

Melissa A. Cumming

EDUCATION

Tufts University **Medford, MA**
MS Environmental Health *May 1996*

Tufts University **Medford, MA**
BS Human Factors Engineering *May 1992*

EMPLOYMENT

Massachusetts Department of Public Health **Jamaica Plain, MA**
Bureau of Infectious Disease and Laboratory Sciences
Program Manager *November 2022-present*
Healthcare-Associated Infections and Antimicrobial Resistance Program
Healthcare-Associated Infections and Antimicrobial Resistance Lead *August 2020-November 2022*
Senior Epidemiologist *March 2008-present*
Hemovigilance Program Coordinator *June 2012-present*
Statewide Antibiotic Resistance Coordinator *July 2017-August 2020*

- Oversee the Department's Healthcare-Associated Infections (HAI) and Antimicrobial Resistance (AR) Program, tasked with surveillance, prevention and response activities related to HAI and AR across the healthcare continuum
- Oversee the Department's Antimicrobial Stewardship response across the healthcare continuum
- Co-Coordinate Bureau response to COVID-19 in healthcare settings including oversight and management of four federal (ELC grant) funding streams specific to healthcare-associated COVID-19 prevention, control and surveillance activities across the Commonwealth
- Subject-matter expert on healthcare-associated COVID-19 infection and response representing the Bureau with internal and external stakeholders
- Provide training, supervision and direction to epidemiologists conducting surveillance and case investigations of multi drug-resistant organisms (MDROs) and novel resistant pathogens and mechanisms
- Oversee the statewide hemovigilance program using the National Healthcare Safety Network platform for blood bank data submission
- Responsible for the monitoring, analysis and reporting of statewide hemovigilance data to stakeholders and the public
- Statewide Hemovigilance Technical Advisory Committee Chair
- Facilitate and lead a multi-disciplinary and cross-bureau working group on antimicrobial resistance and HAI containment and response activities, including MDPH leadership, laboratorians, surveillance epidemiologists and HAI/AR epidemiologists
- Deliver training and education for a variety of healthcare settings on HAI/AR pathogens, including containment strategies and infection control recommendations
- Provide guidance and consultation to healthcare facilities experiencing outbreaks related to MDROs; perform on-site infection control assessment response (ICAR) activities
- Serve as liaison to facilities and stakeholders outside of the Department addressing HAI and antimicrobial resistance

- Manage efforts to improve surveillance for antimicrobial resistance and other emerging infections; ensure infection preventionists, microbiology supervisors and healthcare providers are aware of the problem by providing quarterly situational awareness data reports
- Responsible for tracking and responding to antibiotic use and resistance patterns through various surveillance systems, including hospital antibiograms, the National Healthcare Safety Network and insurance claims data
- Responsible for developing and maintaining community and professional partnerships to promote antimicrobial stewardship across all healthcare settings including long-term care, acute care, outpatient care and dialysis with development and delivery of educational programs for this purpose
- Provide technical assistance to healthcare facilities identified with high antibiotic use and/or resistance rates

International Society for Infectious Diseases

Brookline, MA

Consultant Epidemiologist

February 2010 – April 2021

- Consultant infectious disease epidemiologist for a variety of projects including monitoring for worldwide selected disease outbreak activity and curation of alert content for partner programs and platforms

**Massachusetts Department of Public Health
Epidemiology Program**

Jamaica Plain, MA

Zoonotic Disease Project Coordinator

May 2008-July 2017

- Subject matter expert for zoonotic disease investigation and response
- Responsible for coordinating statewide active surveillance programs in Massachusetts for human cases of tickborne diseases, arboviral infections, rabies, tularemia and all other zoonotic and vector-borne diseases, including analyzing data and dissemination of findings in oral and written form
- Conducted investigations of diseases of humans acquired from animals and animal products
- Coordinated Statewide Rabies Advisory Committee
- Coordinated response to transfusion-transmitted West Nile virus infection and babesiosis
- Developed case report review protocols for reportable zoonotic diseases
- Daily response to public and press inquiries surrounding zoonotic diseases and situations
- Acted as a liaison with internal Divisions, external agencies and other outside groups and organizations regarding issues relating to rabies and other zoonotic diseases
- Developed and maintained zoonotic and vector-borne disease control guidelines, protocols and educational materials for both healthcare providers and the public
- Provided direct supervision to general epidemiologists, epidemiologists on the zoonotic project team and annual intern staff

**Massachusetts Department of Public Health
Epidemiology Program**

Jamaica Plain, MA

Epidemiologist

March 2000 – May 2008

- Member of Foodborne and Antibiotic Resistance Surveillance teams
- Served as site investigator for CDC study to evaluate meningococcal vaccine effectiveness
- Investigated communicable disease outbreaks and unusual surveillance findings according to established protocols
- Conducted analysis and interpretation of surveillance findings to effect public health action

Boston MedFlight*Critical Care Transport Paramedic***Bedford, MA***March 1997-March 2000*

- Provided critical care, air medical transport in a variety of settings including inter-facility transport, emergency scene response and specialty work such as neonatal intensive care
- Functioned as the organization's Designated Infection Control Officer with responsibility for the development of comprehensive infection control policies and procedures, quality assurance and the coordination of post-exposure interventions
- Actively involved in BMF research program, including original work in the areas of infection control compliance and improvement, as well as vector-borne disease tracking and case series presentation, with publication in all areas

Northeastern University*Adjunct Faculty, Institute for Emergency Medical Services***Burlington, MA***September 1998-March 2000*

- Faculty member responsible for providing infectious disease, infection control and OSHA blood borne pathogen standard training and education to students enrolled in the Institute for Emergency Medical Services.

UMASS Memorial Medical Center*Infection Control Consultant/Field Paramedic***Worcester, MA***October 1995-March 1999*

- Coordinated infection control activities within the Emergency Medical Services Division.
- Provided infectious disease training and education for department personnel and coordination of safety device trials.
- Conducted grant-funded, original research comparing needle stick and exposure rates before and after infectious disease education and safety device implementation.
- Full-time, staff paramedic for the 911 EMS system in the city of Worcester, providing emergency response and advanced life support.

Strato Medical Corporation (Pfizer)*Associate Engineer***Beverly, MA***January 1992-April 1994*

- Research and development engineer for implantable vascular access device division of Pfizer's Hospital Products Group.
- Responsible for development and testing of new vascular access devices including the writing of 510(k) submissions.
- Responsible for all literary research in areas of anti-thrombogenic and infection-resistant biomaterials, related to current device trials.
- Involved in clinical affairs division, including site visits and clinical chart reviews.

COMMITTEES

Member Association for the Advancement of Blood and Biotherapies
(AABB) Hemovigilance Subcommittee

September 2023-present

Member of Society for Healthcare Epidemiology of America (SHEA)
Public Health Task Force

February 2023-present

Voting Member U.S. Food and Drug Administration Blood Products
Advisory Committee (BPAC)

October 2021-present

Co-Chair Council of State and Territorial Epidemiologists, Centers for
Disease Control and Prevention and Association of Public Health

Laboratories, Antibiotic Resistance Surveillance Task Force (ARSTF)

April 2021- present

Member CSTE Healthcare-Associated Infections Subcommittee

July 2016- present

SELECTED PEER-REVIEWED PUBLICATIONS

Iannone A, **Cumming M**, Osinski A, Brandeburg C, Schultz J, Slider A, et al. How do we use the National Healthcare Safety Network for Hemovigilance in Massachusetts? *Transfusion*. 2023

Wilson, W., Keaton, A. A., Ochoa, L. G., Hatfield, K. M., Gable, P., Walblay, K. A....Hunter, J. C. (2023). Outbreaks of SARS-CoV-2 Infections in Nursing Homes during Periods of Delta and Omicron Predominance, United States, July 2021–March 2022. *Emerging Infectious Diseases*, 29(4), 761-770.

Wilson, W., Keaton, A., Ochoa, L., Hatfield, K., Gable, P., Walblay, K., . . . Hunter, J. (2023). Severe acute respiratory coronavirus virus 2 (SARS-CoV-2) outbreaks in nursing homes involving residents who had completed a primary coronavirus disease 2019 (COVID-19) vaccine series—13 US jurisdictions, July–November 2021. *Infection Control & Hospital Epidemiology*, 1-5.

Shenoy, E. S., Wright, S. B., Barbeau, D. N., Foster, L. A., King, A. D., Gordon, P. S., Mehrotra, P., Pepe, D. E., Caroff, D. A., Kim, L. R., McGrath, S. E., Courtney, A., Fahy, M., Hooper, D. C., Macdonald, K., Searle, E. F., Shearer, J. A., Zachary, K. C., Bouton, L., **Cumming, M.**, . . . Brown, C. M. (2022). Contact Tracing and Exposure Investigation in Response to the First Case of Monkeypox Virus Infection in the United States During the 2022 Global Monkeypox Outbreak. *Annals of internal medicine*, 175(12), 1639–1647.

Kracalik I, Mowla S, Katz L, **Cumming M**, Sapiano MRP, Basavaraju SV. Impact of the early coronavirus disease 2019 pandemic on blood utilization in the United States: A time-series analysis of data reported to the National Healthcare Safety Network Hemovigilance Module. *Transfusion*. 2021 Sep;61 Suppl 2: S36-S43.

Klompas M, Baker MA, Griesbach D, Tucker R, Gallagher GR, Lang AS, Fink T, **Cumming M**, Smole S, Madoff LC, Rhee C. Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From Asymptomatic and Presymptomatic Individuals in Healthcare Settings Despite Medical Masks and Eye Protection. *Clin Infect Dis*. 2021 Nov 2;73(9):1693-1695.

Theodoropoulos, NM, Bolstorff, B, Bozorgzadeh, A, et al. *Candida auris* outbreak involving liver transplant recipients in a surgical intensive care unit. *Am J Transplant*. 2020; 00: 1– 7.

Jones SA, Jones JM, Leung V, et al. Sepsis Attributed to Bacterial Contamination of Platelets Associated with a Potential Common Source — Multiple States, 2018. *MMWR Morb Mortal Wkly Rep* 2019; 68:519–523.

Edens C, Haass KA, **Cumming M**, et al. Evaluation of the National Healthcare Safety Network Hemovigilance Module for transfusion-related adverse reactions in the United States. *Transfusion*. 2019; 59(2):524–533.

Klevens RM, **Cumming MA**, Caten E, et al. (2018), Transfusion-transmitted babesiosis: one state's experience. *Transfusion*, 58: 2611-2616.

Cumming M, Osinski A, O'Hearn L, et al. (2017), Hemovigilance in Massachusetts and the adoption of statewide hospital blood bank reporting using the National Healthcare Safety Network. *Transfusion* 2017, 57: 478–483.

Bahk CY, **Cumming M**, Paushter L, et al. Publicly Available Online Tool Facilitates Real-Time Monitoring of Vaccine Conversations and Sentiments. *Health Affairs*, 2016 Feb 1; 35(2):341-7.

Shields K, **Cumming M**, Rios J, et al. Transfusion-associated *Anaplasma phagocytophilum* infection in a pregnant patient with thalassemia trait: a case report. *Transfusion* 2015, 55: 719–725.

Boland TA, McGuone D, Jindal J, et al. Phylogenetic and epidemiologic evidence of multiyear incubation in human rabies. *Ann Neurol*. 2014, 75: 155–160.

Larson HJ, Smith DM, Paterson P, et al. Measuring vaccine confidence: Analysis of data obtained by a media surveillance system used to analyze public concerns about vaccines. *Lancet Infect Dis*. 2013; 13: 606–613.

Cumming M, Kludt P, Matyas B, et al. Outbreak of *Listeria monocytogenes* infections associated with pasteurized milk from a local dairy—Massachusetts 2007. *MMWR Morb Mortal Wkly Rep*. 2008 Oct 10; 57(40): 1097-100.

- Re-printed in *JAMA*. 2009; 301(8):820-822

Thomas SH, Cheema F, **Cumming M**, et al. Nontrauma helicopter emergency medical services transport: annotated review of selected outcomes-related literature. *Prehospital Emergency Care*. 2002, 6(2):242–255.

SELECTED ABSTRACTS AND PRESENTATIONS

M. Cumming, D. Sievert, A. Gross. Antimicrobial Resistance Surveillance Task Force: Progress and Future. *Roundtable presentation CSTE 2023*. Salt Lake City, Utah.

M. Cumming, D. Sievert, P. Shah. Antimicrobial Resistance Surveillance Task Force: Progress and Future. *Roundtable presentation CSTE 2022*. Lexington, Kentucky.

M. Klevens, W. Lapsley, L. Chou, S. Onofrey, **M. Cumming**. Trends in Primary and Repeat Hospitalizations with *Clostridioides Difficile*, Massachusetts, 2016-2019. *Oral presentation at ASM Microbe Conference 2022*, Washington, D.C.

Klevens M, Roberts R, **Cumming M**. Peer-comparison message to dentists may have no effect in changing antibiotic prescribing behavior. *Poster presentation at Decennial SHEA Conference*, March 2020, Atlanta, GA.

Doucette M, **Cumming M**, Vaughn E, Bolstorff B, De Jesus A, McAllister G, Sula E, Laufer Halpin A, Hsu T, Fortes E, Stiles T, Smole S. Implementation of Whole Genome Sequencing and Bioinformatics Analysis during an Investigation of New Delhi Metallo- β -lactamase

Escherichia coli. *Poster presentation* at CDC's Advanced Molecular Detection Conference, August 2019, Atlanta, GA.

Cumming M, McHale E, Rydzewski L, et al. Infection Control Assessment of Long-Term Acute Care Facilities (LTACs)/Skilled Rehabilitation Facilities (SRFs) in Massachusetts: Building Capacity to Contain Antibiotic Resistant Pathogens. *Poster presentation* at the Council of State and Territorial Epidemiologists Conference, June 2019 Raleigh, NC.

Cumming M. "Hemovigilance in Massachusetts". *Oral presentation* at ARC New England Regional Transfusion Medicine Seminar, November 2018 Augusta ME.

Cumming M, Brandeburg C, DeJesus A, et al. Acute Hemolytic Transfusion Reactions in Massachusetts, 2015-2017. *Oral presentation* at AABB Annual Conference, October 2018, Boston, MA.

Cumming M, Brandeburg C, DeJesus A, et al. Transfusion-Associated Circulatory Overload in Massachusetts, 2015-2017. *Oral presentation* at AABB Annual Conference, October 2018, Boston, MA.

Cumming M. Insights from Hemovigilance Networks-Massachusetts. *Oral presentation* at State of the Research Symposium on TACO and TRALI, AABB Annual Conference, October 2018, Boston, MA.

Cumming M, Barton K, Stiles T, et al. Detection and Response to a Patient Simultaneously Colonized with Three Carbapenem-Resistant Organisms Containing Four Different Novel Carbapenemases. *Oral presentation* at the Council of State and Territorial Epidemiologists Conference, June 2018. West Palm Beach, FL.

Cumming M, Barton K, Troppy S, et al. Capturing Multidrug-Resistant Organisms in Massachusetts Using Maven. *Oral presentation* at the Council of State and Territorial Epidemiologists Conference, June 2018. West Palm Beach, FL.

Vo Q, Klevens M, **Cumming M**, et al. Trends in Antibiotic Treatment of Urinary Tract Infections in Older Populations, Massachusetts 2009-2012. *Poster presentation* at the Council of State and Territorial Epidemiologists Conference, June 2018. West Palm Beach, FL.

Cumming M, DeJesus A. Massachusetts Hemovigilance Update. *Oral presentation* at Massachusetts Association of Blood Banks Annual Conference, April 2018, Mansfield, MA.

Update on Mandatory Hemovigilance Reporting in Massachusetts. AABB News, April 2018. Subject of feature article, pg. 4-5.

CERTIFICATIONS

- 2023 Board Certified in Long-Term Care Infection Control and Prevention, Certification Board of Infection Control and Epidemiology, Inc.
- 2019 Board Certified in Infection Control, Certification Board of Infection Control and Epidemiology, Inc.

AWARDS

- 2020 Commonwealth Citation for Group Outstanding Performance BIDLS Hospital Acquired Infections Team

- 2020 Commonwealth Commissioner Citation for COVID Epidemiologic Response
- 2019 Recipient of 2020 SHEA Decennial Public Health Scholarship
- 2017 Commonwealth Citation for Outstanding Performance-Healthcare-Associated Infections Validation Team
- 2016 Commonwealth Citation for Outstanding Performance- Zika Response Team
- 2015 Commonwealth Citation for Outstanding Performance- Ebola Response Team
- 2013 Commonwealth Citation for Outstanding Performance-Mosquito-Borne Illness Response Team

PROFESSIONAL ASSOCIATIONS

- Association for the Advancement of Blood and Biotherapies (AABB)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- New England Chapter of Association for Professionals in Infection Control and Epidemiology (NE APIC)
- The Council of State and Territorial Epidemiologists (CSTE)
- The Massachusetts Association of Blood Banks (MABB)
- The Society for Healthcare Epidemiology of America (SHEA)