

Curriculum Vitae

Bruce W. Clements, M.P.H.

Office Address

Center for the Study of Bioterrorism
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Current Position: Associate Director

Education:

Saint Louis University, School of Public Health

Saint Louis, Missouri

Master of Public Health, Concentration in Environmental Health, GPA 4.0, 1995

Columbia College

Columbia, Missouri

Bachelor of Arts, Concentration in Business Administration, GPA 4.0, 1992

Associate in Arts, Concentration in Business Management, 1991

Community College of the Air Force

Maxwell Air Force Base, Alabama

Associate in Applied Science in Bioenvironmental Engineering Technology, 1991

Associate in Applied Science in Disaster Preparedness, 1989

Experience:

- Developing and evaluating public health preparedness programs
- Teaching university courses and professional development workshops on terrorism preparedness, bioterrorism response, and general environmental and occupational health topics
- Experience with print and broadcast media; interviews include CNN, National Public Radio and Associated Press
- Coordinating content and design of CD-ROM and Internet based education and reference material
- Researching through critical review of literature the most effective measures to reduce health risks resulting from acts of terrorism
- Assessing environmental and occupational hazards using industrial hygiene and medical surveillance methodologies
- Authoring and instituting policies/procedures to reduce environmental health risks

Employment History:

April 2000 – Present

Associate Director, Center for the Study of Bioterrorism and Emerging Infections, Saint Louis University, School of Public Health, St. Louis, MO

- Design, coordinate, and deliver training multimedia education and reference materials on bioterrorism and emerging infections.
- Develop and teach courses on terrorism preparedness and response including:
 - *Bioterrorism: The Public Health Response*, distance learning/graduate level course offered through the School of Public Health
 - *Catastrophic Terrorism and the Public's Health*, undergraduate course
- Plan and coordinate research initiatives to better identify and define information and training needs of healthcare and public health workers.
- Manage media requests and provide timely information to print and broadcast media.
- Recruit, train and manage research center staff and oversee day-to-day center operations.

February 1998 – Present

Public Health Officer (Reserve), Missouri Air National Guard, St. Louis, MO

- Currently assigned as an Instructor for the Center for Sustainment of Trauma and Readiness Skills (CSTARS) at Saint Louis University.
- Develop and deliver training programs for military medical personnel on the growing threats of biological, chemical, and radiological terrorism.

June 1997 – March 2000

Infection Control, Occupational Health Intervention Program Manager, BJC Health System, St. Louis, MO

- Developed, implemented, and measured results of interventions to reduce healthcare worker risks to infectious diseases. Interventions included establishment of exposure control plans and policies, changes in procedures, introduction of educational programs, and integration of new safety devices.
- Conducted train-the-trainer programs and provided training materials to 13 hospitals.

July 1996 - June 1997

Industrial Hygiene Program Manager, U.S. Air Force Missouri Air National Guard, St. Louis, MO

- Conducted industrial hygiene surveys including air sampling, noise analysis, and radiological surveys to assess the environmental hazards in the industrial work areas of an Air National Guard Fighter Wing.
- Developed and delivered instructional programs on nuclear, biological, and chemical warfare defense for military clinicians.

November 1994 - July 1996

Environmental Research Coordinator
Saint Louis University, St. Louis, MO

- Planned, coordinated, and evaluated environmental research projects for the School of Public Health. Research was focused on childhood lead exposures.
- Developed course content and instructed training for certification courses including Lead Inspectors, Risk Assessors, and Abatement Workers.

September 1990 - November 1994

Environmental Health Specialist, US Air Force,
Missouri Air National Guard, St. Louis, MO

- Managed all follow-up activities of the Occupational Health Program ensuring compliance with federal and state regulations.
- Developed and delivered training materials on occupational hazards.
- Conducted extensive training on nuclear, biological, and chemical warfare defense for military personnel and civilian contractors deploying to Desert Storm.

September 1987 - September 1990

Disaster Preparedness Specialist, U.S. Air Force
Missouri Air National Guard, St. Louis, MO

- Developed planning documents, training, and checklists for emergency responders.
- Evaluated disaster exercises to test the effectiveness of planning and training.
- Served as a Nuclear, Biological, and Chemical Warfare Defense Instructor.

Honors

- *Richard Kurz, Ph.D., Outstanding Student Award*, Saint Louis University, School of Public Health, 1995
- *Academic Achievement Award*, Saint Louis University, School of Public Health, 1995
- *Scholarship Award*, American Industrial Hygiene Association Foundation, 1994-1995
- *1995 Outstanding Airman of the Year*, Air National Guard
- Military Decorations
 - Air Force Commendation Medal
 - Air Force Achievement Medal
 - Air Reserve Forces Meritorious Service Medal
 - Air Force Outstanding Airman of the Year Ribbon
 - National Defense Service Medal
 - Humanitarian Service Medal
 - Air Force Longevity Service Award
 - Armed Forces Reserve Medal
 - NCO Professional Military Education Ribbon
 - Small Arms Expert Marksmanship Medal
 - Air Force Training Ribbon
 - Missouri Commendation Ribbon
 - Missouri National Guard State Emergency Duty Ribbon
 - Missouri National Guard Long Service Ribbon

Abstracts & Invited Presentations

1. Rebmann, T., Williams, M., **Clements, B.**, and Evans, R.G. "Role of the Public Health Professional in Bioterrorism Preparedness: A New Training Resource". American Public Health Association, 131st Annual Meeting, San Francisco, November 2003.
2. Rebmann, T., Shadel, B.N., Newkirk, R., **Clements, B.**, and Evans, R.G. Pre and Post September 11th Risk Perceptions and Education Related to Bioterrorism: Results from Two National Public Health Professional Assessment Surveys. American Public Health Association, 131st Annual Meeting, San Francisco, November 2003.
3. Kozma, N, **Clements, B.**, "Smallpox: Clinical Description and Recommendations for a Vaccination Program": A Bioterrorism Education and Training Resource. American Public Health Association, 131st Annual Meeting, San Francisco, November 2003.
4. Kozma, N, **Clements, B.**, "Smallpox Vaccination Challenges: Lessons Learned from a Simulated Mass Vaccination Clinic" Accepted for poster presentation at BioSecurity Conference, Washington, DC, October 2003
5. Kozma, N, **Clements, B.**, Carroll, G., "CD-ROM Based Preparedness Resources: Strengthening the Use of CDs For Bioterrorism Preparedness" Accepted for poster presentation at BioSecurity Conference, Washington, DC, October 2003
6. **Clements, B.**, Currance, P., National Environmental Health Association's Chemical/Biological Terrorism Preparedness Workshops, Denver, CO, August 2003; Reno, NV, June 2003; Gainesville, FL, January 2003.
7. **Clements, B.**, Refining the Corporate Response to Nuclear, Biological and Chemical Threats. National Conference on Threats and Workplace Violence, Anaheim, CA, July 2003.
8. **Clements, B.**, "Bioterrorism and Emerging Infections" and "Legal Aspects of Bioterrorism", 41st Annual Yankee Conference," hosted by the Massachusetts Environmental Health Association, Plymouth, MA, September 2003.
9. Rebmann, T., Carrico, R., **Clements, B.**, Evans, R.G. Role of the Infection Control Professional in Bioterrorism Preparedness: A New Training Resource. 30th Annual Educational Conference and International Meeting of the Association for Professionals in Infection Control and Epidemiology, San Antonio, TX, June 2003
10. Rebmann, T., Shadel, B.N., Newkirk, R.W., **Clements, B.**, Evans, R.G. Pre and Post September 11th Risk Perceptions and Education Related to Bioterrorism: Results from Two National Infection Control Professional Assessment Surveys. 30th Annual Educational Conference and International Meeting of the Association for Professionals in Infection Control and Epidemiology, San Antonio, TX, June 2003

11. **Clements, B.**, Bioterrorism and Facility Vulnerability. Missouri Hospital Association, Hospital Facility Managers Meeting, Jefferson City, MO, May 2003
12. **Clements, B.**, Smallpox Overview and Update. Corrections Corporation of America Annual Meeting, Nashville, TN, March 2003
13. **Clements, B.**, Bioterrorism Preparedness: Lessons Learned and Expanding Partnerships, 2002 Missouri Bioterrorism Summit, Columbia, MO, November 2002
14. **Clements, B.**, Bioterrorism Preparedness: Lessons From History, Keynote Address, 7th Annual Bi-State Regional Infectious Disease Conference, St. Louis, MO, November 2002
15. **Clements, B.**, Evans, R.G., Bioterrorism Research: Trends Threats and Next Steps. Society of Research Administrators International Annual Meeting, Orlando, FL, October, 2002
16. **Clements, B.**, Currance, P., Hospital Response to Terrorism Incidents: Patient Management and Incident Control, Mosby (Elsevier Science) Workshops. St. Louis, Mo and Denver, CO, October, 2002
17. **Clements, B.**, Crisis Communication Planning, Tenet Healthcare Conference, Disaster Preparedness for Hospitals, St. Louis, MO, October 2002
18. Rebmann, T, Shadel, B. N, **Clements, B.**, and Evans, R. G. Bioterrorism Preparedness: Development of Outcome/Performance Measurement Tools. 3rd Annual Environmental and Occupational Health Conference of the Association of Schools of Public Health, Pittsburgh, Pennsylvania, September 2002.
19. Rebmann, T, **Clements, B.**, Shadel, B. N., and Evans, R. G. Integration of Core Competencies Into Bioterrorism Curriculum. 3rd Annual Environmental and Occupational Health Conference of the Association of Schools of Public Health, Pittsburgh, Pennsylvania, September 2002.
20. **Clements, B.**, Currance, P., National Environmental Health Association's Chemical/Biological Terrorism Preparedness Workshops, Mohegan Sun Resort, Uncasville, CT, September 2002; Cornelius, NC, January 2002.
21. **Clements, B.**, CD-ROM Based Preparedness Tools for Local Public Health Agencies. National Association of County and City Health Officials Annual Meeting, New Orleans, LA, July 2002
22. **Clements, B.**, Addressing Nuclear, Biological & Chemical Threats Within the Corporate Environment. National Conference on Threats and Workplace Violence, Anaheim, CA, June 2002

23. **Clements, B.**, Bioterrorism Trends, Threats, and Next Steps, Missouri Baptist Hospital Physician Education Conference, Clayton, MO, April, 2002
24. **Clements, B.**, An Overview of Catastrophic Terrorism and the Role of Occupational Health. Association of Occupational Health Professionals, St. Louis Chapter Annual Dinner, Keynote Address, St. Louis, MO, April 2002
25. **Clements, B.** Bioterrorism Preparedness: Moving Beyond Awareness. Sixth Annual Bi-State Regional Infectious Disease Conference, St. Louis, MO, October 2001
26. **Clements, B.**, Currance, P., National Environmental Health Association's Chemical/Biological Terrorism Preparedness Workshops, Albuquerque, NM, October 2001; Providence, RI, September 2001; Cedar Rapids, IA, September 2001; Clearwater Beach, FL, July 2001.
27. **Clements, B.**, Shadel, B., Rebmann, T., Evans, R.G. Public Health Professionals' Risk Perceptions and Training Needs Related to Bioterrorism and Emerging Infections: Results of a National Needs Assessment Survey. American Public Health Association, 129th Annual Meeting, Atlanta, GA, October 2001.
28. Rebmann, T., Shadel, B., **Clements, B.**, Arndt, B., Evans, R.G. Perspective on Bioterrorism Education and Training: Results from Infection Control Practitioner Focus Groups. American Public Health Association, 129th Annual Meeting, Atlanta, GA, October 2001.
29. Prichard, S., **Clements, B.**, Carroll, G., Rebmann, T., Evans, R.G. Local health department web page template: A review of website content of the 20 largest US metropolitan areas. American Public Health Association, 129th Annual Meeting, Atlanta, GA, October 2001.
30. **Clements, B.**, Training and Educating the Public Health Community on Bioterrorism. National Environmental Health Association, Chemical and Bioterrorism Preparedness Conference, Atlanta, GA, June 2001.
31. **Clements, B.** Are You Prepared? A Bioterrorism Tabletop Drill. *Pre-Conference Training Session. Scenario Author and Narrator.* Association for Professionals in Infection Control and Epidemiology, 28th Annual Meeting, Seattle, WA. June 2001.
32. Rebmann, T., Shadel, B., **Clements, B.**, Arndt, B., and Evans, R.G. Results from Focus Groups Conducted at the APIC 2000 Annual Conference: Perspective on Bioterrorism Education and Training. Association for Professionals in Infection Control and Epidemiology, 28th Annual Meeting, Seattle, WA. June 2001.
33. Rebmann, T., Shadel, B., **Clements, B.**, Evans, R.G. Preferences for Educational Materials to Address Bioterrorism and Emerging Infections: Results from a National Infection Control Practitioner Needs Assessment Survey. Association for Professionals in Infection Control and Epidemiology, 28th Annual Meeting, Seattle, WA. June 2001.

34. **Clements, B.** Bioterrorism and Public Health Preparedness: New Challenges for an Old Infrastructure. Association of Military Surgeons of the United States, 108th Annual Meeting, Las Vegas, NV. November 2000.
35. **Clements, B.**, Sterling, L., Murphy, D., Fraser, V. The Costs Associated With an Effective HIV Exposure Assessment Process and Post-Exposure Prophylaxis Program in a Multi-Hospital Health System. 4th Decennial International Conference on Nosocomial and Healthcare Associated Infections, Atlanta, GA. March 2000.
36. Schwab, B., **Clements, B.**, Storey, R. Evaluation of an Innovative Resident Influenza Vaccination Campaign in Five Long-Term Care Facilities. 4th Decennial International Conference on Nosocomial and Healthcare Associated Infections, Atlanta, GA. March 2000.
37. Shadel, B., Serrano, F., King, C., **Clements, B.**, Murphy, D., Kabeer, N., Evans, R. Assessment of the Water Supply and Water Quality of Olancho, Honduras after Hurricane Mitch. American Public Health Association, 127th Annual Meeting, Chicago, IL, November 1999.
38. **Clements, B.**, Murphy, D., Sterling, L., Fraser, V. A Standardized Training and Response Program to Manage Healthcare Workers After Bloodborne Pathogen Exposures. Association for Professionals in Infection Control and Epidemiology, 26th Annual Meeting, Baltimore, MD. June 1999.
39. **Clements, B.**, Murphy, D., Traynor, P., Fraser, V. A Successful Influenza Immunization Program in Multi-Hospital Health System Employees. Association for Professionals in Infection Control and Epidemiology, 25th Annual Meeting, San Diego, CA. May, 1998.
40. **Clements, B.**, The Management of Flood Water Intrusion into Private Wells During the Missouri Flood of 1993. Association of Military Surgeons of the United States, 99th Annual Meeting, San Antonio, TX. November, 1993.

Publications:

1. Clements, B. Chapter: "Biological Agents" Textbook: "Medical Response to Weapons of Mass Destruction" (Elsevier Books, due out in 2004)
2. Clements, B. Co-Author, 3rd edition of "Emergency Care for Hazardous Materials Exposure" (Elsevier Books, due out in 2004)
3. **Clements, B.**, Evans, R.G. Bioterrorism Preparedness Coordination: An Ataxic Saga Continues. Public Health Reports 2004; 119 (1)
4. Shadel, B., Rebman, T., **Clements, B.**, Chen, J., Evans, R.G. Infection control practitioners' perceptions and educational needs regarding bioterrorism: Results from a

national needs assessment survey. American Journal of Infection Control 2003; 31(3): 129-134.

5. Evans, R.G., **Clements, B.**, Shadel, B.N., The Threat of Bioterrorism in the U.S., World Market Research Center, Official Briefing for the 53rd World Medical Association General Assembly, 2-6 October, Washington, D.C., U.S.A., Business Briefing: Global Healthcare, Issue 3, 2002; 28-31.

6. Evans, R.G., Crutcher, J.M., Shadel, B., **Clements B.** Bronze, M.S., Terrorism from a public health perspective. American Journal of the Medical Sciences. 2002; 323(6) 291-298

7. Evans R.G., Shadel B.N., **Clements B.**, The Center for the Study of Bioterrorism and Emerging Infections: Training the Public Health Workforce for the Future, Public Health Reports 2001;116 (3):276-277.

8. Shadel, B., **Clements, B.**, Arndt, B., Rebmann, T., Evans, R.G. What we need to know about bioterrorism preparedness: Results from focus groups conducted at APIC 2000. American Journal of Infection Control 2001; 29(6): 347-351

9. Murgueytio, A., Evans, R., Sterling, D., Clardy, S., Shadel, B., **Clements, B.** Relationship Between Lead Mining and Blood Lead Levels in Children. Archives of Environmental Health 1998; 53(6): 414-423.

Additional Professional Training:

- **Medical Management of Chemical and Biological Casualties Course**, US Army Medical Research Institute of Infectious Diseases (USAMRIID) and the US Army Medical Research Institute of Chemical Defense (USAMRICD), Louisville, KY (November 2002)
- **Continuing Medical Readiness Training**, U.S. Air Force, Phelps Collins Air National Guard Training Site, Alpena, MI (August 2002)
- **Emergency Medical Service Operations and Planning for Weapons of Mass Destruction**, National Emergency Response and Rescue Training Center (Texas A&M), St. Louis City Fire Department, St. Louis, MO (March 2000)
- **Air Force Commissioned Officer Training**, U.S. Air Force, Maxwell Air Force Base, AL (August 1999)
- **Providing Meaningful Performance Measurements**, Missouri Department of Health, Jefferson City, MO (March 1998)
- **The Fundamentals of Surveillance, Prevention, and Control of Health Acquired Infections**, Association for Professionals in Infection Control and Epidemiology, St. Paul, MN (July 21-25, 1997)
- **Comprehensive Radiological Response Course**, Missouri State Emergency Management Agency, Jefferson City, MO (April 14-17 1997)
- **Hazardous Waste Operations Course**, 40 Hour HAZWOPER Training, U.S. Environmental Protection Agency, Region 7, St. Louis, MO (April 22-26 1996)

- **Lead Inspector Course**, Saint Louis University, School of Public Health, St. Louis, MO (1995)
- **Continuing Medical Readiness Training**, U.S. Air Force, Phelps Collins Air National Guard Training Site, Alpena, MI (1993)
- **Hazardous Materials Awareness**, Federal Emergency Management Agency, Self-Study Course (July, 1992)
- **Bioenvironmental Engineering Specialist Course**, *Distinguished Graduate*, U.S. Air Force, Brooks Air Force Base, TX (January-March 1991)
- **Indoor Air Quality**, Occupational Safety and Health Administration, Course #233, St. Louis, MO (October 16-18, 1990)
- **Radiological Emergency Management**, Federal Emergency Management Agency, Self-Study Course (November, 1990)
- **NATO Nuclear, Biological, and Chemical Warfare Orientation Course**, Houston, TX (1989)
- **Preparedness Planning for a Nuclear Crisis**, Federal Emergency Management Agency, Self-Study Course (October, 1988)
- **Air National Guard Leadership School**, *Distinguished Graduate*, McGhee Tyson Training Center, Knoxville, TN (October, 1986)
- **Disaster Preparedness Specialist Course**, U.S. Air Force, Lowrey Air Force Base, CO (June 1985)

Volunteer Activities

Safety Specialist and Executive Committee Member with MO-I, DMAT, a Disaster Medical Assistance Team based in St. Louis Missouri. It is a volunteer organization that is part of the National Disaster Medical System (January 2001 - Present)

Bioterrorism Work Group of the Association for Professionals in Infection Control and Epidemiology., Contributed to development and review of key healthcare preparedness documents and training materials. (July 2000 – present)

Hazardous Materials Specialist with Missouri Task Force I, a Federal Urban Search and Rescue Team based in Boone County, Missouri (November 1997 – January 2001)

Organized a Public Health Team responding to Olancho, Honduras following Hurricane Mitch. Established two water-testing labs, trained local public health authorities on water sampling and testing procedures, and provided public health education through Honduran Media. Sponsored by the Catholic Medical Association. (December 1998)
