BC Children's Hospital
Division of Pediatric Emergency Medicine
Clinical Practice Guidelines

GASTROENTERITIS SYMPTOMS CAUSING MILD TO MODERATE DEHYDRATION: THE USE OF ORAL REHYDRATION THERAPY (ORT)
in the Emergency Department

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FIGURES: ***1***

BACKGROUND

Acute gastroenteritis is one of the most common illness affecting infants and children. In developed countries, the average child under 5 years of age experiences 2.2 episodes of diarrhea per year; whereas children attending day care centers may have even higher rates of diarrhea. These episodes result in large number of pediatric office and emergency departments (ED) visits. In the US, treatment for dehydration as a result of acute gastroenteritis accounts for an estimated 200,000 hospitalizations and 300 deaths per year, with comparable rates occurring in Canada. (1)Annually, costs of medical and non medical factors related to gastroenteritis in the US are 0.6 to $1.0 billion. (2)
Medical associations and international humanitarian organizations such as the Canadian Pediatric Society, American Academy of Pediatrics (AAP), and World Health Organization have stressed the importance of consistent treatment protocols for the treatment of mild to moderate dehydration. These protocols, based on scientific evidence, emphasize the safety and effectiveness of oral re-hydration therapy (ORT) in cases of mild and moderate dehydration. ORT is effective in 95 % of cases of mild to moderate dehydration, it less invasive, less expensive, is associated with less morbidity and can be dispensed outside of the hospital setting, while being as effective as IV treatment(1) (3) (4) (5).

Despite these recommendations and compelling evidence supporting the use of ORT, it remains underused. Some of the factors contributing to under use of ORT include: physicians lack awareness of AAP and CPS gastroenteritis guidelines; perception of barriers to the use of ORT; and variation in overall practice pattern. (6) (7) This has resulted in highly inconsistent quality of care for gastroenteritis.

Implementation of an ED ORT clinical pathway for mild to moderate dehydration in children may help promote consistent evidence based practice and improvement in quality of care (8)

Inclusion criteria: Children aged 6 months to 17 years old presenting to ED, with either vomiting and/or diarrhea fewer than 7 consecutive days resulting in mild to moderate dehydration.
Exclusion criteria: Children presenting with: severe dehydration (unstable vital signs, poor perfusion), altered level of consciousness (Glasgow Coma Score<15 or persistent lethargy or acute head injury), possible surgical abdomen (bloody or bilious vomiting, bloody diarrhea, abdominal distension & tense, absent bowel sounds, guarding or rigidity and right lower quadrant pain), chronic health conditions (such as Gastric or Jejunal feeding tubes dependence, known inflammatory bowel disease, known immunodeficiency syndrome, known metabolic disorders, insulin dependent diabetes, heart or renal disorder and neurosurgical history).

ORAL REHYDRATION SOLUTIONS:

TABLE 1
Compositions of World Health Organization oral rehydration solutions (ORS) and ORS used in Canada

Product	Carbohydrate (g/L)	Sodium (mmol/L)	Potassium (mmol/L)	Chloride (mmol/L)	Base (mmol/L)	Osmolarity (mOsm/L)
WHO (standard formula)	20	90	20	80	30	311
WHO (revised formula)	13.5	75	20	65	10	245
Pedialyte (Abbott Laboratories, USA)	25	45	20	35	30	250
Gastrolyte (Aventis Pharma, USA)	17.8	60	20	60	10	240
Enfalyte (Mead Johnson Nutritionals, USA)	32 (rice syrup solids)	50	25	45	11	200
Cera (Cera Products, USA)	40 (rice digest) 10 (sucrose)	50	20	40	30	220

(5)

Table 2 Clinical assessment of degree of dehydration

Degree of dehydration	Mild (5-7% body weight)	Moderate (7-9% body weight)	Severe (>10% body weight)
Fontanelle	Slightly sunken	Very sunken	Very sunken
Mucous membranes	Slightly sticky	Dry	Very dry
Skin turgor	Normal	Slightly decreased	Markedly decreased
Capillary refill time	Normal (<3 seconds)	Normal (<3 seconds)	Delayed (≥ 3 seconds)
Urine output	Normal	Slightly decreased	Decreased or absent
Mental status	Normal	Slightly fussy	Irritable or lethargic

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