

Epidemiology in Times of Bioterrorism

Presenter: James Sasanya, North Dakota State University

Co-Authors: Margaret L. Khaita, North Dakota State University

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Bioterrorism is a major threat to public health today. Only a few years ago bioterrorism was considered a remote concern, but few today are complacent about the possibility of biological agents being intentionally used to cause widespread panic, disruption, disease and death. The anthrax attacks in the United States, with the September 11 terrorist attacks on New York and Washington DC, transformed a theoretical threat to reality. Strategic plans for bioterrorism preparedness and response that include the application of epidemiology remain viable solutions to protecting the public. Unfortunately, the leading and supportive role of epidemiology in bioterrorism is inadequately recognized. This paper addresses the various roles of epidemiology in bioterrorism preparedness and response. The authors demonstrate how epidemiologic clues can serve as an early warning system for a bioterrorist attack, real-time (syndromic surveillance) or using the traditional surveillance system. An overview of the role of epidemiology in creating bioterrorism awareness to health care workers and the public is highlighted. National and international disease surveillance networks for early bioterrorist detection and intervention are discussed. The use of theoretical models to simulate bioterrorist events such as in cases of anthrax, small pox, botulism and plague attacks is presented. The authors demonstrate how epidemiology can be used to prevent secondary bioterrorist attacks following a bioterrorist event. Using examples of past bioterrorist attacks the paper demonstrates how epidemiology plays a leading role in bioterrorism response. In summary, the paper demonstrates how epidemiology can offer leadership in bioterrorism preparedness and response.

Biography:

Dr. James Jacob Sasanya is a Ph.D graduate student in Food Safety at the Great Plains Institute of Food Safety, North Dakota State University, Fargo, North Dakota. Dr. Sasanya earned his MS in Pharmacology from Makerere University, Uganda where he did his research on the sulfonamide residues in eggs as well as the knowledge, attitudes and practices of farmers on the use of sulfonamides in poultry. Dr. Sasanya also earned his Bachelor of Veterinary Medicine degree from Makerere University. Prior to joining the Great Plains Institute, Dr. Sasanya was an Assistant Lecturer of veterinary pharmacology and toxicology at Makerere University. He was a veterinary extension officer in Uganda before becoming a faculty at Makerere University. He has done extended research on antibiotic and acaricide residues in animal products. His current research is on mycotoxin characterization of *Fusarium graminearum*-associated masked mycotoxins and pigments that are known to be toxic in poultry (such as Aurofusarin). He uses Liquid-Chromatography Mass Spectrometry for this research. Dr. Sasanya is also collaborating on a research project involving the use of volatile organic compounds to detect the presence of pathogenic microbes in foods, using the Gas Chromatography-Mass Spectrometry. Dr. Sasanya is a member of the Institute of Food Technologists and the International Association for Food Protection where he is committee member in the Food Safety Network, Food Law and Student Professional Development Groups. He is also member of the American Chemical Society and the Phi Kappa Phi honor society.
