission by any of the above?
 Once More than once Unknown
- 3.11 Did the infant miss a scheduled postnatal visit with a healthcare provider prior to admission for hypernatremic dehydration? Yes No Unknown
- 3.12 Feeding method at time of discharge from birth encounter:
- Direct breastfeeding exclusively Expressed breast milk and formula via bottle
- Direct breastfeeding with supplementation Formula feeding exclusively
- Expressed breast milk via bottle exclusively Unknown
- 3.12.1 *If supplementation*; supplemented with: Expressed breastmilk only Formula only Both Unknown
- 3.12.2 *If supplementation*; given via (select all that apply):
 Bottle Syringe Cup Other, specify: _____ Unknown

SECTION 4 – HYPERNATREMIA PRESENTATION

- 4.1 Age at hospital admission for hypernatremic dehydration: _____ hours _____ days
- 4.2 Weight at admission: _____ grams
- 4.3 Feeding method at time of admission:
- Direct breastfeeding exclusively Expressed breast milk via bottle with supplementation
- Direct breastfeeding with supplementation Formula feeding exclusively
- Expressed breast milk via bottle exclusively Unknown
- 4.3.1 *If supplementation*; supplemented with: Expressed breastmilk only Formula only Both
- 4.3.2 *If supplementation*; given via (Select all that apply):
 Bottle Syringe Cup Other, specify: _____ Unknown
- 4.4 Feeding difficulties? (Select all that apply): Poor latch Painful for mother Perceived low milk supply
 Other, specify: _____ None Unknown
- 4.5 Did the infant arrive via ambulance/emergency transportation services? Yes No Unknown
- 4.5.1 *If Yes*, from where: Home Outpatient provider Another hospital Unknown
- 4.6 Was the family instructed to bring the child in for assessment? Yes No (came on their own) Unknown
- 4.7 Signs at presentation:
- | | Yes | No | Unknown | | Yes | No | Unknown |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Poor sucking | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Tachycardia | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sunken fontanelle | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Oliguria | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Delayed capillary refill | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Seizures | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Apnea | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Other, specify: _____ | | | |
- 4.8 Level of consciousness at presentation: Alert Lethargic Poorly responsive to stimuli Unresponsive to stimuli
- 4.9 Did the infant require resuscitation at presentation? Yes No Unknown
- 4.9.1 *If Yes*, select all that apply: Bolus fluids Cardiopulmonary resuscitation
 Oxygen via nasopharyngeal airway/mask Positive pressure ventilation

SECTION 5 – LABORATORY DATA AT PRESENTATION OF CONDITION (if not available indicate N/A)

- 5.1 Serum sodium: _____ Blood urea nitrogen (BUN): _____ Creatinine: _____
- 5.2 Total bilirubin level: _____ hours of life _____
- 5.3 Blood gas at admission: pH _____ Carbon dioxide (CO₂) _____ Bicarbonate (HCO₃) _____ Base deficit _____

SECTION 6 – TREATMENT AND OUTCOME

- 6.1 Was the infant admitted to an intensive care unit? Yes No Unknown
6.1.1 *If Yes*, Neonatal Paediatric
- 6.2 Did the infant require respiratory support? Yes No Unknown
6.2.1 *If Yes*, select all that apply:
 Invasive ventilation Non-invasive ventilation (including HFNC) Low-flow oxygen
- 6.3 What was the initial sodium correction strategy? Intravenous only Enteral only Mixed
- 6.4 What was the initial frequency of follow-up sodium measurement? _____ Unknown
- 6.5 What was the goal rate of sodium correction? _____ mmol/L/h Unknown
- 6.6 What was the actual rate of sodium correction averaged over the first 12–24 hours? _____ mmol/L/h Unknown
- 6.7 Which types of subspecialty consultants were involved in the infant's care? (Select all that apply)
 Metabolics/genetics Nephrology Other, specify: _____ None
- 6.8 Did the infant require phototherapy for jaundice? Yes No Unknown
- 6.9 Did the infant require renal replacement therapy? Yes No Unknown
6.9.1 *If Yes*, select all that apply:
 Continuous veno-venous hemofiltration Intermittent hemodialysis Peritoneal dialysis
- 6.10 What investigations did the infant have to rule out infection? (Select all that apply)
 Blood cultures Cerebrospinal fluid cultures Received empiric antibiotics Urine cultures None
- 6.11 Did the infant have any neuroimaging? Yes No Unknown
6.11.1 *If Yes*, select all neuroimaging that apply: Cranial ultrasound CT MRI
6.11.2 *If Yes*, what were the findings? Normal Abnormalities, specify: _____
- 6.12 What is the infant's status? Still in hospital Discharged home Transferred; specify age: _____ days
 Died; specify age: _____ days
6.12.1 *If Discharged home*, at what age was the patient discharged home? _____ days
6.12.2 *If Discharged home*, was the infant exclusively orally fed at discharge (e.g., ad lib demand)?
 Yes No Unknown
6.12.3 *If Discharged home*, weight at discharge: _____ grams
- 6.13 At what age was the sodium normalized (i.e., 145 mmol/L or less) _____ days Not yet normalized
- 6.14 Was the infant diagnosed with a predisposing medical condition (e.g., cleft palate, galactosemia, renal disorder, gastrointestinal condition, metabolic condition) Yes; specify: _____ No Unknown

SECTION 7 – REPORTING PHYSICIAN

- 7.1 What is your practice setting? (Select all that apply):
a) Urban Suburban Rural Remote
b) Academic Non-academic
c) Community hospital Tertiary care hospital Other, specify: _____
- 7.2 What are the first 3 digits of the postal code of your practice? _____
- 7.3 Are you willing to be contacted by the Canadian Paediatric Surveillance Program for further information on this questionnaire? Yes No

First name _____ Surname _____

Address _____

City _____ Province _____ Postal code _____

Telephone number _____ Fax number _____

E-mail _____ Date completed _____

Thank you for completing this form.