

as a flame, hot surfaces, or hot liquids. Of those children who die from fire or burns, 44% were ages 4 and under; and of all children deaths due to fire and burns, 87% were involved in a residential home fire ([Safe Kids Worldwide, 2015](#)). Electrical injuries caused by household current have the greatest incidence in young children, who insert conductive objects into electrical outlets and bite or suck on connected electrical cords ([Pruitt, Wolf, and Mason, 2012](#)). These burns occur most commonly during the spring and summer months and are also associated with risk-taking behaviors in boys. Direct contact with high- or low-voltage current, as well as lightning strikes, is the most frequent mechanism of injury. Trauma results from resistance of the tissue and path of electric current through tissue, muscle compartments, nerves, and vital organs. Criteria for admission, as derived from evidence-based practice for electrical burn injuries, includes a history of loss of consciousness, electrocardiographic (ECG) changes, 10% TBSA affected, or the need for monitoring an affected extremity. Cardiac monitoring is therefore included in standard burn care when ECG changes are identified on admission ([Arnoldo, Klein, and Gibran, 2006](#)).

Chemical burns are seen in the pediatric population and can cause extensive injury because noxious agents exist in many cleaning products commonly found in the home. The severity of injury is related to the chemical agent (acid, alkali, or organic compound) and the duration of contact. The mechanism of injury differs from other burns in that there is a chemical disruption and alteration of the physical properties of the exposed body area. In addition to concern for localized damage, the potential for systemic toxicity must be addressed, including exposure of the eyes to chemical agents, the ingestion of caustic substances, and inhalation of toxic gases produced from chemicals.

Extent of Injury

The extent of a burn is expressed as a percentage of the TBSA. This is most accurately estimated by using specially designed age-related charts ([Fig. 13-3](#)). It is more efficient to use a chart designed to assign body proportions to children of different ages.