

PREVENTION

The primary way to prevent TB is to diagnose and isolate infectious cases rapidly and to administer appropriate treatment until patients are rendered noninfectious (usually 2–4 weeks after the start of proper treatment) and the disease is cured. Additional strategies include BCG vaccination and preventive treatment of persons with TB infection who are at high risk of developing active disease.

■ BCG VACCINATION

Historically one of the most used vaccines in the history of medicine, BCG was derived from an attenuated strain of *M. bovis* and was first administered to humans in 1921. Many BCG vaccines are available worldwide; all are derived from the original strain, but the vaccines vary in efficacy, ranging from 80% to nil in randomized, placebo-controlled trials. A similar range of efficacy was found in observational studies (case-control, historic cohort, and cross-sectional) in areas where infants are vaccinated at birth. These studies and a meta-analysis also found higher rates of efficacy in the protection of infants and young children from serious disseminated forms of childhood TB, such as tuberculous meningitis and miliary TB. BCG vaccine is safe and rarely causes serious complications. The local tissue response begins 2–3 weeks after vaccination, with scar formation and healing within 3 months. Side effects—most commonly, ulceration at the vaccination site and regional lymphadenitis—occur in 1–10% of vaccinated persons. Some vaccine strains have caused osteomyelitis in ~1 case per million doses administered. Disseminated BCG infection (“BCGitis”) and death have occurred in 1–10 cases per 10 million doses administered, although this problem is restricted almost exclusively to persons with impaired immunity, such as children with severe combined immunodeficiency syndrome or adults with HIV infection. BCG vaccination induces TST reactivity, which tends to wane with