acute malnutrition (SAM). SAM may be subdivided into edematous (kwashiorkor), severe wasting (marasmus) types, or marasmic kwashiorkor, which has features of both marasmus and kwashiorkor.

In the United States, milder forms of SAM are seen as a result of primary malnutrition, although the classic cases of marasmus and kwashiorkor may also occur. Unlike in developing countries, where the main reason for SAM is inadequate food, in the United States, SAM occurs despite ample dietary supplies (see Failure to Thrive later in this chapter). SAM may also be seen in people with chronic health problems, such as cystic fibrosis, cancer, chronic diarrhea syndromes, HIV, burns, inborn errors of metabolism, and GI malabsorption. Kwashiorkor has been reported in the United States in children fed only a rice beverage diet and also in children whose families are following a fad diet (Ashworth, 2016). The rice drink contains 0.13 g of protein per ounce (compared with the 0.5 g found in human milk and infant formulas) and is an inadequate source of nutrition for children. Other reported cases of kwashiorkor in developed countries involved infants who were fed extremely restricted diets due to perceived or actual reactions to foods or food allergies (Tierney, Sage, and Shwayder, 2010). Kwashiorkor has also been reported in the United States when infants have been fed inappropriate food as a result of parental (caretaker) nutritional ignorance, a perceived cow's milk–based formula intolerance, or cow's milk intolerance (Tierney, Sage, and Shwayder, 2010). Therefore, it is important that health care workers not assume that SAM cannot occur in developed countries; a comprehensive dietary history should be obtained in any child with clinical features resembling SAM.

Kwashiorkor

Kwashiorkor has been defined as primarily a deficiency of protein with an adequate supply of calories. A diet consisting mainly of starch grains or tubers provides adequate calories in the form of carbohydrates but an inadequate amount of high-quality proteins. Some evidence, however, supports a multifactorial etiology, including cultural, psychologic, and infective factors that may interact to place the child at risk for kwashiorkor. Kwashiorkor may result from the interplay of nutrient deprivation and infectious or