

Clinical Pathway

Pediatric Dehydration

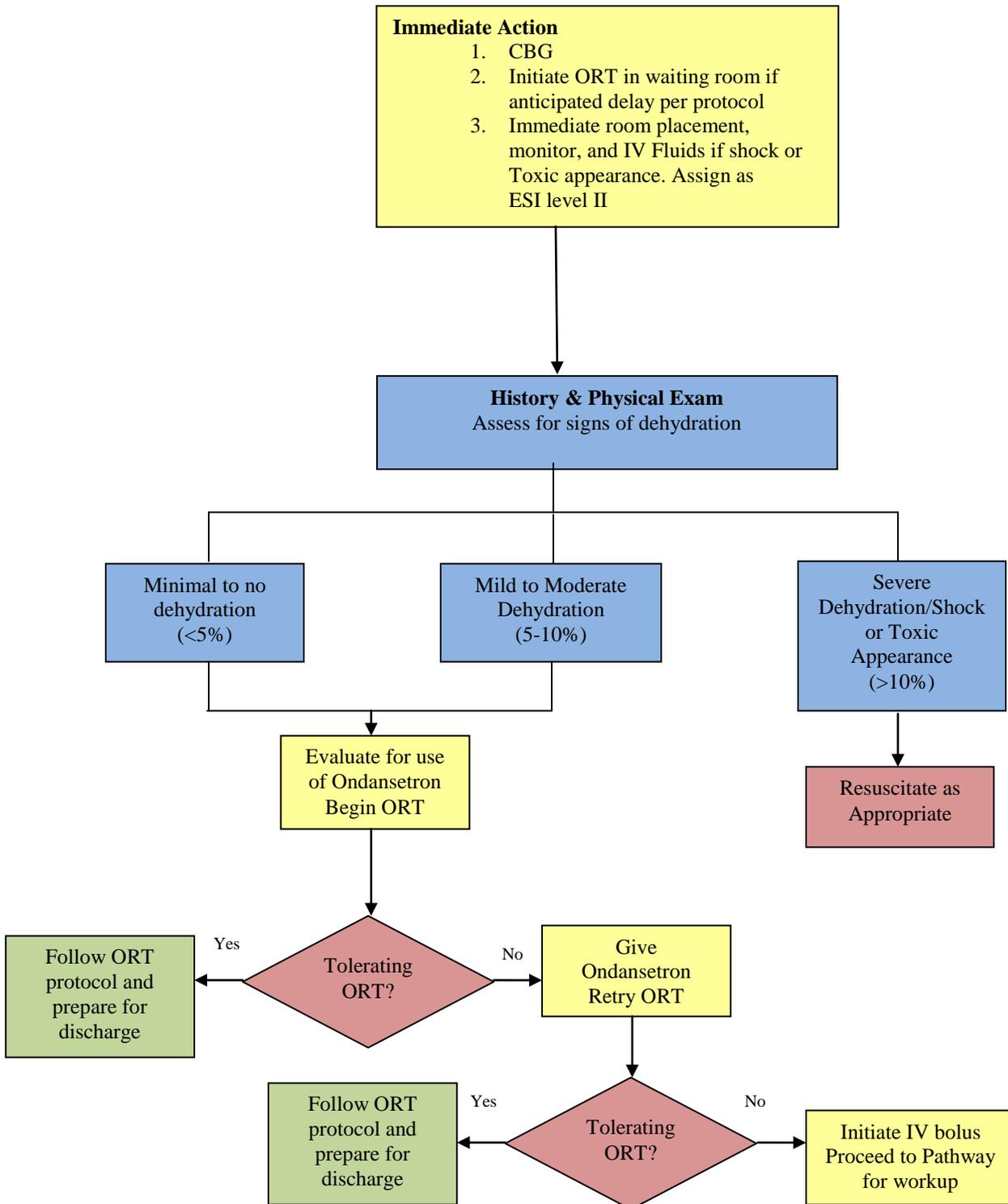
Updated: June 2010

Outcomes/Goals	<ol style="list-style-type: none"> 1. Rapid identification and treatment of children with dehydration 2. Effective use of oral rehydration therapy for moderate dehydration. 3. Team-oriented approach to efficient, timely evaluation and workup. 4. Decrease hospital admissions.
NURSE documentation	<p>Chief complaint. Onset of nausea/vomiting/diarrhea. Document amount (in oz) of po intake, number of episodes of vomiting and/or diarrhea.</p> <p>Documentation should include number of wet diapers in last 12 hours.</p> <p>Physical assessment/documentation: general appearance (sick/not sick) and activity level or LOC, capillary refill time, abnormal skin turgor, absence of moist mucous membranes and/or tears, abnormal respiratory pattern.</p>
INTERVENTIONS Initiate on arrival	<p>ESI Triage level II or III (history and presentation dependent)</p> <p>Full set of vitals</p> <p>Ondansetron ODT or liquid 0.15mg/kg (maximum dose 8mg/dose)</p> <p>Initiate ORT for qualifying patients per protocol</p> <p>Place topical Lidocaine (LMX) in anticipation of peripheral IV start</p> <p>Place on monitor if toxic appearance</p> <p>Initiate IV with 20 mg/kg bolus if Toxic or ORT fails after 2nd Ondansetron dose, or vitals/appearance becomes worse</p> <p>Oxygen to maintain SaO₂ >90%</p>
DIAGNOSTICS	<p>Bedside CBG for moderate to severe dehydration, or altered mental status</p> <p>Urinalysis –if indicated/LIP order</p> <p>Stool culture – if indicated/LIP order</p>
PHYSICIAN (LIP)	
PO Fluids	ORT per protocol
IV Fluids (if indicated)	NS bolus 20 ml/kg x 2. Reassess between boluses for effectiveness Consider starting with 10 ml/kg boluses for neonates, frail and/or malnourished infants and reassess in between for effectiveness.
Medication Anti-emetics	<p>Ondansetron</p> <p style="padding-left: 40px;">Oral dose 2-4 years of age: 2-4 mgs (0.15mg/kg)</p> <p style="padding-left: 40px;">4-11 years of age: 4 mgs</p> <p style="padding-left: 40px;">>11 years of age: 8 mgs</p> <p style="padding-left: 40px;">IV dose 6 months – 18 years of age: 0.15mg/kg/dose</p>
ADMISSION	<p>Call primary care physician</p> <p>Call peds ward attending</p> <p>Prepare family/infant for admission to DNCC, PICU, ward, or ED Obs as appropriate</p>
Goals of Therapy	<p><u>Seven Principles of Appropriate Treatment for Children with Diarrhea and Dehydration¹</u></p> <ul style="list-style-type: none"> • ORT should be used for rehydration • Oral rehydration should be performed rapidly • An age-appropriate, unrestricted diet is recommended as soon as dehydration is corrected • For breastfed infants, nursing should be continued • If formula fed, diluted formula is not recommended and special formula usually is not necessary • Additional ORT should be administered for ongoing losses through diarrhea • No unnecessary laboratory tests or medications should be administered
Discharge Criteria	<p>Vomiting resolved with oral rehydration</p> <p>Parents instructed on and able to continue further oral rehydration at home as needed</p> <p>Vital signs stable / no clinical signs of shock/hypovolemia</p> <p>Assessment at or near baseline for LOC</p> <p>Encourage regular diet, avoid foods with high sugar content like apple juice</p>

Clinical Pathway Decision Making Process

Pediatric Dehydration

Updated: June 2010



Pediatric Dehydration

Goals of Clinical Pathway

1. Rapid identification and treatment of children with moderate to severe dehydration
2. Effective use of oral rehydration therapy per protocol for moderate dehydration prior to intravenous therapy.
3. Team-oriented approach to efficient, timely evaluation and workup.
4. Decrease hospital admissions due to care in ED and parental education for at-home care.

Data Considerations	Interventions	Rationale
Anti-emetics	Ondansetron	Gastroenteritis accounts for more than 1.5 million pediatric outpatient visits and 200,000 hospitalizations annually. Vomiting limits the success of oral rehydration. Physicians are more likely to choose intravenous over oral rehydration when vomiting is a major symptom. Ondansetron (Zofran) is a safe, effective anti-emetic that improves the success of ORT. Children receiving Ondansetron were less likely to vomit, vomited less often, had greater oral intake and were less likely to be treated by intravenous rehydration (Freedman, 2006; Amir, 2007).
Rehydration	Oral Rehydration Therapy (ORT)	<p>Despite the fact that ORT is the preferred method of rehydration (Freedman 2006, Amir, 2007), the full benefits of ORT for acute gastroenteritis have not been realized in developed countries. ORT is widely available, effective, safe and cost-effective, but continues to be underutilized. Indeed, ORT has even been demonstrated to be faster than intravenous therapy (IVT)⁴. Although Intravenous fluids (IVF) are sometimes necessary for severely dehydrated children and the rare child that does not respond to ORT, IVT is often initiated before adequate attempts at oral rehydration have failed. Gastrostomy and nasogastric tubes can be effectively used to administer ORS.</p> <p>Children who have diarrhea and are not dehydrated should receive an age-appropriate diet. Children who require rehydration should be fed age-appropriate diets as soon as they have been rehydrated. Breastfed infants should continue nursing on demand and formula fed infants should continue their usual formula immediately upon rehydration. Foods high in simple sugars (juices, sodas, gelatins) should be avoided as the osmotic load may worsen diarrhea. Special diets, such as the BRAT diet (bananas, applesauce, rice and toast), are too restrictive and provide suboptimal nutrition. Lactose-free formula is usually unnecessary. Dilute formula and milk may prolong symptoms and are not recommended.</p>

Table 1. Further Estimating the Degree of Dehydration¹

<i>Dehydration</i>	<i>Minimal to none</i>	<i>Mild to Moderate</i>	<i>Severe</i>
Weight Loss	<5%	5-10%	>10%
Mental Status	Well, alert	Normal, fatigued or restless, irritable	Apathetic, lethargic, unconscious
Thirst	Normal, may refuse	Thirsty, eager to drink	Drinks poorly, unable to drink
Heart rate	Normal	Normal to increased	Increased
Quality of pulses	Normal	Normal to decreased	Weak, thready, or impalpable
Breathing	Normal	Normal; fast	Deep
Mucous Membranes	Normal	Dry	Parched
Eyes	Normal	Slightly sunken	Deeply sunken
Tears	Present	Decreased	Absent
Skin fold	Instant recoil	Recoil in <2 seconds	Recoil in >2 seconds
Extremities	Warm	Cool	Cold, mottled, cyanotic
Urine output	Normal to decreased	Decreased	Minimal

Authors: Pediatric ED Nurse Core Group, David Spiro, Garth Meckler

Reviewed: ED pediatric nurse committee, PEM committee, DCH Pediatric Nursing Council 02/08

Updated 6/10