

### EVIDENCE-BASED PRACTICE RECOMMENDATIONS

#### An Evidence-Based Review Of Dehydration In The Pediatric Patient

*This article focuses on dehydration controversies in several areas, including the assessment of levels or severity of dehydration, the sensitivities of clinical signs and symptoms, and the utility of laboratory investigations. For a more detailed and systematic look at dehydration in the pediatric patient, see the full text article at [www.ebmedicine.net](http://www.ebmedicine.net).*

Key Points	Comments
When a patient presents with possible dehydration, obtain a clear chronological account of the nature of the problem, regardless of the patient's age. The historical assessment for dehydration should include questions regarding the patient's input and output, specifically timing, duration, exact amounts, and attempted treatments.	Dehydration is a physiologic response to a variety of diseases and conditions that results in a negative fluid balance due to decreased intake; increased output via renal, gastrointestinal, or insensible losses; or a systemic response to the specific disease state, such as burns or sepsis.
Determine the level of dehydration. The American Academy of Pediatrics (AAP) describes fluid deficits of 3% to 5% as mild, deficits of 6% to 9% as moderate, and deficits of > 10% as severe. <sup>3</sup> The World Health Organization (WHO), meanwhile, describes a fluid deficit of less than 5% as no or mild dehydration, a deficit of 5% to 10% as some dehydration, and a deficit of greater than 10% as severe dehydration. <sup>4</sup>	Dehydration is often referred to relative to serum sodium concentrations: isonatremic dehydration (sodium level of 130-150 mEq/L); hyponatremic dehydration (sodium level < 130 mEq/L); and hypernatremic dehydration (sodium level > 150 mEq/L).
Identify the symptoms which most accurately predict dehydration and to what degree, including: the quality of pulses, heart rate, blood pressure, skin turgor/CRT, fontanel, mucous membranes, eyes, extremities, mental status, and urine output (including specific gravity and urine ketones).	Although specific characteristics may fall under the categories of mild, moderate, and severe, under certain circumstances overlap may exist. In such cases, the clinician may choose to use the next higher level of severity if clinical factors exist within that category. <sup>6</sup>
Consider laboratory testing if clinically indicated on the basis of dietary history or disease state and for all severely dehydrated patients.	Routine laboratory testing for dehydration in lieu of a clinical assessment is controversial and has not been shown to be predictive of the degree to which a patient may be dehydrated.
<ul style="list-style-type: none"> <li>• <b>Mild dehydration:</b> Administer oral rehydration solutions (ORSs) to patients who are mildly dehydrated. If the patient is able to tolerate additional fluids, the initial amount should be increased by intervals up to 20 mL/kg/h.</li> <li>• <b>Moderate dehydration:</b> Attempt to rehydrate patients who are moderately dehydrated with an ORS (50-100 mL/kg). If the patient is unable to tolerate oral fluids because of refusal, or if an inadequate amount is consumed, NG or IV therapy should be instituted with NS.</li> <li>• <b>Severe dehydration:</b> For patients who are severely dehydrated or in shock, administer repeated 20-mL/kg boluses over 5 to 10 minutes until they are hemodynamically stabilized. Aim for a minimum of 60 mL/kg or more within the first hour of treatment unless contraindicated on the basis of the patient's disease.</li> </ul>	The following discharge criteria have been anecdotally used successfully for dehydrated patients, according to the literature <sup>25</sup> : baseline or near baseline vital signs, urine output during the hydrating period, moist oral mucosa, streaming tears, no or minimal ongoing losses, and the ability to tolerate oral fluids (optional). Along with dietary instructions, parents and caregivers should receive information on the signs and symptoms that suggest dehydration, such as a sunken fontanel in newborns and infants, diminished or absent tears, sunken eyes, dry or sticky oral mucosa, decreased activity level, or other mental status/neurologic changes (eg, lethargy, neuromuscular twitching, seizures) and/or decreased urine output.

See reverse side for reference citations.

# REFERENCES

*These references are excerpted from the original manuscript. For additional references and information on this topic, see the full text article at [ebmedicine.net](http://ebmedicine.net).*

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## CLINICAL RECOMMENDATIONS

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Phone: 1-800-249-5770 or 678-366-7933

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E-mail: [ebm@ebmedicine.net](mailto:ebm@ebmedicine.net)

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