circumcision outweigh the risks and the benefits of the procedure justify access for families who choose it; but are not sufficient to recommend routine circumcision for all male newborns (American Academy of Pediatrics Task Force on Circumcision, 2012).

The single most important host factor influencing the occurrence of UTI is **urinary stasis**. Ordinarily, urine is sterile, but at 37° C (98.6° F), it provides an excellent culture medium. Under normal conditions, the act of completely and repeatedly emptying the bladder flushes away any organisms before they have an opportunity to multiply and invade surrounding tissue. However, urine that remains in the bladder allows bacteria from the urethra to rapidly become established in the rich medium. Incomplete bladder emptying (stasis) may result from **reflux** (see Vesicoureteral Reflux later in chapter), anatomic abnormalities, neurogenic bladder, voiding dysfunction, or extrinsic ureteral or bladder compression that may be caused by constipation. Overdistention of the bladder may increase risk of infection by decreasing host resistance, probably as a result of decreased blood flow to the mucosa. This occurs more often in a neurogenic bladder with increased bladder pressure, but it can be the result of voluntarily holding back urine (Vasudeva and Madersbacher, 2014).

### Altered Urine and Bladder Chemistry

Several mechanical and chemical characteristics of the urine and bladder mucosa help maintain urinary sterility. Increased fluid intake promotes flushing of the normal bladder and lowers the concentration of organisms in the infected bladder. Diuresis also seems to enhance the antibacterial properties of the renal medulla.

Most pathogens favor an alkaline medium. Normally, urine is slightly acidic with a median pH of 6. A urine pH of 5 hampers but does not eliminate bacterial multiplication. Much has been reported about the use of cranberry products for prevention of UTI. Initially it was thought to alter the urine acidity, but studies have not shown that ingestion results in a lower pH; but instead it appeared to decrease the adherence of certain bacteria to the bladder wall. Recent review of the literature showed that cranberry products did not significantly reduce the occurrence of symptomatic UTI overall