

Chapter 14

CONTROL OF ELIMINATION

NORMAL DEVELOPMENT OF ELIMINATION

Development of control of urination and defecation involves physical and cognitive maturation and is strongly influenced by cultural norms, socioeconomic status, and practices within the United States and throughout the world. In the first half of the twentieth century, toilet mastery by 18 months of age was the norm in the United States. Concern about harsh toilet training and possible later psychological distress led to professional endorsement of later toilet training. In 1962 Brazelton introduced the *child-centered approach*, which respects the child's autonomy and pride in mastery. The invention of disposable diapers also facilitated later toilet training. Social changes, including increased maternal work outside of the home and group child care, also have influenced this trend. Some families choose to wait until the child is older because the duration of the training period may be shorter. Toilet training usually begins after the second birthday and is achieved at about 3 years of age in middle-class white U.S. populations. Toilet training between 12 and 18 months of age continues to be accepted in lower-income families.

Prerequisites for achieving elimination in the toilet include the child's ability to recognize the urge for urination and defecation, to get to the toilet, to understand the sequence of tasks required, to avoid oppositional behavior, and to take pride in achievement. The entire process of toilet training can take 6 months and need not be hurried. Successful parent-child interaction around the goal of toilet mastery can set the stage for future active parental teaching and training (e.g., manners, kindness, rules and laws, and limit setting).

ENURESIS

Enuresis is urinary incontinence in a child who is adequately mature to have achieved continence. Enuresis is classified as diurnal (daytime) or nocturnal (nighttime). In the United States, daytime and nighttime dryness are expected by 4 and 6 years of age, respectively. Another useful classification of enuresis is **primary** (incontinence in a child who has never achieved dryness) and **secondary** (incontinence in a child who has been dry for at least 6 months).

Etiology

Enuresis is a symptom with multiple possible etiologic factors, including developmental difference, organic illness, or psychological distress. Primary enuresis often is associated with a family history of delayed acquisition of bladder control. A genetic etiology has been hypothesized, and familial groups with autosomal dominant phenotypic patterns for nocturnal enuresis have been identified. Although most children with enuresis do not have a psychiatric disorder, stressful life events can trigger loss of bladder control. Sleep physiology

may play a role in the etiology of nocturnal enuresis, with a high arousal threshold commonly noted. In a subgroup of enuretic children, nocturnal polyuria relates to a lack of a nocturnal vasopressin peak. Another possible etiology is malfunction of the detrusor muscle with a tendency for involuntary contractions even when the bladder contains small amounts of urine. Reduced bladder capacity can be associated with enuresis and is commonly seen in children who have chronic constipation with a large dilated distal colon, which impinges on the bladder.

Epidemiology

Enuresis is the most common urologic condition in children. Nocturnal enuresis has a reported prevalence of 15% in 5-year-olds, 7% in 8-year-olds, and 1% in 15-year-olds. The spontaneous remission rate is reported to be 15% per year. The odds ratio of nocturnal enuresis in boys compared with girls is 1.4:1. The prevalence of daytime enuresis is lower than nocturnal enuresis but has a female predominance, 1.5:1 at 7 years of age. Of children with enuresis, 22% wet during the day only, 17% wet during the day and at night, and 61% wet at night only.

Clinical Manifestations



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Enuresis

The history focuses on elucidating the pattern of voiding: How often does wetting occur? Does it occur during the day, night, or both? Are there any associated conditions with wetting episodes (e.g., bad dreams, consumption of caffeinated beverages, or exhausting days)? Has the child had a period of dryness in the past? Did a stressful event precede the change in wetting pattern? A review of systems should include a developmental history and detailed information about the neurologic, urinary, and gastrointestinal systems (including patterns of defecation). A history of sleep patterns also is important, including snoring, parasomnias, and timing of nighttime urination. A family history often reveals that one or both parents had enuresis as children. Although enuresis is rarely associated with child abuse, physical and sexual abuse history should be included as part of the psychosocial history. Many families have tried numerous interventions before seeking a physician's help. Identifying these interventions and how they were carried out aids the understanding of the child's condition and its role within the family.

The **physical examination** begins with observation of the child and the parent for clues about child developmental and parent-child interaction patterns. Special attention is paid to the abdominal, neurologic, and genital examination. A rectal examination is recommended if the child has constipation. Observation of voiding is recommended if a history of voiding problems, such as hesitancy or dribbling, is elicited. The lumbosacral spine should be examined for signs of spinal dysraphism or a tethered cord.

For most children with enuresis, the only laboratory test recommended is a clean catch urinalysis to look for chronic urinary tract infection (UTI), renal disease, and diabetes mellitus. Further testing, such as a urine culture, is based on