A bioterrorism attack would be particularly challenging for medical professionals caring for patients with cancer who often have weakened immune systems. Knowledge of the class A agents and the potential variable presentations in immunocompromised patients is key to early recognition of an outbreak and prompt reporting. The purpose of this article is to present the class A agents: *Bacillus anthracis* (anthrax), botulinum toxin (botulism), variola virus (smallpox), *Yersinia pestis* (pneumonic plague), and *Francisella tularensis* (tularemia). The variable signs and symptoms that may be present in immunocompromised patients with cancer will be discussed with a focus on assessment and early recognition of an outbreak. The availability of vaccines and the implications for patients with cancer receiving these vaccines also will be discussed.

**At a Glance**

- When compared with the general population, immunocompromised patients may show variations if infected with a class A agent.
- Surveillance of potential infection with class A agents begins at the bedside.
- Recognition of an acute-onset illness among many patients within a short time period should alert healthcare professionals to a potential outbreak.

*Clostridium botulinum* toxin (botulism), *Francisella tularensis* (tularemia), *Variola major* (smallpox), and *Yersinia pestis* (plague). Class A agents have a moderate to high likelihood for large-scale dissemination or a heightened general awareness that could cause mass fear and civil disruption (Rotz et al.). The class A agents’ modes of transmission, incubation periods, and infection control precautions are presented in Table 1.

A bioterrorism attack would be particularly challenging for medical professionals caring for patients with cancer who often have weakened immune systems secondary to malignancy.