

## ANTHRAX: Notes about the Disease

This bacterial disease occupies a special niche in the spectrum of diseases of public health importance in North Carolina. In addition to the documented importance of *Bacillus anthracis* as an agent of bioterrorism (BT), there have been infrequent “naturally” acquired cases of anthrax in our state over the decades.

Because of its ability to sporulate and survive in soil for years after contamination by infected herbivores (both wild and domestic), *B. anthracis* has historically posed an occupational risk for farmers, veterinarians, and others who work with these animals. Also, although extensive animal immunization programs have diminished the incidence of anthrax among livestock in developed countries, endemic and epidemic cases still occur in less developed regions of the world. Occasional human cases of “wool sorter’s disease” have occurred in NC mills when imported herbivore hair or wool has been used to produce yarn or other textile products. For example, in 1955, five human cases occurred over a three-month period at a Union County mill importing wool from Iran and Iraq.<sup>1</sup> More recently, a 1987 cutaneous anthrax case at a Mecklenburg County mill was attributed to cashmere goat hair imported from either Afghanistan or Iran.<sup>2</sup>

Although public health workers need to be aware of this small but nonetheless real risk of occupational acquisition of anthrax, this threat seems miniscule when compared to the potential disaster posed by the possible use of *B. anthracis* as a BT agent. While the occupationally acquired cases of anthrax in NC have largely been skin infections, widespread dissemination of aerosolized anthrax spores during a BT event could cause hundreds or thousands of inhalation anthrax cases with high mortality rates. The letters containing anthrax spores anonymously mailed to US news media and government officials in the wake of the September 11, 2001, terrorist attacks resulted in 22 cases with five deaths.<sup>3</sup> The index case occurred in a Florida man who had recently traveled in North Carolina; the investigation of this case by federal, state, and local health department personnel, along with health care workers in the private sector, entailed many hours of work.<sup>4</sup> Then, in the ensuing months after 9/11, though no actual contamination with anthrax organisms was documented, several local health department family planning clinics in NC and elsewhere received envelopes containing non-descript powders and letters threatening death from anthrax spores in the powder.

A number of countries (including our own) have experimented with the anthrax organism as a biological weapon and, even though the development and stockpiling of these weapons was outlawed by the 1972 International Biological Weapons Convention,<sup>3</sup> terrorist groups may not abide by this convention. Thus, in North Carolina and elsewhere, public health workers must remain aware of the nature of *B. anthracis* and the primary, secondary, and tertiary prevention measures for anthrax disease.

1. “A Brief History of Anthrax,” *US Public Health Service*, Office of the Public Health Service Historian, December 2001, [www.lhncbc.nlm.nih.gov/apdb/phsHistory/resources/pdf/anthrax.pdf](http://www.lhncbc.nlm.nih.gov/apdb/phsHistory/resources/pdf/anthrax.pdf).
2. Centers for Disease Control and Prevention. [Epidemiologic Notes and Reports: Human Cutaneous Anthrax—North Carolina, 1987]. *MMWR* 1988;37(26):[413-4], [www.iier.isciii.es/mmwr/preview/mmwrhtml/00001063.htm](http://www.iier.isciii.es/mmwr/preview/mmwrhtml/00001063.htm).
3. “History of the Weaponization of Anthrax,” *Partnership for Anthrax Vaccine Education*, 2003, [www.gwu.edu/~cih/anthraxinfo/public/publicthreat\\_index.htm](http://www.gwu.edu/~cih/anthraxinfo/public/publicthreat_index.htm).
4. Jean-Marie Maillard, et al., “First Case of Bioterrorism—Related Inhalational Anthrax, Florida, 2001: North Carolina investigation,” *Emerging Infectious Diseases* 8, no. 10 (2002): 1035-8, [www.cdc.gov/ncidod/EID/vol8no10/pdf/02-0389.pdf](http://www.cdc.gov/ncidod/EID/vol8no10/pdf/02-0389.pdf).