

## **Melissa A. Cumming**

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### EDUCATION

<b>Tufts University</b> <i>MS Environmental Health</i>	<b>Medford, MA</b> <i>May 1996</i>
<b>Tufts University</b> <i>BS Human Factors Engineering</i>	<b>Medford, MA</b> <i>May 1992</i>

### EXPERIENCE

<b>Massachusetts Department of Public Health</b> <b>Bureau of Infectious Disease and Laboratory Sciences</b> <i>Healthcare-Associated Infections and Antibiotic Resistance Program Lead</i> <i>Statewide Antibiotic Resistance Coordinator</i> <i>Hemovigilance Program Coordinator</i> <i>Senior Epidemiologist</i>	<b>Jamaica Plain, MA</b> <i>August 2020-present</i> <i>July 2017-August 2020</i> <i>June 2012-present</i> <i>March 2008-present</i>
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- Program Lead for the Epidemiology Division's Healthcare-Associated Infections (HAI) and Antibiotic Resistance Program, overseeing the work and direction of the program's epidemiologists to conduct surveillance, prevention and control of HAIs and antibiotic resistant pathogens of concern across the Commonwealth in addition to overseeing the Department's efforts toward antibiotic stewardship across all healthcare settings
- Responsible for development and implementation of the statewide HAI/AR Containment Plan
- 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
- Serve as subject-matter expert on healthcare-associated COVID-19 infection, representing the Bureau on numerous weekly statewide calls with internal and external stakeholders
- Coordinate statewide response to the increasing public health threat of antibiotic resistance
- Led statewide adoption of mandatory hemovigilance reporting through the National Healthcare Safety Network (NHSN) and responsible for oversight of the statewide hemovigilance program
- Provide leadership to team of epidemiologists responsible for the monitoring, analysis, and reporting of statewide hemovigilance data to stakeholders and the public
- Serve as statewide Hemovigilance Technical Advisory Committee Chairperson
- Provide training, supervision and direction to epidemiologists conducting surveillance and case investigations of multi drug-resistant organisms and novel resistant pathogens and mechanisms
- Serve as a subject matter expert to the Bureau on response to multi-drug resistant organisms and HAIs across all healthcare settings
- Facilitate and lead a multi-disciplinary working group on AR containment and response activities, including MDPH leadership, laboratorians, surveillance epidemiologists and HAI/AR epidemiologists
- Supervised two Leaders in Epidemiology, Antimicrobial Stewardship, and Public Health (LEAP) Fellows working on antimicrobial resistance and antimicrobial stewardship in 2018-2019 academic year
- Deliver educational webinars for a variety of healthcare settings on HAI/AR pathogens, including containment strategies and infection control recommendations

- Provide guidance and consultation to facilities experiencing outbreaks related to multidrug-resistant organisms; performs on-site infection control and response assessments (ICAR)
- Serve as liaison to facilities and groups outside of MDPH working on HAI and antibiotic 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 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 antibiotic 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
- As a senior epidemiologist, provide direct supervision to Division epidemiologists and analysts during investigations of emerging pathogens, zoonotic disease, and foodborne and waterborne outbreaks

#### **Council of State and Territorial Epidemiologists (CSTE)**

**Atlanta, GA**

*Co-Chair, Antibiotic Resistance and Surveillance Task Force (ARSTF)*

*May 2021-present*

- Newly appointed co-chair of the CSTE/CDC/APHL Antimicrobial Resistance Surveillance Task Force which broadly provides recommendations for strengthening public health surveillance of antimicrobial resistance in the United States. Current priority areas include: Promoting interoperable linkages between laboratory data and epidemiologic case finding, release of suppressed antimicrobial susceptibility test result data to inform public health action, developing capacity for a more informed workforce around antimicrobial resistance, antibiotic use, stewardship, and informatics, and approaching antimicrobial resistance from a One Health perspective.

#### **International Society for Infectious Diseases (ISID)**

**Brookline, MA**

*Consultant Epidemiologist*

*February 2010 – present*

- 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 I*

*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**

**Bedford, MA**

*Critical Care Transport Paramedic*

*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

**SELECTED PEER-REVIEWED PUBLICATIONS**

Kracalik, I., Mowla, S., Katz, L., **Cumming, M.**, et al. Impact of the early COVID-19 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 Accepted Author Manuscript.

Klompas M, Baker MA, Griesbach D, Tucker R, Gallagher GR, Lang AS, Fink T, **Cumming M**, et al. Transmission of SARS-CoV-2 from asymptomatic and presymptomatic individuals in healthcare settings despite medical masks and eye protection, *Clin Infect Dis*. 2021 Mar 11.

Vo QT, Klevens RM, Bolstorff B, Barton K, **Cumming M**, et al. Utilization of cumulative antibiograms for public health surveillance: Trends in *Escherichia coli* and *Klebsiella pneumoniae* susceptibility, Massachusetts, 2008-2018. *Infect Control Hosp Epidemiol*. 2021 Feb;42(2):169-175.

Theodoropoulos NM, Bolstorff B, Bozorgzadeh A, Brandeburg C, **Cumming M**, et al. *Candida auris* outbreak involving liver transplant recipients in a surgical intensive care unit. *Am J Transplant*. 2020 12; 20(12):3673-3679.

Jones SA, Jones JM, Leung V, Nakashima AK, Oakeson KF, Smith AR, Hunter R, Kim JJ, **Cumming M**, 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, Rocha M, **Cumming M**, et al. Phylogenetic and epidemiologic evidence of multiyear incubation in human rabies. *Ann Neurol*. 2014, 75: 155–160.

Larson HJ, Smith DM, Paterson P, **Cumming M**, 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

**Cumming M**, Doucette M, Brandeburg C, et al. Enhanced Characterization of a Regional New Delhi Metallo- $\beta$ -Lactamase-Positive *Klebsiella Pneumoniae* Outbreak Using Whole Genome Sequencing. Breakout Presentation at CSTE Conference, June 2021, Virtual Meeting.

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- $\beta$ -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

2019 Board Certified in Infection Control, Certification Board of Infection Control and Epidemiology, Inc.

## AWARDS

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

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

AABB (Formerly the American Association of Blood Banks)

The Association for Professionals in Infection Control and Epidemiology (APIC)

The Council of State and Territorial Epidemiologists (CSTE)

The Massachusetts Association of Blood Banks (MABB)

The Society for Healthcare Epidemiology of America (SHEA)