

CURRICULUM VITAE

NAME: Amy Jean Mathers

I. PERSONAL DATA

ADDRESS: 2020 North Pantops Drive
Charlottesville, Virginia 22911

EMAIL: ajm5b@virginia.edu

PERSONAL: Born: March 19th 1974, Omaha, Nebraska
Raised: 1979-1992, Butte, Montana

II. EDUCATION

1992-1997 Humboldt State University, Arcata, California
Degree: Bachelor of Science in Cellular/Molecular Biology
1998-2002 Loyola Stritch School of Medicine, Maywood, Illinois
Degree: Doctor of Medicine

III. POST-GRADUATE EDUCATION AND TRAINING:

2002 - 2003 Intern in Medicine, Maine Medical Center, Portland, Maine
(David Gannon, MD)
2003 - 2005 Resident in Medicine, Maine Medical Center, Portland, Maine
(David Gannon, MD)
2005 - 2006 Chief Medical Resident, Maine Medical Center, Portland, Maine
(David Gannon, MD)
2006 -2009 Fellow in Infectious Diseases, University of Virginia, Charlottesville,
Virginia (Michael Rein, MD and Brian Wispelwey, MD)
2012-2017 Supervised On the Job Training for American Board of Medical
Microbiology Diplommat Program (Melinda Poulter, PhD)

IV. ACADEMIC APPOINTMENTS

09/09-05/15 Assistant Professor of Internal Medicine (Infectious Diseases)
Non-tenure eligible Clinical Faculty
University of Virginia, Charlottesville, Virginia
07/12-05/15 Assistant Professor of Pathology
Non-tenure eligible Clinical Faculty
University of Virginia, Charlottesville, Virginia

Amy Mathers

07/13-09/13	Sabbatical as Visiting Professor, Modernizing Medical Microbiology Consortium, Nuffield Department of Clinical Medicine, Oxford University, Oxford England
05/15-06/16	Assistant Professor of Medicine (Infectious Diseases) Tenure Eligible Clinical Educator University of Virginia, Charlottesville, Virginia
05/15- 06/16	Assistant Professor of Pathology Tenure Eligible Clinical Educator University of Virginia, Charlottesville, Virginia
09/15-08/17	Intergovernmental Sponsored Research Coordinator Scientist Centers for Diseases Control and Prevention
07/16-	Associate Professor of Medicine (Infectious Diseases) Tenured (2020) Clinical Educator University of Virginia, Charlottesville, Virginia
07/16-	Associate Professor of Pathology Tenured (2020) Clinical Educator University of Virginia, Charlottesville, Virginia

V. OTHER EMPLOYMENT PERTAINING TO CURRENT PROFESSIONAL APPOINTMENTS

PRESENT POSITION:

09/09-	Medical Director Antimicrobial Stewardship, University of Virginia Health System, Charlottesville, Virginia
07/12-	Associate Director of Clinical Microbiology, University of Virginia Health System, Charlottesville, Virginia
01/21-	Director of Antimicrobial Resistance (AMR) Services Clinical Microbial Genomics Laboratory, University of Virginia Health System, Charlottesville, VA

OTHER ACADEMIC, CLINICAL and CONSULTATIVE APPOINTMENTS:

11/04	Visiting Instructor in Medicine, Kabul Medical University, Kabul, Afghanistan
07/05-06/06	Clinical Instructor in Medicine University of Vermont at Maine Medical Center

Amy Mathers

02-08/06	Attending Physician, Togus Hospital of Veterans Affairs, Augusta, Maine
02/10-07/13	Medical Director Antimicrobial Stewardship, Culpeper Regional Hospital, Culpeper, Virginia
02/10-07/13	Hospital Epidemiologist, Culpeper Regional Hospital, Culpeper, Virginia
02/10-07/13	Attending Physician, University of Virginia Specialty Care Clinic, Culpeper, Virginia
01/19-06/20	Antimicrobials Resistance (AMR) Services. Consultant. Supervising next generation sequencing for outbreak detection and product testing for interventions to prevent the transmission of antimicrobial resistant pathogens in hospitals. University of Virginia Licensing and Venture Group.
05/20-10/22	Associate Medical Director of COVID-19 University of Virginia Health System Clinic with Debbie Ann Shirley, MD

VI. CERTIFICATION AND LICENSURE

A. CERTIFICATION

08/2005, 10/2015	American Board of Internal Medicine-Internal Medicine
10/2009, 11/2019	American Board of Internal Medicine- Infectious Diseases
06/2017, 1/2022	American Board of Medical Microbiology

B. LICENSURE

August 2005-07	Maine Medical License Registration
July 2009-	Virginia Medical License Registration
July 2009-	DEA license

VII. HONORS AND AWARDS

1995-1997	National Institute of Health Fellowship Grant and Howard Hughes Medical Institute Grant, Humboldt State University
2003	Maine Medical Center Mentored Research Grant Award
2005	“Above and Beyond” Resident Award, Maine Medical Center
2005	NIH Extramural Loan Repayment Award
2006	NIH Extramural Loan Repayment Award-Renewed
2007	Special Citation for High Caliber Abstracts by Fellow-in-Training at Infectious Diseases Society of America 45 th Annual Meeting. Both first author oral and poster presentations recognized.

2009	"Outstanding Clinical Fellow Award", Department of Internal Medicine, University of Virginia
2009	Best Poster for Infectious Diseases Research Day at University of Virginia
2012	Leap Frog Rating "A" Culpeper Regional Hospital. Rating based heavily on Infection Control Program
2013	Leap Frog Rating "A" Culpeper Regional Hospital. Rating based heavily on Infection Control Program
2013	"Department Award for Outstanding Clinical Care", Department of Internal Medicine, University of Virginia
2014	Induction into the Academy of Distinguished Educators
2014	Cavalier Award for Innovation in Research, University of Virginia
2014	Deans Excellence in Teaching Award, School of Medicine, University of Virginia
2015	Manuscript Selected for Top 10 Manuscripts of the Year in Infection Control and Clinical Microbiology, American Society for Microbiology
2017	"Department Award for Outstanding Research" Department of Internal Medicine, University of Virginia
2019	First author of a top 10% of most read articles of 2018 Clinical Infectious Diseases Journal Impact Factor-9.2
2019	First author of the fifth most cited articles for 2018. Clinical Microbiology Reviews. Journal Impact Factor-20.6
2020	Research Award, University of Virginia Recognition of Campus wide Contributions
2020	Dean's Award for Clinical Excellence, School of Medicine, University of Virginia
2020	Diane Snustad Women in Medicine Excellence Award, Department of Medicine, University of Virginia
2021	Innovator of the Year, University of Virginia Licensing and Venture Group
2022	Featured Faculty in Great and Good Campaign , University of Virginia
2023	Excellence in Research, University of Virginia Recognition of Campus wide Research Achievements

VIII. PROFESSIONAL AFFILIATIONS

MEMBERSHIPS:

2006-	Member, Infectious Diseases Society of America
2010-11	Member, Society of Healthcare Epidemiology of America
2010-	Member of American Society for Microbiology
2014-	Member, Academy of Distinguished Educators
2015-16	Advisor, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
2016-	Volunteer, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
2020-	Fellow of the Infectious Diseases Society of America

IX. RESEARCH ACTIVITIES

A. AREAS OF RESEARCH INTEREST

Focusing on the urgent clinical problem of increasing antimicrobial resistance in bacteria, I have devoted my research efforts to understanding evolution and detection of antimicrobial resistance. Through this effort I have focused on the mechanisms by which to slow the development of multidrug resistant bacteria in a hospital setting. I have been approaching antimicrobial resistance research from several research aspects:

- +Clinical Microbiology optimization for detection and reporting of bacterial resistance
- +Molecular epidemiology and evolution of drug resistance with a focus on horizontal gene transfer between bacteria
- +Applications of transmission modeling paired with next generation sequencing
- +Development of public health partnerships for applied pathogen genomics to detect and reduce antimicrobial resistant bacteria including wastewater surveillance
- +In hospital transmission and environmental reservoirs of drug resistant pathogens <http://uvasinklab.org/>
- +Microbial transmission of waste water organisms to patient environment
- +Clinical outcomes and clinical trials in patients affected by drug resistant pathogens
- +Rapid diagnostics to minimize unnecessary antimicrobial exposure in hospitalized patients
- +Antimicrobial stewardship as a means of decreasing drug resistant pathogens

During the COVID-19 pandemic my lab has been applying some of the wastewater surveillance and sequencing to SARS CoV-2 monitoring and transmission.

- +Wastewater monitoring for antimicrobial resistance and SARS CoV-2 RNA for congregate settings.
- +SARS CoV-2 whole genome sequencing for Virginia State Public Health response

B. CURRENT PROJECTS

1) Next Generation sequencing to unravel bacterial genetic exchange of drug resistance.

Role: Primary Investigator-For the last fourteen years, I have been prospectively collecting all clinical carbapenemase producing isolates. For this project I performed bench work, gathered clinical data and designed and performed analysis of data (IRB# 13558).

Description: Using next generation sequencing we aim to understand the genetic exchange of genes of carbapenem resistance in a sustained multispecies outbreak which has occurred within University of Virginia Medical Center.

Collaborators: From University of Virginia - Costi Sifri, MD, Hardik Parkih, PhD.

From Other institutions: Derrick Crook MBBA, Anna Sheppard PhD, Nicole Stoesser MBBA PhD, Tim Peto MBBA, Sarah Walker, PhD Modernizing

Medical Microbiology Consortium, Nuffield School of Medicine, Oxford University. Andrew Kasarskis PhD, , Robert Sebra PhD Icahn School of Medicine at Mount Sinai,

2) Examination and mitigation of the role of environmental reservoirs in nosocomial transmission of carbapenem resistant bacteria.

Role: Principle Investigator/ Project leader-We have been performing sampling, overseeing and developing laboratory methods, working with facilities and quality to moderate risk, examining interventions and mechanisms of transmission in the laboratory, overseeing data extraction and analysis.

Description: Hospital transmission of carbapenem resistant Enterobacteriaceae does not appear to be originating from infected or colonized patients as is described with traditional hospital outbreaks. After examination of other sources of transmission I found and led other institutions to find that an environmental reservoir may be contributing to the outbreak. The aim of this project is to understand and mitigate transmission of carbapenem resistant Enterobacteriaceae in the hospital.

Collaborators: From University of Virginia-Costi Sifri, MD, Shireen Kotay, PhD, Division of Infectious Diseases. William Guilford, PhD, Jason Papin, PhD, Department of Biomedical Engineering, Don Brown, PhD, Laura Barnes, PhD Data Science, James Howe, PhD, Material Science, Jennifer Lobo-Mason PhD, Department of Public Health

Outside of University of Virginia: Derrick Crook MBBA, Neil Woodford, Public Health England; Cliff McDonald MD, Alex Kallen, MD, Matt Arduino PhD, Sujana Reddy, MD and Rodney Donlan, PhD Centers for Disease Prevention and Control. Becky Smith MD, Sarah Lewis, MD, Duke University, Elizabeth Broadkin, PhD, Frazier Health British Columbia, Canada. TRANsmision of Carbapenemase producing Enterobacteriaceae (TRACE) Investigators' Group. Aranega-Bou P, George RP, Verlander NQ, Paton S, Bennett A, Moore G; Aiken Z, Akinremi O, Ali A, Cawthorne J, Cleary P, Crook DW, Decraene V, Dodgson A, Doumith M, Ellington M, Eyre DW, George RP, Grimshaw J, Guiver M, Hill R, Hopkins K, Jones R, Lenney C, Mathers AJ, McEwan A, Moore G, Neilson M, Neilson S, Peto TEA, Phan HTT, Regan M, Seale AC, Stoesser N, Turner-Gardner J, Watts V, Walker J, Sarah Walker A, Wyllie D, Welfare W, Woodford N.

3) Ex Situ Laboratory Studies of Natural History, Prevention and Transmission of Carbapenem Resistance in Sink Trap reservoirs

Role: Co-principle Investigator- Oversee funding, scientific direction experimental design of queries to understand transmission

Description: Led design and established two unique sink (one BSL-1 and one BSL-2) labs to understand growth and dispersal of Enterobacteriaceae in sink waste water plumbing and the dispersal to the surrounding environment.

<http://uvasinklab.org/>

Collaborators: Shireen Kotay, PhD (Co-PI) University of Virginia Outside the University of Virginia Christopher Grim PhD, Food and Drug Administration, Rodney Donlan, PhD Centers for Diseases Control and Prevention, Anna Sheppard PhD and Nicole Stoesser, MBBS, PhD, Oxford University Jimmy Walker, PhD Public Health England, Soon Gweon PhD, University of Redding, United Kingdom

4) Understanding the evolution of antibiotic resistance plasmids

Role: Co-investigator

Description: Examination of transfer dynamics of plasmids and other mobile genetic elements that carry genes of antimicrobial resistance using next-generation sequencing analysis paired with in vitro horizontal gene transfer experiments in my research laboratory. Ultimately we will develop plasmid curing systems for antimicrobial resistance plasmids.

Collaborators: Shireen Kotay, PhD, Katie Barry, MS, Alex Wailan, PhD Outside University of Virginia: Jon Iredell, MBBS, PhD, Muhammad Kamruzzaman, PhD, Sally Partridge, PhD, University of Sydney, Anna Sheppard, PhD University of Oxford, Eva Top, PhD, University of Idaho

5) RESEARCH COLLABORATION/TEAM SCIENCE

Most of my current projects involve team science. Listed here are the critical members of the large teams with whom collaboration is central to scientific success.

2012- Modernizing Medical Microbiology, Nuffield School of Medicine, Oxford University

Derrick Crook	Principle Investigator
Tim Peto	Physician Scientists/ Epidemiologist
Nicole Stoesser	Physician-Investigator
Stephen Bush	Bioinformatics and sequence analysis
Anna Sheppard	Bioinformatics and sequence analysis
Sarah Walker	Primary Statistician
Daniel Walker	Bayesian Statistician
David Eyre	Physician Investigator
Ali Vaughan	Laboratory Based Research Technician
Sarah Hoosdaly	Project Coordinator

2013-17 Icahn Institute for Genomics and Multiscale Biology, School of Medicine at Mount Sinai, New York

Andrew Kasarskis	Director and technology developer
Robert Sebra	Bioinformatics and sequence analysis
Jose Clemente	Microbiome Analysis

2014-18 Department of Engineering/Data Science and Department of Public Health, University of Virginia

Aaron Pannone	Public Health Sciences
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Laura Barnes	Information Engineering for Health Care Data
Don Brown	Director of the Data Science Institute
Jennifer Mason-Lobo	Public Health Biomedical Informatics
Jason Papin	Biomedical Engineering of Systems Biology
William Guilford	Biomedical Engineering

2015- Centers for Disease Prevention and Control

Sujan Reddy	Physician Scientists/ Epidemiologist
Rodney Donlan	Environmental Microbiologist
Cliff McDonald	Associate Director for Science
Alex Kallen	Physician Scientists/ Epidemiologist

2019- Department of Engineering Systems & Environment, University of Virginia

Lisa Colosi Peterson, PhD	Director of Civil Engineering Graduate Programs
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2016- Information Technology University of Virginia Health System

Jonathan Michael	Data Scientist
Kasi Vegesana	Data Scientist
Rena Morse	Data Scientist
Wendy Repass	Data Visualization Specialist

2018- The University of Sydney School of Medicine

Jon Iredell	Physician-scientist/group leader
Muhammad Kamruzzaman	Microbiologist
Sally Partridge	Bioinformatics and mobile genetic element analysis

2022 University of Virginia Biocomplexity Institute

Mathematical Model Building for Antimicrobial Resistance Gene Movement

Christian Reidys	Mathematical Biocomplexity, Professor of Mathematics
Thomas Jiaxian Li	Computational Biology and Bioinformatics
Qijun He	Topological Methods for Biology
Fenix Huang	Computational Biology and Bioinformatics

2022 Virginia Pathogen Genomics Center of Excellence

CDC Funded Project between Virginia Department of Health, Virginia Public Health Laboratory, Virginia Commonwealth University and University of Virginia (Biocomplexity Institute and School of Medicine)

Madhav Marathe	Director of Biocomplexity Institute (BI)
Andrew Warren	Bioinformatics and Infectious Disease Modeling (BI)
Bryan Lewis	Network Systems Science (BI)
Rebecca Wattam	Microbial Bioinformatics (BI)
Ronald Keynon	Project Management (BI)
Greg Buck	Microbiome analysis (VCU)
Denise Toney	Director of Division of Consolidated Lab Services (DCLS)
Alexandra Lorentz	Project Management/Molecular Epidemiology (DCLS)
Lauren Turner	Pathogen Genomics Laboratory Scientist (DCLS)

Logan Fink
Jenny Crain

Bioinformatics (DCLS)
Epidemiologist Virginia Department of Health (VDH)

X. TEACHING ACTIVITIES

A. Clinical Teaching (in ward, clinic, OR)

- 2005-06 Clinical Instructor, Created and gave lectures on basic clinical topics in Internal Medicine to Fourth Year Students for University of Vermont, Maine Medical Center, Portland, Maine
- 2009-16 Assistant Professor, Department of Medicine, Supervising and teaching students and residents on the clinical wards on both the general medicine and the Infectious Diseases Consult Services and in Infectious Diseases Clinic, University of Virginia.
- 2012-16 Assistant Professor, Department of Pathology, Supervising and teaching students and trainees in the Clinical Microbiology Laboratory on methods and interpretation of clinical results, University of Virginia
- 2016- Associate Professor, Department of Pathology, Supervising and teaching students and post-graduate trainees in the Clinical Microbiology Laboratory on methods and interpretation of clinical results, University of Virginia
- 2016- Associate Professor, Department of Medicine, Supervising and teaching students and residents on the clinical wards on both the general medicine and the Infectious Diseases Consult Services and in Infectious Diseases Clinic, University of Virginia.

XI. TEACHING ACTIVITIES OTHER THAN CLASSROOM OR CLINICAL, INCLUDING TEACHING OF UNDERGRADUATE (PRE-BACCALAUREATE), GRADUATE, POSTDOCTORAL STUDENTS AND CONTINUING EDUCATION MEDICAL STUDENTS.

A. Invited Mentorship Activities

- 10/17 IDweek Mentorship Program. Meeting and talking with trainees interested in various aspects of Infectious Diseases. Infectious Diseases Society of America, San Diego, CA
- 10/18 IDweek Mentorship Program. Meeting and talking with trainees interested in various aspects of Infectious Diseases. Infectious Diseases Society of America, San Fransisco, CA
- 10/19 IDweek Mentorship Program. Meeting and talking with trainees about various aspects of Infectious Diseases. Infectious Diseases Society of America, Washington DC

10/21 IDweek Mentorship Program. Meeting and talking with trainees over Zoom about various aspects of Infectious Diseases. Infectious Diseases Society of America, Virtual Meeting

B. Conferences, Grand Rounds and Lectures

7/21/09 Medical Grand Rounds: Multidrug Resistant Gram Negative Bacteria: Local Impact of a Global Crisis, University of Virginia

8/13/09 Guest Lecture for Epidemiology II Course Case study of molecular and genetic epidemiology. School of Public Health, University of Virginia

4/23/10 Approach to Culture Results and Common Mis-steps, Department of Family Medicine, University of Virginia

11/2/10 Infectious Diseases Didactic Lecture Series ID Fellow Didactic: β -lactamases: Focus on Enterobacteriaceae, ID Fellowship Program University of Virginia

11/12/10 Housestaff Educational Conference, Antimicrobial Use, Department of Medicine University of Virginia

3/15/11 Infectious Diseases Didactic Lecture Series: Non-lactose Fermenters Resistance and Management I/II, ID Fellowship Program University of Virginia

3/22/11 Infectious Diseases Didactic Lecture Series: Non-lactose Fermenters Resistance and Management II/II, ID Fellowship Program University of Virginia

3/23/11 Anesthesia Grand Rounds. Gram Negative Resistance: Origins, Epidemiology and Impact, University of Virginia

3/25/11 Housestaff Educational Conference, Antibiotic Stewardship Department of Medicine, University of Virginia

6/22/2011 Culpeper Regional Hospital Grand Rounds, Antimicrobial Stewardship at Culpeper Regional Hospital, Culpeper Regional Hospital, Culpeper, Virginia

12/5/11 Invited Discussant for Internal Medicine Clinical Pathology Conference

2/8/12 University of Virginia Medical Grand Rounds Best Practice Series Antibiotic Stewardship: Why do we call you?

5/15/12 Infectious Diseases Didactic Lecture Series: Carbapenemases at University of Virginia and abroad, University of Virginia

- 10/23/12 Infectious Diseases Didactic Lecture Series: Mechanisms of Drug Resistance in the Community, University of Virginia
- 11/6/12 Culpeper Regional Hospital Grand Rounds, Bacterial Drug Resistance in the Community, Culpeper Regional Hospital, Culpeper, Virginia
- 1/7/13 Pulmonary/Critical Care Fellow Core Curriculum Didactic Series, Empiric Antibiotics in the Intensive Care Unit, University of Virginia
- 2/19/13 Anesthesia Critical Care lecture Series, Management of Multi-drug resistant Infections, University of Virginia
- 4/3/13 Medical Grand Rounds Best Practice Series, Handling Increasing Bacterial Drug Resistance through Best Practice, University of Virginia
- 12/5/13 Infectious Diseases Fellowship Lecture Series, Update on Epidemiology and understanding of KPC Dissemination, University of Virginia
- 1/14- Infectious Diseases Fellowship Lecture Series, Antimicrobial Stewardship Fellows Workshop, University of Virginia, Annual lecture
- 1/14- Pathology Resident Core Lecture Series. Infections of the Genitourinary Tract, University of Virginia. Annual lecture
- 6/2/14 Pulmonary/Critical Care Fellow Core Curriculum Didactic Series, Update on Epidemiology, Detection and Treatment of Carbapenem Resistant Enterobacteriaceae, University of Virginia
- 7/14- General Medicine Core Topics Workshop -So you have a positive Culture. Basic education and updates given to medicine house staff about clinical microbiology, Department of Medicine, University of Virginia Annual lecture
- 8/12/14 Infectious Diseases Didactic Lecture Series, Cases in Drug Resistance, University of Virginia
- 8/14- Pathology Resident Core Lecture Series, Basic Bugs and Drugs, University of Virginia-Annual lecture
- 2/15- Medicine House Staff Hook Firm Lecture Series, Antibiotic discussion for general medicine foundational learning, occurs every 2-3 months, Department of Medicine, University of Virginia
- 2/11/15 Medical Grand Rounds Best Practice Series, Can we talk about antibiotics and resistance? University of Virginia

- 4/24/15 Tracking a selfish carbapenemase gene through a multi-species outbreak, Department of Pathology Research Day, University of Virginia
- 8/11/15 Infectious Diseases Fellowship Lecture Series, *Pseudomonas aeruginosa*: The King of Bacteria and Resistance, University of Virginia
- 1/5/16 Infectious Diseases Fellowship Lecture Series. Mechanisms of Antimicrobial Resistance, University of Virginia
- 1/3/17 Infectious Diseases Fellowship Lecture Series. Mechanisms of Antimicrobial Resistance, University of Virginia
- 3/8/17 Medical Grand Rounds. Evolution, transmission, and treatment of antibiotic resistant bacteria; What a decade of tracking a carbapenemase gene has taught us. Department of Medicine. University of Virginia
- 12/20/17 Critical Care Grand Rounds. Diagnosis and Management of Ventilator Associated Pneumonia in Adults. University of Virginia
- 5/1/18 Infectious Diseases Fellowship Lecture Series. Drug Resistance Cases: Beta-lactamases, carbapenemases and other tough issues. University of Virginia
- 3/1/19 Medical Grand Rounds. Confronting antimicrobial resistance in the present to preserve the past and protect the future. Department of Medicine. University of Virginia
- 5/20-9/22 Department of Medicine Town Hall COVID-19 Updates (given roughly quarterly throughout the pandemic)
- 6/29/20 Medical Grand Rounds. When failure is not an option: Development and deployment of accurate testing for a novel virus during a pandemic
- 9/6/20 Pathology Grand Rounds. COVID-19 Testing considerations.
- 4/13/21 Whole genome sequencing microbiology applications. University of Virginia Student Health Educational Series.
- 7/29/21 Problem Solving in a Pandemic. Hoos Hacks for Humanity. University of Virginia Summer Session
- 9/21- Medical School lecture series quarterly. Understanding the pandemic: Testing, epidemiology and treatment

- 4/21- B2B Antibiotic Stewardship and Pharmacology. Quarterly lecture given to fourth year medical students jointly taught with Heather Cox, PharmD. University of Virginia School of Medicine
- 04/21- Whole Genome Sequencing Clinical Microbiology Applications, Clinical Pathology Lecture Series
- 02/16/22 COVID-19 Pandemic: Example of viral evolution Guest Lecture Our World of Infectious Disease Biology Department (BIOL 3090)
- 03/28/22 Nanomedicine Course Guest Lecture, COVID-19 Testing and Diagnostics Biomedical Engineering Department (BME 4890)
- 03/13/23 Investigations in Antimicrobial Resistant Bacteria in Wastewater Premises Plumbing Guest Lecture Our World of Infectious Disease Biology Department (BIOL 3090)
- 03/27/23 Nanomedicine Course Guest Lecture, COVID-19 Detection and Diagnostics Biomedical Engineering Department (BME 4890)

C. Curricula Development

- 12/22-06/23 Educational Lead. American Society of Microbiology Next Generation Sequencing Curriculum. Overseeing content development for intermediate audience level. Sponsored by Centers for Disease Control and Prevention.

D. Student and Resident Research Supervisor

Undergraduates

- 09/09-05/10 **Kate Barowski**, Fourth Year Biology Major, Supervised a project comparing impact of plasmid types and strains on rates of antibiotic resistance plasmid transfer. University of Virginia
- 08/11-05/12 **Paul Pickmans**, Third Year Biology Major, Supervised project to evaluate β -lactamases from clinical isolates, University of Virginia
- 05/11-05/12 **Anthony Yeh**, Fourth Year Biology Major, Supervised project to evaluate porin channels in drug resistant clinical isolates, University of Virginia
- 12/13-01/14 **Alisha Geldhart**, Fourth Year Biomedical Engineering Major, Supervised Winter Project for collection and evaluation of microbiologic samples from drains as well as evaluation of splatter dynamics, University of Virginia
- 08/14-05/15 **Katie (KanYi) Tong**, Third Year Biomedical Engineering Major, Supervising student in determining limit of detection for environmental surface carbapenem resistant bacterial culture techniques, University of Virginia

- 05/14-07/15 **Anthony Sung**, First Year Biomedical Engineering Major, Supervising student in biological splatter from sink drains, University of Virginia
- 11/14-05/16 **Morgan Denecke**, Second Year Biology Major, Supervising project to evaluate environmental reservoirs and rates of genetic transfer of genes of drug resistance within environmental reservoirs, University of Virginia
- 09/14-05/17 **Ryan Orr**, Second Year Public Health Science Major, Supervising project for accuracy and reproducibility of environmental culturing and data collection. Supervised bacterial surface survival study and supported abstract which was accepted to American Society of Microbiology. Co-supervised an ethics project on impact of end-of-life care on drug resistant pathogens
- 01/15-07/15 **Chetan Mishra**, Third Year Systems Engineering and Statistics Major, Co-supervising student with Don Brown and Laura Barnes on data collection and analysis to develop algorithms to better understand role of environmental reservoir of pathogens in hospital
- 01/15-06/16 **Sarah Dudley**, Fourth Year Biology Major, Supervising project to evaluate geospatial hospital room design and environmental reservoirs on nosocomial acquisition of organisms, University of Virginia
- 05/15-08/17 **Brian Pettygrove**, Fourth Year Biomedical Engineering Major, Co-mentoring with Dr. William Guilford, Summer Research Designing and executing several devices to examine biofilm splatter and natural history in the environmental laboratory.
- 08/15-05/16 **Antione Rigaut**, Third Year Systems Engineering and Statistics Major, Co-supervising student with Don Brown and Laura Barnes on data collection and analysis to develop algorithms to better understand clinical consequences of acquisition
- 08/15-05/16 **Ian Clark**, Third Year Systems Engineering and Statistics Major, Co-supervising student with Don Brown and Laura Barnes on data collection and analysis to develop algorithms to better understand clinical consequences of acquisition.
- 01/17-12/19 **Sarah Phillips**, Second Year Biology Major, Examination of transfer dynamics of multiple plasmids between *Serratia marcescens* and other Enterobacteriaceae
- 01/18-05/19 **Gabrielle Limardo**, Third Year Biology Major, Examination of plasmids transfer between species as well as point prevalence of carbapenemase producing Enterobacteriaceae in wastewater

- 04/18-05/19 **Elen Mussie**, Third Year Biology Major, Examination and collection of samples for point prevalence of carbapenemase producing Enterobacteriaceae in wastewater
- 08/19-05/21 **Claire Haynes**, Started as a Second Year Biology Major and did two year longitudinal project examining tap water flushing impact on drain biofilm
- 08/19-05/21 **Dev Bhojwani** Started as a first year Biostatistics Student and worked on defining the bacterial drain biofilm concentration needed for dispersion to occur from sink activity.
- 08/22- **Tayloe Friedrich**, Second Year Biology Major, Examining the in vitro plasmid evolutionary dynamics over time in different strains.

Medical Students

- 09/15-06/16 **Laura Kolbe**, Fourth Year University of Virginia Medical Student, Data gather and analyze change in antimicrobial exposure before and after implementation of a more rapid system to identify coagulase staphylococci contamination in blood culture. Supported writing and reviewing an abstract to a National Infectious Diseases Meeting
- 07/16-05/19 **Sarah Dudley**, First Year Medical Student, Supervising her as clinical research coordinator for investigational trial with chart reviews, University of Virginia. She then spent the entire Summer full time in the lab validating environmental hospital culture techniques for multidrug resistant pathogens through the Summer Medical Research Program.
- 04/18-05/19 **Grace Gillis-Crouch**, Fourth Year University of Virginia Medical Student, Data gather and analyze change in antimicrobial ordering and usage for the treatment of intra-abdominal infections during consecutive antimicrobial shortages.
- 06-08/18 **Karlene Vega Figueroa**, Second Year Medical student from Ponce Health Sciences University Spent the Summer through the Summer Medical Research Program determining the limit of detection of q-PCR, quantitative culture, and enrichment culture for *the Klebsiella pneumoniae* carbapenemase gene (*bla_{KPC}*) in *Klebsiella pneumoniae* and *Enterobacter cloacae*
- 04/19-9/19 **Michael Salomon**, First Year University of Virginia Medical Student. Validating sink lab testing system and biofilm monitoring through the Summer Medical Research Program. Also performing a chart review with paired genomics analysis of unusual resistance mechanism.

06/22-08/22 Ezra Bass, First Year University of Virginia Medical Student. Validating digital drop PCR for wastewater testing for antimicrobial resistance monitoring through the Summer Medical Research Program.

Post-graduate Resident Trainees

09/09-06/10 **Gavin Slitt MD**, Internal Medicine Resident, Co-supervised a project on evaluating clinical and microbiologic impact of unknown species of Enterobacteriaceae, which acquired a carbapenemase gene, University of Virginia

09/09-06/10 **Heather Sumner MD**, Pathology Resident, Co-supervised with Kevin Hazen development of real-time PCR diagnostic for a carbapenemase gene on peri-rectal samples for surveillance

09/09-03/11 **Heidi Zapata MD, PhD**, Internal Medicine Resident, Co-supervised a project with Costi Sifri to evaluate increased *Klebsiella pneumoniae* virulence from highly resistant clinical strains, University of Virginia

11/10-06/11 **Bennett Bain Pharm D**, Clinical Pharmacy Resident, Co-supervised a project with Heather Cox for a laboratory focused investigation on the effect of β -lactamases on accuracy of susceptibility testing. University of Virginia

02/10-6/11 **Heather Hughes MD**, Internal Medicine Resident, Supervised writing of Institutional Review Board Protocol and laboratory work to evaluate Linezolid resistance in *Enterococcus* spp. University of Virginia

02/15-7/18 **Megan Gray MD**, Internal Medicine Resident/ID fellow, Supervising current antimicrobial stewardship project on evaluating change in antibiotic exposure and selection with and rapid clinical microarray test for positive blood cultures, University of Virginia

07/15-06/16 **Lindsay Donohue PharmD**, Infectious Diseases Pharmacy Resident. Co-supervised Lindsay on a project with Heather Cox for a laboratory focused investigation on susceptibility of highly resistant gram negative bacteria against a new antimicrobial (ceftazidime-avibactam). Also co-supervised her with Heather Cox on performance of a chart review of the examining the impact of a stewardship intervention for *Streptococcus* sp after the implementation of a rapid diagnostic. Poster presented at a National Meeting.

07/16-06/17 **Zach Elliott, PharmD**, Infectious Diseases Pharmacy Resident. Co-supervised Zach on a project with Heather Cox for a laboratory focused investigation on susceptibility testing of whole genome sequenced carbapenemase producing Enterobacteriaceae against Fosfomycin. Poster

presented at a National Meeting and publication in a peer-reviewed journal.

- 07/17-06/18 **Sean McCollough, PharmD** Infectious Diseases Pharmacy Resident. Co-supervised Sean on a project with Heather Cox for a laboratory focused investigation deployment and performance of clinical laboratory technology to improve time to susceptibility. Supervised approach to stewardship interventions which were paired with this deployment and outcomes evaluations. Poster presented at a National Meeting.
- 07/18-06/19 **Ally Stillwell, PharmD** Infectious Diseases Pharmacy Resident. Co-supervised Ally on a project with Heather Cox for a laboratory focused investigation deployment and performance of rapid diagnostic for bacteremia to improve time to identification and susceptibility for Gram negative bacteria. Supervised approach to stewardship interventions which were paired with this deployment and outcomes evaluations. A Poster presented at a National Meeting and publication in high profile infectious disease journal.
- 07/19-06/20 **Ashni Patel, PharmD** Infectious Diseases Pharmacy Resident. Supervised Ashni on a project examining a metallo-carbapenemase with various aspects of dynamic in vivo and in vitro resistance development. Presented at a national meeting and drafted full manuscript for submission.
- 07/19-06/21 **Marten Hawkins, MD** Internal Medicine Resident. Supervised both research and clinical training inf stewardship rotation as well as research electives. Project focused on risk factors for highly resistant Gram negative Enterobacterales as ceftriaxone resistance continue to emerge. Presented work as local research day and submitted abstract to national meeting.
- 07/21-06/22 **Adam Archer, PharmD**, Infectious Diseases Pharmacy Resident. Supervised Adam on both a clinical project looking and the impact of naming of Streptococcal species in clinical microbiology reporting as well as the detection of the *blaZ* beta-lactamases in Staphylococcal species. Examined the performance and need for PCR primer sets to detect the entire *blaZ* cassette compared to the phenotypic in vitro tests. Presented at a national meeting and drafted full manuscript for submission.

XII. OTHER PROFESSIONAL ACTIVITIES

- 05/20- Infectious Diseases Society of America Antimicrobial Resistance Treatment Guidance Panel
- 04/20-7/22 Virginia State COVID-19 Governors Testing Advisory Council

Amy Mathers

04/20-12/22 University of Virginia COVID-19 Epidemiology Advisory Committee

06/19- VentanoRx Scientific Advisory Board. Clinical Advisor.

ADDITIONAL MENTORSHIP ROLES

10/17 Infectious Diseases Society of America IDweek Mentorship Program

10/18 Infectious Diseases Society of America IDweek Mentorship Program

AD HOC REVIEWER:

2022- Journal of Plasmid Biology

2020- Nature Scientific Reports

2019- Water Research

2019- Journal of the American Medical Association (JAMA)

2018- Open Forum Infectious Diseases

2018- New England Journal of Medicine

2018- Lancet Infectious Diseases

2016- Journal of Antimicrobial Chemotherapeutics

2015- Infection Control and Hospital Epidemiology

2014- Emerging Infectious Diseases

2012- Journal of Clinical Microbiology

2013- Antimicrobial Agents and Chemotherapy

2013- American Journal of Transplantation

2014- PLoSOne

2014- Clinical Infectious Diseases

EDITORIAL BOARD:

2016-19 Frontiers in Environmental Science and Public Health

ABSTRACT REVIEWER FOR ANNUAL SCIENTIFIC MEETINGS:

2018- Infectious Diseases Society of America (IDweek Annual Meeting)

2018 International Plasmid Biology Meeting Judge for outstanding abstracts

2017- American Society of Microbiology Annual Meeting (ASM Microbe)

2017- European Congress of Clinical Microbiology and Infectious Diseases (ECCMID) Annual Meeting

GRANT REVIEWER

04/21- US National Institutes for Health (NIH). Study Section (CSR) review panel ZRG1 AIDC-V

11/17- European Society of Clinical Microbiology and Infectious Diseases. (ESCMID). Reviewed proposals around antimicrobial resistance surveillance and diagnostics

- 06/19 Israeli Ministry of Health. Proposal Review for: Resistance Pathogens Program 2019
- 04/22 Swiss Multidisciplinary Center for Infectious Diseases Applications for Antimicrobials

THESIS COMMITTEES

- 2015 **Hosam Mamoon A. Zowawi** Acted as an independent international reviewer for PhD Thesis. His thesis was submitted for the degree of Doctor of Philosophy entitled, “Innovative Diagnosis and Prevention of Antibiotic Resistance in Key Gram-Negative Bacterial Isolates from the Gulf Cooperation Council States” at The University of Queensland School of Medicine UQ, Centre for Clinical Research Epidemiology, Brisbane, Australia.
- 2016 **Ketki Vilankar**, Masters Student Thesis completion evaluation. Department of Systems and Information Engineering. University of Virginia
- 2016 **Julia Lensing**, Masters Student Thesis completion evaluation. Department of Systems and Information Engineering University of Virginia
- 2020-22 **Erica Loudermilk**, PhD Candidate. Working in my lab on understanding antimicrobial resistance dissemination from hospitals through wastewater treatment. Primary Mentor Lisa Colosi-Peterson School of Engineering University of Virginia

XIII. MASTER’S AND PH.D. THESES DIRECTED AND POSTDOCTORAL FELLOWS SUPERVISED

- 2014-2017 **Anita Cheruvanky MD**, Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in antimicrobial resistant pathogens under my supervision. Three accepted abstracts at National Meetings and a first author peer reviewed publication on expression regulation of a carbapenemase gene.
- 2018-2021 **Stacy Park, MD** Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in carbapenemase producing pathogens under my supervision. One accepted abstracts at a National Meeting. A first author peer reviewed publication on management of a patient with *bla_{OXA-48}* infection. Currently working on hospital epidemiology focused projects related to the hospital environment and carbapenemase producing organisms. Working in academic infectious disease position at University of Virginia.

2019-2022 **Evan Robinson, MD** Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in antimicrobial stewardship interventions with a focus on Gram negative resistant pathogens. Successfully published as well as got academic infectious disease position at University of Indiana.

2022- **David Lehman, MD**, Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in antimicrobial stewardship interventions as well as understanding the molecular epidemiology of carbapenemase producing Gram negative pathogens.

PhD Candidates

07/18-8/22 **Erica Loudermilk**, School of Engineering. Co-mentoring with Lisa Colosi Peterson to detect the dissemination and remediation of antimicrobial resistance genes from hospitals through the wastewater treatment process including ex situ experiments in my research lab mimicking wastewater treatment. Successfully defended thesis 8/31/2022

Masters Students

01/15-05/16 **Julia Lensing BS, Masters Student Department of Systems and Information Engineering**, Co-supervised with Laura Barnes, Don Brown and Jennifer Lobo. On thesis committee for predictive modeling on hospital environmental microbiology positivity

01/15-05/15 **Sam Hewitt BS, Masters Student Department of Systems and Information Engineering**, Co-supervised with Laura Barnes, Don Brown and Jennifer Lobo. Capstone Project. Modeling nosocomial transmission of carbapenem resistant bacteria using data environment, geospatial and microbiology, University of Virginia

01/15-05/15 **Jeremy Stern BS, Masters Student Department of Systems and Information Engineering**, Co-supervised with Laura Barnes, Don Brown and Jennifer Lobo. Capstone Project. Modeling nosocomial transmission of carbapenem resistant bacteria using data environment, geospatial and microbiology, University of Virginia

01-05/2015 **Michael Guilfoyle BS, Masters Student Department of Systems and Information Engineering**, Co-supervised with Laura Barnes, Don Brown and Jennifer Lobo. Capstone Project. Modeling nosocomial transmission of carbapenem resistant bacteria using data environment, geospatial and microbiology, University of Virginia

- 08/15-08/16 **Ketki Vilankar BS, Masters Student, Department of Systems and Information Engineering.** Co-supervised with Laura Barnes, Don Brown and Hyojung Kang. On thesis committee for predictive modeling on hospital environmental microbiology positivity and visualization systems
- 08/15-06/16 **Chao Dai, PhD, Masters Student, Department of Systems and Information Engineering,** Co-supervised with Jen Lobo, Laura Barnes, Don Brown Getting environmental tracking software built and implemented in the clinical microbiology laboratory
- 08/15-12/15 **Xinyu Chen, Masters Student, Department of Systems and Information Engineering,** Co-supervised with Jen Lobo, Laura Barnes, Don Brown Getting environmental tracking software built and implemented in the clinical microbiology laboratory
- 08/15-04/18 **Marika Grabowski, BS Masters Student, Department of Public Health Sciences** Co-supervised with Jen Lobo, Laura Barnes, Don Brown and Hyojung Kang project of paired video monitoring for hospital room sink activity analysis with paired observations. Worked with her to get two publications completed from her work. Helped her present in multiple forums including presentation of data to hospital staff

XIV. CLINICAL ACTIVITIES

A. Inpatient

- 2009- Medical Director Antimicrobial Stewardship Activities. Category A pager coverage and review of alerts, and establishment of guidelines. Discuss and review cases with house staff, nurse practitioners and attendings. I will also review positive microbiology and work with clinical pharmacist to review and revise antimicrobial selection. University of Virginia Medical Center, Charlottesville, Virginia
- 2009- General Medicine Inpatient Ward Attending (4-6 weeks per year), University of Virginia, Medical Center, Charlottesville, Virginia
- 2009- Infectious Diseases General Consult Attending (2-4 weeks per year) University of Virginia, Medical Center, Charlottesville, Virginia
- 2009-2014 Infectious Diseases Immunocompromised Consult Service Attending (2-6 weeks per year), University of Virginia, Medical Center, Charlottesville, Virginia
- 2020-22 Covid-19 Hospital Epidemiology pager coverage. Worked with partners in surgery and hospital epidemiology to develop pre-operative testing, inpatient transfer and isolation protocols

2020-22 Clinical Infectious Disease Covid-19 consult pager. Assisted in reviewing treatment protocols as well as staffing the consult service

B. Outpatient

2009- Coverage for Infectious Diseases non-HIV Clinic when primary clinic physicians are unavailable, University of Virginia, Medical Center, Charlottesville, Virginia

2009-2010 Establishment of an Infectious Diseases Outpatient Clinic in Culpeper. One half day per week. University of Virginia Specialty Care Clinic, Culpeper, Virginia

2020-22 Associate Director of Covid-19 Clinic. Worked in a supervisory role for COVID-19 clinic for protocols, procedures, results and logistics. Also worked to expand clinical viral testing for patients here and across the state and assist the community testing efforts to reach underserved populations and public health priorities

E. Clinical Microbiology

2012- Clinical Microbiology Director On-call, roughly 4-5 months per year of coverage and daily rounds. Oversees antibiotic susceptibility testing bacterial identification, sequencing efforts, select budgetary matters and protocol implementation and design. University of Virginia Health System, Charlottesville, Virginia

2020-22 SARS-CoV-2 testing and deployment. Worked to get ordering, testing supplies, specimen management, staffing and resulting all done within clinical microbiology to support UVA as well as Virginia Department of Health Covid-19 diagnostic testing done. Including working with Will Guilford in BME to develop and then ran an FDA trial for producing and distributing nylon flocked swabs for distribution around the state of Virginia (producing 75,000/week) and bringing in contract for SARS CoV-2 sequencing on behalf of Virginia Department of Health. Also developed and deployed wastewater SARS CoV-2 surveillance for congregate dormitory living for University of Virginia campus

**XV. SCHOOL, UNIVERSITY, UVA HOSPITALS, DEPARTMENTS, NATIONAL, AND STATE COMMITTEES & COUNCILS
COMMITTEES:**

A. UVA Hospitals

University of Virginia Medical Center

2007-18 Member, Antimicrobial Usage Committee, Sub-committee of Pharmacy and Therapeutics, University of Virginia

2007 - Clinical Director, Antibiotic Stewardship Team

2009-	Member, Infection Control Committee, University of Virginia Health System
2010-15	Member, Sepsis Steering Committee
2011-13	Member, Patient Safety Advisory Council
2014-	Member, Special Pathogens Committee
2013-15	Project Leader. University of Virginia Health System Quality Initiative Q17 team: Exceeding Influenza and Pneumococcal Vaccination Benchmarks.
2013-	Project Leader. University of Virginia Health System Infection Control Sink Project
2016-	<i>Clostridium difficile</i> Coalition Leader
2018-	Co-chair, Antimicrobial Usage Committee, Sub-committee of Pharmacy and Therapeutics
2020-23	Community Health and Health Equity in the setting of COVID-19 Steering Committee Meeting

Culpeper Regional Hospital

2010-2013	Pharmacy and Therapeutics, Culpeper Regional Hospital
2010- 2013	Infection Control and Prevention, Culpeper Regional Hospital
2011-2013	Medical Safety and Quality Committee, Culpeper Regional Hospital
2011-2013	Chair of Infection Control and Prevention, Culpeper Regional Hospital

B. Department of Medicine

C.	2009-2014	Intern Selection Committee, Department of Medicine, University of Virginia
2012-2019		Recent Advances in Clinical Medicine Annual Course. Planning Committee

D. Regional

2020-22	Co-lead Commonwealth Antigen Testing Team (CATT)
2020-22	Virginia State COVID-19 Governor's Testing Advisory Council
2020-22	University SARS CoV-2 reopening committee
2021-	Member of Virginia State Wastewater Community of Practice

E. National and International

2013-14	Consultant. Rempex Pharmaceutical Scientific Advisory Committee
2013-14	Reviewer for Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
2015-18	Consultant Accelerate Diagnostics Clinical Advisor

- 2015- 16 Advisor on Breakpoint Workgroup for Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2015- 17 Co-Chair of the Salmonella/Fluoroquinolone Breakpoint Ad Hoc Working Group, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2015- 2016 Advisor, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2016-18 Member of Daptomycin and Enterococcus Breakpoint Working Group, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2016-22 Voting Member, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2017-18 Chair of the *Shigella* sp. /Fluoroquinolone Breakpoint Ad Hoc Working Group, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2018- Co-chair of the Fosfomycin Susceptibility Testing Ad Hoc Working Group, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2018- National Institutes of Health Antibacterial Resistance Leadership Group (ARLG) Diagnostics and Devices Committee Member
- 2019- Antimicrobials and Antimicrobial Resistance (AAR) Committee of American Society of Microbiology
- 2019- Nationally Elected Member (renewed 2022) on Council on Microbial Sciences, American Society of Microbiology
- 2020- Infectious Diseases Society of America Antimicrobial Resistance Treatment Guidance Panel
- 2020- Co-chair of Breakpoint Working Group, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee
- 2021 International Committee of Infection Prevention and Control Think Tank Member for how to apply whole genome sequencing applications to

prevent disease transmission. World Health Organization and US Centers for Disease Control Joint Meeting. Geneva, Switzerland.

2021-22 Co-chair of the Breakpoint Working Group, Clinical and Laboratory Standards Institute (CLSI), Antimicrobial Susceptibility Testing (AST) Subcommittee

2023- Vice-Chair of the Antimicrobial Testing Subcommittee for the Clinical and Laboratory Standards Institute

XVI. FINANCIAL RESOURCES (GRANTS AND CONTRACTS)

A. Federal

2007-2009 Recipient. National Institutes of Health Loan Repayment Grant. For student loan repayment for persons with goal of physician scientist

2015-17 Collaborative Lead Investigator. Project Title: Effect of hand-washing station usage and sink basin disinfection on dispersal of microorganisms from sink basins. Hired for 20% effort using intergovernmental personnel agreement with Centers for Disease Control and Prevention.

2016-17 Principal Investigator. Assessing the Risk of Acquisition of Carbapenemase Producing Enterobacteriaceae (CPE) from Exposure to Contaminated Waste Water Premise Plumbing Centers for Disease Control and Prevention BAA 20106-N-1781

2017-18 Principal Investigator. Centers for Disease Control and Prevention. Understanding the Microbiologic Dynamics of Carbapenemase-Producing Organisms in Hospital Wastewater Premise Plumbing BAA 200-2017-96194. \$550,000

2018-19 Principal Investigator. Centers for Disease Control and Prevention. Novel Interventions and Approaches to Mitigating Carbapenemase Producing Gammaproteobacteria in Healthcare Premise Plumbing. BAA 200-2018-02917 \$682,490.00

2021- Sub-investigator. National Institutes of Health (R01). Eric Houpt Principal Investigator. "Mycobacterial Lung Diseases in Virginia: sequencing and clinical determinants of relapse and outcome" 5R01HL155547-02

2021- Sub-investigator. National Institutes of Health (R21). Prantita Tamma Principal Investigator from Johns Hopkins University "Modifiable Risk Factors for the Emergence of Resistance to Pseudomonas aeruginosa." 1R21AI153580-01A1

2022- Principal Investigator for University of Virginia Subcontract. Pathogen Genomic Centers of Excellence in collaboration with Virginia State Laboratory Division of Consolidated Laboratory Services and Virginia Department of Health. Working in collaboration with the University of Virginia Biocomplexity Institute will act as Academic partner for the State Laboratory to do research and development of applications in genomic surveillance in public health. 5 year initial award. Centers for Disease Control and Prevention. NU50CK000631-01-00

B. Other

2003-2006 Mentored Investigator, Maine Medical Center Research Grant. Investigation of molecular epidemiology of *Borrelia burgdorferi* in Maine

2014 Rempex Pharmaceuticals. A Multi-Center, Retrospective Study of Cases of Serious Infections Dues to Carbapenem-resistant Enterobacteriaceae

2014-17 Rempex Pharmaceuticals. A Phase 3, multicenter, randomized, open label study of carbavance (meropenem/RPX 7009) versus best available therapy in subjects with selected serious infections due to carbapenem resistant Enterobacteriaceae

2015-17 Co-Principal Investigator. Coulter Award. Project Title. Superbug Tracker – Design of Context-Aware Surveillance System for Nosocomial Outbreaks involving Non-Patient Reservoirs.

2015- University of Virginia Health System Quality Initiative. Exploration of a Nosocomial Reservoir for Antimicrobial Resistance

2016-17 Principal Investigator. Investigator Initiated Sponsored Research. Zavante Therapeutics. *In Vitro* Fosfomycin Susceptibility Assessment of Whole Genome Sequenced *Klebsiella pneumoniae* Carbapenemase (KPC) Producing Clinical Isolates.

2017-2020 Co-Principal Investigator. Wallace H. Coulter Endowment. Verification and validation of a device for reducing the transmission of pathogens from hospital sink wastewater to patients

2019-2021 Co-Principal Investigator. Engineering in Medicine. Mitigating the Spread of Antibiotic Resistance and Its Associated Health Impacts in Clinical and Environmental Contexts.

2021- Director. Virginia Department of Health. SARS CoV-2 Sequencing effort for public health response. Sequencing and analyzing 400 samples/week from around the state. Price per sample and set at 400 samples/week

XVII. PHYSICAL FACILITIES

The “sink lab” is two rooms each is a 1,200 square foot BSL-2 lab designed and built collaborative with Will Guilford in Biomedical Engineering as well as another a 550 square foot laboratory designed BSL-1 lab for surrogate testing of devices and outfitted by medical center to replicate some of the environmental conditions which may replicate transmission of drug resistant pathogens in the hospital environment both located in MR4. <http://uvasinklab.org/>

The basic laboratory is a 2,000 square foot laboratory in the MR4 research building. Some of the space is now designated as College of American Pathologist accredited. My office is within a room in the laboratory. The lab is well equipped for microbiology and molecular biology research.

XVIII. PERSONNEL CURRENTLY SUPERVISED

- 2016- Katie Barry MS, Research Laboratory Technologist for antimicrobial resistance evolution and transmission in the environment to patients
- 2016- Shireen Kotay, PhD, Research Scientist. His current focus is investigation of natural history, propagation, potential interventions and transmission of highly resistant Gram negative bacteria in a laboratory setting. Intent will be to translate findings to the patient care environment.
- 2019- Hardik Parikh, PhD, Research Scientist. Working closely with Hardik on establishing bioinformatic infrastructure to apply rigorous, reproducible methods of bioinformatics to isolate strain typing for nosocomial investigation, understanding plasmid transmission from long read sequencing and metagenomic analysis of complex environmental drain biofilms.
- 2022- Rishi Aryal, PhD, Research Scientist. Working on running and refining bioinformatic infrastructure to apply rigorous, reproducible methods of bioinformatics to isolate strain typing for nosocomial investigation, SARS CoV-2 public health response sequencing as well as plasmid transmission from long read sequencing.
- 2022- She acts as a research coordinator for multiple projects across all research endeavors for various projects. She is overseeing the documentation of the Kelly Denhard, BS Clinical Research Coordinator. She acts as a research coordinator for multiple projects across all research endeavors for various projects. She is overseeing the documentation of the IRB documents and data security as well as performs chart review.

RELEVANT PERSONNEL PREVIOUSLY SUPERVISED

- 2015-16 Weidong Chai PhD, Research Scientist- He focused on developing a reproducible splatter model of bacteria from sinks.

- 2015-16 Colleen Harman, RN Clinical research coordinator- For the phase III sponsored clinical trial she is overseeing regulatory documents and IRB approvals.
- 2015-17 Sarah Dudley BS, Clinical Trial Research Assistant- She is helping to make sure data entry and regulatory documents are complete
- 2018-2021 Limor Steinberg, BS Clinical Research Coordinator. She acts as a research coordinator for multiple projects across all research endeavors for various projects. She is overseeing the documentation of the development of a University of Virginia funded company Antimicrobial Resistance Services LLC.
- 2018-19 Alex Wailan, PhD Research Scientist/ Bioinformaticist. His focus was developing a computing pipeline for bacterial isolate comparison and developing a computing pipeline for Nanopore long read sequence data

XIX. MASTER’S AND PH.D. THESES DIRECTED AND POSTDOCTORAL FELLOWS SUPERVISED

- 2014-2017 **Anita Cheruvanky MD**, Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in antimicrobial resistant pathogens under my supervision. Three accepted abstracts at National Meetings and a first author peer reviewed publication on expression regulation of a carbapenemase gene.
- 2018-2021 **Stacy Park, MD** Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in carbapenemase producing pathogens under my supervision. One accepted abstracts at a National Meeting. A first author peer reviewed publication on management of a patient with *bla_{OXA-48}* infection. Currently working on hospital epidemiology focused projects related to the hospital environment and carbapenemase producing organisms.
- 2019-2022 **Evan Robinson, MD** Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in antimicrobial stewardship interventions with a focus on Gram negative resistant pathogens.
- 2022- **David Lehman, MD**, Primary Mentor for three year Infectious Diseases Clinical and Research Fellowship. Supported by T32 training grant. Developing skills for translational and clinical research in antimicrobial stewardship interventions as well as understanding the molecular

epidemiology and transmission of carbapenemase producing gram negative pathogens.

XX. PATENTS

- 9/19/17 Invention Disclosure to University of Virginia Licensing and Venture Group. Sanitracker Software. A software and data analysis methods for tracking environmental biological data. 35% inventor. Filed disclosure
- 2/27/18 Provisional patent application No. 62/635,652, "System and Method to Prevent the Spread of Bacteria from Wastewater to Persons in Clinical Settings". 25% inventor. Filed 2/27/2018.

XXI. PAPERS PUBLISHED OR IN PRESS

Former trainees and students underlined

A. Peer Reviewed Manuscripts

- 1) Smith R, Muzaffar SB, Lavers J, Lacombe E, Cahill B, Lubelczyk C, Kinsler A, **Mathers A**, Rand P. *Borrelia garinii* in Seabird Ticks (*Ixodes uriae*), Atlantic Coast, North America. Emerging Infectious Diseases. (2006) 12(12):1909-1912. PMID: 17326943. Cited 46 times. Rank 13 of 162 in Immunology, Rank 9 of 95 in Infectious Diseases (2021). Dr. Mathers provided grant funding and performed over half of the laboratory experiments for this work.
- 2) **Mathers A**, Cox H, Bonatti H, Kitchel B, Brassinga AC, Wispelwey B, Sawyer RG, Pruett TL, Hazen KC, Patel JB, Sifri CD. Fatal cross infection by carbapenem resistant *Klebsiella* in two liver transplant recipients. Transpl Infect Dis. (2009) 11(3):257-65. PMID: 19254325. Cited 66 times. Rank 133 of 162 in Immunology, Rank 71 of 95 in Infectious Diseases, Rank 15 of 25 in Transplantation (2021).
- 3) **Mathers AJ**, Cox HL, Kitchel B, Bonatti H, Brassinga AK, Carroll J, Scheld WM, Hazen KC, Sifri CD. Molecular Dissection of an Outbreak of Carbapenem-Resistant Enterobacteriaceae Reveals Inter-genus KPC Carbapenemase Transmission through a Promiscuous Plasmid. MBio. (2011) 1;2(6). pii: e00204-11. PMID: 22045989. Cited 135 times. Rank 22 of 137 in Microbiology.
- 4) **Mathers A**, Smith RP, Cahill B, Lubelczyk C, Elias SP, Lacombe E, Morris SR, Vary CP, Parent CE, Rand PW. Strain diversity of *Borrelia burgdorferi* in ticks dispersed in North America by migratory birds. J Vector Ecol. (2011) 36 (1):24-9. PMID: 21635638. Cited 10 times. Rank 45 of 100 in Entomology.
- 5) Macqueen DD, Lubelczyk C, Elias SP, Cahill BK, **Mathers AJ**, Lacombe EH, Rand PW, Smith RP. Genotypic Diversity of an Emergent Population of *Borrelia burgdorferi* at a Coastal Maine Island Recently Colonized by *Ixodes scapularis*. Vector Borne Zoonotic Dis. (2012) 12(6):456-61. PMID: 22217172. Cited 11

- times. Rank 77 of 95 in Infectious Diseases, Rank 143 of 210 in Public, Environmental & Occupational Health. Dr. Mathers provided funding from a grant she had obtained and performed more than half of the bench work of required for this manuscript.
- 6) Lewis JD, Bishop M, Heon B, **Mathers AJ**, Enfield KB, Sifri CD. Admission surveillance for carbapenamase-producing Enterobacteriaceae at a long-term acute care hospital. *Infect Control Hosp Epidemiol.* (2013) 34(8):832-4. PMID: 23838224. Cited 9 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. Dr. Mathers led the establishment and approach for the Carbapenemase-Producing Enterobacteriaceae surveillance program, she confirmed a carbapenemase gene by PCR for clinical isolates and assisted in writing of the manuscript.
 - 7) **Mathers A**, Carroll J, Sifri CD, Hazen K. Modified Hodge Test versus the Indirect Carbapenemase Test: A Prospective Evaluation of a Phenotypic Assay for Detection of *Klebsiella pneumoniae* carbapenemase (KPC) in Enterobacteriaceae. *J Clin Micro* (2013) 51(4):1291-3 PMID:23390272. Cited 37 times. Rank 15 of 137 in Microbiology.
 - 8) **Mathers A**, Hazen K, Carroll J, Yeh A, Cox H, Bonomo R, Sifri CD. First Clinical Cases of OXA-48-Producing Carbapenem-Resistant *Klebsiella pneumoniae* in the United States: the "Menace" Arrives in the New World. *J Clin Micro* (2013) 51(2):680-683. PMID: 23175248. Cited 79 times. Rank 15 of 137 in Microbiology.
 - 9) **Mathers AJ**, Guerrant RL. Dissecting the evolutionary stealth of our flora against antibiotics. *Trans R Soc Trop Med Hyg* (2014) 108(3): 121–122. PMID: 24535149. Cited 3 times. Rank 150 of 210 in Public, Environmental & Occupational Health, Rank 13 of 24 in Tropical Medicine.
 - 10) **Mathers AJ**, Poulter M, Dirks D, Carroll J, Sifri CD, Hazen KC. Clinical Microbiology Costs for Methods of Active Surveillance for *Klebsiella pneumoniae* Carbapenemase–Producing Enterobacteriaceae. *Infect Control Hosp Epidemiol* (2014) 35(4):350-355. PMID: 24602938. Cited 32 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. This manuscript was chosen as one of the 10 most significant reports during 2015 highlighting the integration of Infection Control practice with Diagnostic Microbiology testing by the American Society for Microbiology.
 - 11) Enfield KB, Huq NN, Gosseling MF, Low DJ, Hazen KC, Toney DM, Slitt G, Zapata HJ, Cox HL, Lewis JD, Kundzins JR, **Mathers AJ**, Sifri CD. Control of simultaneous outbreaks of carbapenemase-producing Enterobacteriaceae and extensively drug-resistant *Acinetobacter baumannii* infection in an intensive care unit using interventions promoted in the Centers for Disease Control and

- Prevention 2012 carbapenemase-resistant Enterobacteriaceae Toolkit. Infect Control Hosp Epidemiol. (2014) 35(7):810-7. PMID: 24915208 Cited 45 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. Dr. Mathers led the establishment and approach for the Carbapenemase-Producing Enterobacteriaceae surveillance program, oversaw the laboratory work of the trainees involved in the project, assisted in experimental design and writing of the manuscript.
- 12) Adler A, Khabra E, Chmelnitsky I, Giakkoupi P, Vatopoulos A, **Mathers AJ**, Yeh AJ, Sifri CD, De Angelis G, Tacconelli E, Villegas MV, Quinn J, Carmeli Y. Development and validation of a multiplex PCR assay for identification of the epidemic ST-258/512 KPC-producing *Klebsiella pneumoniae* clone. Diagn Microbiol Infect Dis. (2014) 78(1):12-5. PMID: 24231383. Cited 30 times. Rank 69 of 95 in Infectious Diseases, Rank 94 of 137 in Microbiology. Dr. Mathers personally performed and oversaw the performance of roughly a third of the experiments.
 - 13) Schutte KM, Fisher DJ, Burdick MD, Mehrad B, **Mathers AJ**, Mann BJ, Nakamoto RK, Hughes MA. *Escherichia coli* Pyruvate Dehydrogenase Complex Is an Important Component of CXCL10-Mediated Antimicrobial Activity. Infect Immun. (2015) 84(1):320-8. PMID: 26553462. Cited 18 times. Rank 112 of 162 in Immunology, Rank 62 of 95 in Infectious Diseases. Dr. Mathers collected and characterized the molecular aspects of the *E. coli* strain used in the study.
 - 14) Day SR, Smith D, Harris K, Cox HL, **Mathers AJ**. An Infectious Diseases Physician Led Antimicrobial Stewardship Program (ASP) at a Small Community Hospital Associated with Improved Susceptibility Patterns and Cost-Savings after the First Year. Open Forum Infectious Diseases (2015) 12;2(2):ofv064. PMID: 26110166 . Cited 38 times. Rank 89 of 162 in Immunology, Rank 46 of 95 in Infectious Diseases, Rank 61 of 137 in Microbiology.
 - 15) **Mathers AJ**, Peirano G, Pitout JD. The Role of Epidemic Resistance Plasmids and International High-Risk Clones in the Spread of Multidrug-Resistant Enterobacteriaceae. Clin Microbiol Rev. (2015) 28(3):565-591. PMID:25926236. Cited 476 times. As of November/December 2022, this highly cited paper received enough citations to place it in the top 1% of the academic field of Microbiology based on a highly cited threshold for the field and publication year. Rank 3 of 137 in Microbiology.
 - 16) Lewis JD, Enfield KB, **Mathers AJ**, Giannetta ET, Sifri CD. The Limits of Serial Surveillance Cultures in Predicting Clearance of Colonization with Carbapenemase-Producing Enterobacteriaceae. Infect Control Hosp Epidemiol. (2015) 36(7):833-5. PMID:25777261. Cited 9 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. Dr. Mathers led the establishment and approach for the Carbapenemase-Producing

Enterobacteriaceae surveillance program, assisted in experimental design and writing of the manuscript.

- 17) **Mathers AJ**, Stoesser N, Sheppard AE, Pankhurst L, Giess A, Yeh AJ, Didelot X, Turner SD, Sebra R, Kasarskis A, Peto T, Crook D, Sifri CD. *Klebsiella pneumoniae* carbapenemase (KPC) producing *K. pneumoniae* at a Single Institution: Insights into Endemicity from Whole Genome Sequencing. *Antimicrob Agents Chemother.* (2015); 59(3):1656-63. PMID:25561339 Cited 101 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy.
- 18) **Mathers AJ**, Peirano G, Pitout JD. *Escherichia coli* ST131: The Quintessential Example of an International Multiresistant High-Risk Clone. *Adv Appl Microbiol.* (2015) 90:109-154. PMID: 25596031. Cited 83 times. Rank 39 of 159 in Biotechnology & Applied Microbiology, Rank 41 of 137 in Microbiology.
- 19) Lewis JD, Enfield KB, Cox HL, **Mathers AJ**, Sifri CD. A single-center experience with infections due to daptomycin-nonsusceptible *Enterococcus faecium* in liver transplant recipients. *Transpl Infect Dis.* (2016) 18(3):PMID: 26953719. Cited 13 times. Rank 133 of 162 in Immunology, Rank 71 of 95 in Infectious Diseases, Rank 15 of 25 in Transplantation. Dr. Mathers assisted with microbiologic isolation and review and revision of manuscript.
- 20) Sheppard AE, Stoesser N, Sebra R, Kasarskis A, Deikus G, Anson L, Walker AS, Peto TE, Crook DW, **Mathers AJ**. Complete Genome Sequence of KPC-Producing *Klebsiella pneumoniae* Strain CAV1193. *Genome Announc.* (2016) 4(1). pii: e01649-15. doi: 10.1128/genomeA.01649-15. PMID: 26823590. Cited 11 times. Not indexed in the Web of Science.
- 21) Stoesser N, **Mathers AJ**, Moore CE, Day NP, Crook DW. Colistin resistance gene *mcr-1* and pHNSHP45 plasmid in human isolates of *Escherichia coli* and *Klebsiella pneumoniae*. *Lancet Infect Dis.* (2016)16(3):285-6. PMID: 26774239. Cited 98 times. Rank 2 of 95 in Infectious Diseases. Dr. Mathers curated isolates, assisted in analysis, reviewed and edited manuscript.
- 22) Hardiman CA, Weingarten RA, Conlan S, Khil P, Dekker JP, **Mathers AJ**, Sheppard AE, Segre JA, Frank KM. Horizontal Transfer of Carbapenemase-Encoding Plasmids and Comparison with Hospital Epidemiology Data. *Antimicrob Agents Chemother.* (2016) 60(8):4910-9. PMID: 27270289. Cited 48 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Amy Mathers's role was to guide and advise planned experiments, provide sequence and data as well as reference strains and characterization of strains with preliminary data. Helped revise manuscript.

- 23) Sheppard AE, Stoesser N, Wilson DJ, Sebra R, Kasarskis A, Anson LW, Giess A, Pankhurst LJ, Vaughan A, Grim CJ, Cox HL, Yeh AJ; Modernizing Medical Microbiology (MMM) Informatics Group, Sifri CD, Walker AS, Peto TE, Crook DW, **Mathers AJ**. Nested Russian Doll-like Genetic Mobility Drives Rapid Dissemination of the Carbapenem Resistance Gene *bla_{KPC}*. *Antimicrob Agents Chemother.* (2016); 60(6):3767-78. PMID: 27067320. Cited 168 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. As of November/December 2022, this highly cited paper received enough citations to place it in the top 1% of the academic field of Pharmacology & Toxicology based on a highly cited threshold for the field and publication year.
- 24) Cheruvanky A, Stoesser N, Sheppard AE, Crook DW, Hoffman PS, Weddle E, Carroll J, Sifri CD, Chai W, Barry K, Ramakrishnan G, **Mathers AJ**. Enhanced *Klebsiella pneumoniae* carbapenemase (KPC) expression from a novel Tn4401 deletion. *Antimicrob Agents Chemother.* (2017) 61(6) pii: AAC.00025-17. PMID: 28373185. Cited 38 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy.
- 25) Kotay S, Chai W, Guilford W, Barry K, **Mathers AJ**. Spread from the Sink to the Patient: in situ Study Using Green Fluorescent Protein (GFP) Expressing-*Escherichia coli* to Model Bacterial Dispersion from Hand Washing Sink Trap Reservoirs. *Appl Environ Microbiol.* (2017) 83(8):pii AEM.03327-16. PMID: 28235877. Cited 85 times. Rank 46 of 159 in Biotechnology & Applied Microbiology, Rank 53 of 137 in Microbiology Paper featured with cover image and American Society of Microbiology Press Release with follow-up stories in multiple lay and scientific news organizations.
- 26) Kizny Gordon AE, **Mathers AJ**, Cheong EY, Gottlieb T, Kotay S, Walker AS, Peto TE, Crook DW, Stoesser N. Is the hospital water environment a reservoir for carbapenem-resistant organisms causing hospital-acquired infections? A systematic review of the literature. *Clin Infect Dis.* (2017) 64(10): 1435-44. Cited 149 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Dr. Mathers's Role on manuscript was to help solidify the paper concept and approach, assist with review of data and edit and revise drafts.
- 27) **Mathers AJ**, Stoesser N, Chai W, Carroll J, Barry K, Cheruvanky A, Sebra R, Kasarskis A, Peto TE, Walker AS, Sifri CD, Crook DW, Sheppard AE. Chromosomal Integration of the *Klebsiella pneumoniae* Carbapenemase Gene, *bla_{KPC}*, in *Klebsiella* Species Is Elusive but Not Rare. *Antimicrob Agents Chemother.* (2017) 61(3). pii: e01823-16. PMID: 28031204. Cited 34 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy.

- 28) George S, Pankhurst L, Hubbard, Votintseva A, Stoesser N, Sheppard AE, **Mathers AJ**, Norris R, Navickaite I, Eaton C, Iqbal Z, Crook DW, Phan HTT. Resolving plasmid structures in Enterobacteriaceae using the MinION nanopore sequencer: assessment of MinION and MinION/Illumina hybrid data assembly approaches. *Microb Genomics*. (2017) 3(8): e000118. PMID: 29026658. Cited 51 times. Rank 39 of 175 in Genetics & Heredity, Rank 55 of 137 in Microbiology. Amy Mathers assisted with microbiologic isolation, characterization of strains and plasmids used in study to validate methods. She also performed some writing as well as review and revision of manuscript.
- 29) Eby JC, **Mathers AJ**, Cox HL, Richey MM, Platts-Mills JA, Novicoff WM. Reply to Weinbren and Collins. *Clin Infect Dis*. (2017) 66(9): 1485. PMID: 29161355. Cited 0 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Mathers helped to craft the response in the context of clinical microbiology turnaround time issues and gathered and compiled laboratory data to generate informed response.
- 30) Grabowski ME, Kang H, Wells KM, Sifri CD, **Mathers AJ**, Lobo JM. Provider Role in Transmission of Carbapenem-Resistant Enterobacteriaceae. *Infect Control Hosp Epidemiol*. (2017) 38(11):1329-1334. PMID: 29061201. Cited 17 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. Mathers provided context and input for the analysis. The data used was from infrastructure and organized by a team led by Dr. Mathers. She also provided grant funding for the data infrastructure.
- 31) Stoesser N, Sheppard AE, Peirano G, Anson LW, Pankhurst L, Sebra R, Phan HTT, Kasarskis A, **Mathers AJ**, Peto TEA, Bradford P, Motyl MR, Walker AS, Crook DW, Pitout JD. Genomic epidemiology of global *Klebsiella pneumoniae* carbapenemase (KPC)-producing *Escherichia coli*. *Scientific Reports*. (2017) 7(1):5917. PMID: 28725045. Cited 78 times. Rank 19 of 74 in Multidisciplinary Sciences. Dr. Mathers assisted with microbiologic isolation, characterization of *E. coli* and review and revision of manuscript.
- 32) Eby JC, Richey MM, Platts-Mills JA, **Mathers AJ**, Novicoff WM, Cox HL. A Healthcare Improvement Intervention Combining Nucleic Acid Microarray Testing With Direct Physician Response for Management of *Staphylococcus aureus* Bacteremia. *Clin Infect Dis*. (2018) 66(1):64-71. PMID: 29020181. Cited 26 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Dr. Mathers helped to organize and lead the implementation of the paired laboratory and quality intervention. She assisted in writing and reviewing of the manuscript.
- 33) Decraene V, Phan HTT, George R, Wyllie DH, Akinremi O, Aiken Z, Cleary P, Dodgson A, Pankhurst L, Crook DW, Lenney C, Walker AS, Woodford N, Sebra R, Fath-Ordoubadi F, **Mathers AJ**, Seale AC, Guiver M, McEwan A, Watts V, Welfare W, Stoesser N, Cawthorne J; TRACE Investigators' Group. A large, refractory nosocomial outbreak of *Klebsiella pneumoniae*

- carbapenemase (KPC)-producing *Escherichia coli* demonstrates carbapenemase gene outbreaks involving sink sites require novel approaches to infection control. *Antimicrob Agents Chemother.* (2018) 62(12). PMID: 30249685. Cited 59 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Dr. Mathers traveled to site of transmission multiple times to advise on study design and sampling techniques. Provided feedback on manuscript concept, writing and revising.
- 34) Gray ME, Cox HL, Donohue LE, Poulter MD, Eby JC, **Mathers AJ**. The effect of rapid diagnostic testing with Infectious Diseases fellow consultative intervention on the management of enterococcal bloodstream infection. *Diagn Microbiol Infect Dis.* (2018) 92(4): 319-24. PMID:30145036. Cited 1 times. Rank 69 of 95 in Infectious Diseases, Rank 94 of 137 in Microbiology
- 35) Grabowski M, Lobo JM, Gunnell B, Enfield K, Carpenter R, Barnes L, **Mathers AJ**. Characterizations of handwashing sink activities in a single hospital medical intensive care unit. *J Hosp Infect.* (2018) 100(3):e115-22. PMID:29738784. Cited 25 times. Rank 18 of 95 in Infectious Diseases, Rank 18 of 210 in Public, Environmental & Occupational Health
- 36) Madden GR, German Mesner I, Cox HL, **Mathers AJ**, Lyman JA, Sifri CD, Enfield KB. Reduced *Clostridium difficile* Tests and Laboratory-Identified Events With a Computerized Clinical Decision Support Tool and Financial Incentive. *Infect Control Hosp Epidemiol.* (2018) 39(6):737-740. PMID: 29644943. Cited 39 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. Mathers was central to establishing the database to collect data, performing chart reviews and involved in the content of the clinical decision support tool for test ordering. She was also involved in reviewing and revising the manuscript.
- 37) Fleece ME, Pholwat S, **Mathers AJ**, Houpt ER. Molecular diagnosis of antimicrobial resistance in *Escherichia coli*. *Expert Rev Mol Diagn.* (2018) 18(3):207-17. PMID: 29431523. Cited 11 times. Rank 15 of 77 in Pathology. Mathers assisted with concept, writing, editing, content gathering and scope of manuscript.
- 38) **Mathers AJ**, Vegesana K, German Mesner I, Barry KE, Pannone A, Baumann J, Crook DW, Stoesser N, Kotay S, Carroll J, Sifri CD. Intensive Care Unit Wastewater Interventions to Prevent Transmission of Multi-species *Klebsiella pneumoniae* Carbapenemase (KPC) Producing Organisms. *Clin Infect Dis.* (2018) 67(2):171-8 PMID: 29409044. Cited 47 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology
- 39) Athans V, Neuner EA, Hassouna H, Richter SS, Keller G, Castanheira M5, Brizendine KD, **Mathers AJ**. Meropenem-Vaborbactam as Salvage Therapy

- for Ceftazidime-Avibactam-Resistant *Klebsiella pneumoniae* Bacteremia and Abscess in a Liver Transplant Recipient. *Antimicrob Agents Chemother.* (2018) 63(1). pii: e01551-18. PMID: 30578403. Cited 56 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Amy Mathers was invited as an expert discussant of the manuscript and wrote a commentary to place the case in context of management of patients with emerging resistance.
- 40) Aranega-Bou P, George RP, Verlander NQ, Paton S, Bennett A, Moore G; **TRACE Investigators' Group**. Carbapenem-resistant Enterobacteriaceae dispersal from sinks is linked to drain position and drainage rates in a laboratory model system *Hosp Infect.* (2018) 102(1):63-9. PMID: 30571992. Cited 31 times. Rank 18 of 95 in Infectious Diseases, Rank 18 of 210 in Public, Environmental & Occupational Health. Amy Mathers is a member of the TRAnsmiSSion of Carbapenemase producing Enterobacteriaceae (TRACE) Investigators' group with several researchers working to understand the dynamics between drug resistant pathogens in the hospital wastewater environment. Amy often acts as an advisor to this research collaborative which is largely based in England. For this work Amy Mathers had traveled several times to help design experiments in Public Health England's testing laboratory at Porton Down. She reviewed data and advised on experimental parameters as well as assisting in manuscript drafting and revising.
- 41) Sheppard AE, Stoesser N, German-Mesner I, Vegesana K, Sarah Walker A, Crook DW, **Mathers AJ**. TETyper: a bioinformatic pipeline for classifying variation and genetic contexts of transposable elements from short-read whole-genome sequencing data. *Microb Genom.* (2018) 4(12) PMID: 30465646. Cited 18 times. Rank 39 of 175 in Genetics & Heredity, Rank 55 of 137 in Microbiology
- 42) Julia L, Vilankar K, Kang H, Brown DE, **Mathers AJ**, Barnes LE. Environmental Reservoirs of Nosocomial Infection: Imputation Methods for Linking Clinical and Environmental Microbiological Data to Understand Infection Transmission. *AMIA Annu Symp Proc.* 2018 Apr 16;2017:1120-1129. eCollection 2017. PMID: 29854180. Cited 4 times. Amy Mathers provided context and input for the analysis. The data used was from infrastructure and organized by a team led by Dr. Mathers. She also provided grant funding for the data infrastructure. Spent time reviewing data with students and training them on patient movement and diagnostic codes as well as participating in evaluation of the students' performance.
- 43) Kotay S, Donlan RM, Ganim C, Barry K, Christensen BE, **Mathers AJ**. Droplet rather than Aerosol Mediated Dispersion is the Primary Mechanism of Bacterial transmission from Contaminated Hand Washing Sink Traps. *Appl Environ Microbiol.* (2018) 85(2) PMID:30367005. Cited 27 times. Rank 46 of 159 in Biotechnology & Applied Microbiology, Rank 53 of 137 in Microbiology

- 44) Wunderink RG, Giamarellos-Bourboulis EJ, Rahav G, **Mathers AJ**, Bassetti M, Vazquez J, Cornely OA, Solomkin J, Bhowmick T, Bishara J, Daikos GL, Felton T, Furst MJL, Kwak EJ, Menichetti F, Oren I, Alexander EL, Griffith D, Lomovskaya O, Loutit J, Zhang S, Dudley MN, Kaye KS. Effect and Safety of Meropenem-Vaborbactam versus Best-Available Therapy in Patients with Carbapenem-Resistant Enterobacteriaceae Infections: The TANGO II Randomized Clinical Trial. *Infect Dis Ther.* (2018) 7(4): 439-55. PMID: 30270406. Amy Mathers participated in the clinical trial design, enrolled patients, and edited and contributed to the writing and revising of the manuscript.
- 45) Humphries RM, Hindler J, Jane Ferraro M, **Mathers AJ**. Twenty-first Century Cures Act and Antimicrobial Susceptibility Testing: Clinical Implications in the Era of Multidrug Resistance. *Clin Infect Dis.* (2018) 14;67(7):1132-1138. PMID: 29796616. Cited 13 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology.
- 46) Clark SD, Sidlak M, **Mathers AJ**, Poulter M, Platts-Mills JA. Clinical Yield of a Molecular Diagnostic Panel for Enteric Pathogens in Adult Outpatients With Diarrhea and Validation of Guidelines-Based Criteria for Testing. *Open Forum Infect Dis.* (2019) 16;6(4):ofz162. PMID:31041357 Cited 7 times. Rank 89 of 162 in Immunology, Rank 46 of 95 in Infectious Diseases, Rank 61 of 137 in Microbiology. Amy Mathers helped acquire data. She provided context for the findings and assisted in drafting of the manuscript with a focus on the discussion.
- 47) Barry K, Wailan AM, Sheppard AE, Crook D, Vegesana K, Stoesser N, Parikh HI, Sebra R, **Mathers AJ**. Don't overlook the little guy: An evaluation of the frequency of small plasmids co-conjugating with larger carbapenemase gene containing plasmids. *Plasmid.* (2019) 103:1-8. PMID:30928702 Cited 21 times. Rank 102 of 175 in Genetics & Heredity, Rank 91 of 137 in Microbiology
- 48) **Mathers AJ**, Crook D, Vaughan A, Barry K, Vegesana K, Stoesser N, Parikh HI, Sebra R, Kotay S, Walker AS, Sheppard AE. *Klebsiella quasipneumoniae* provides a window into carbapenemase gene transfer, plasmid rearrangements and patient interactions with the hospital environment. *Antimicrob Agents Chemother.* (2019). Cited 33 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy

The following articles were published since tenure awarded (49-89)

- 49) Park SC, Wailan AM, Barry KE, Vegesana K, Carroll J, **Mathers AJ**, Miller WR, Munita JM. Managing All the Genotypic Knowledge: Approach to a Septic Patient Colonized by Different *Enterobacteriales* with Unique Carbapenemases. *Antimicrob Agents Chemother.* (2019) 25;63(8). pii: e00029-19. PMID:31345843. Cited 5 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Mentored Stacy Park in execution of science,

write-up and submission of manuscript. Original senior author but case discussants added as last authors.

- 50) Elliott ZS, Barry KE, Cox HL, Stoesser N, Carroll J, Vegesana K, Kotay S, Sheppard AE, Wailan A, Crook DW, Parikh H, **Mathers AJ**. The Role of *fosA* in Challenges with Fosfomycin Susceptibility Testing of Multispecies *Klebsiella pneumoniae* Carbapenemase-Producing Clinical Isolates. *J Clin Microbiol*. (2019) 57(10). PMID: 31340992. Cited 19 times. Rank 15 of 137 in Microbiology
- 51) Operario DJ, Pholwat S, Koeppel AF, Prorock A, Bao Y, Sol-Church K, Scheurenbrand M, Poulter M, Turner S, Parikh HI, **Mathers A**, Houpt ER. *Mycobacterium Avium* Complex Diversity within Lung Disease as Revealed by Whole Genome Sequencing. *Am J Respir Crit Care Med*. (2019) 200(3):393-6. PMID: 30965019. Cited 9 times. Rank 3 of 35 in Critical Care Medicine, Rank 3 of 66 in Respiratory System. Amy Mathers helped interpret results of genomics in the context of transmission between and within patients. Assisted with the revision of the manuscript.
- 52) Reeme AE, Bowler SL, Buchan BW, Graham MB, Behrens E, Singh S, Hong JC, Arvan J, Hyke JW, Palen L, Savage S, Seliger H, Huerta S, Ledebor NA, Kotay S, **Mathers AJ**, Cooper VS, Mustapha MM, Mettus RT, Doi Y, Munoz-Price LS. Use of a cohorting-unit and systematic surveillance cultures to control a *Klebsiella pneumoniae* carbapenemase (KPC)-producing Enterobacteriaceae outbreak. *Infect Control Hosp Epidemiol*. (2019) 40(7):767-73. PMID: 31084655. Cited 5 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health. Amy Mathers provided advice about outbreak management and provided microbiologic processing of environmental samples.
- 53) Burgos-Garay M, Ganim C, de Man TJB, Davy T, **Mathers AJ**, Kotay S, Daniels J, Perry KA, Breaker E, Donlan RM. Colonization of carbapenem-resistant *Klebsiella pneumoniae* in a sink-drain model biofilm system. *Infect Control Hosp Epidemiol*. (2020) 42(6):722-30. PMID: 33234179. Cited 3 times. Rank 24 of 95 in Infectious Diseases, Rank 36 of 210 in Public, Environmental & Occupational Health.
- 54) Park SC, Parikh H, Vegesana K, Stoesser N, Barry KE, Kotay SM, Dudley S, Peto TEA, Crook DW, Walker AS, **Mathers AJ**. Risk Factors Associated with Carbapenemase-Producing *Enterobacterales* (CPE) Positivity in the Hospital Wastewater Environment. *Appl Environ Microbiol*. (2020) 86(24):e01715-20. PMID: 32917755. Cited 4 times. Rank 46 of 159 in Biotechnology & Applied Microbiology, Rank 53 of 137 in Microbiology
- 55) Stoesser N, Phan HTT, Seale AC, Aiken Z, Thomas S, Smith M, Wyllie D, George R, Sebra R, **Mathers AJ**, Vaughan A, Peto TEA, Ellington MJ, Hopkins

- KL, Crook DW, Orlek A, Welfare W, Cawthorne J, Lenney C, Dodgson A, Woodford N, Walker AS; TRACE Investigators' Group. Genomic Epidemiology of Complex, Multispecies, Plasmid-Borne bla KPC Carbapenemase in Enterobacterales in the United Kingdom from 2009 to 2014. *Antimicrob Agents Chemother.* (2020) 21;64(5). pii: e02244-19. PMID: 32094139 Cited 13 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Amy Mathers is a member of the Transmission of Carbapenemase producing Enterobacteriaceae (TRACE) Investigators' group with several researchers working to understand the dynamics of carbapenemase producing organisms. For this manuscript she assisted in the analysis approach and writing and revising of the manuscript.
- 56) Kizny Gordon A, Phan HTT, Lipworth SI, Cheong E, Gottlieb T, George S, Peto TEA, **Mathers AJ**, Walker AS, Crook DW, Stoesser N. Genomic dynamics of species and mobile genetic elements in a prolonged bla_{IMP-4}-associated carbapenemase outbreak in an Australian hospital. *J Antimicrob Chemother.* (2020) 75(4):873-882. PMID: 31960024. Cited 17 times. Rank 32 of 95 in Infectious Diseases, Rank 39 of 137 in Microbiology, Rank 54 of 279 in Pharmacology & Pharmacy. Amy Mathers assisted early on in the investigation advising for study design and microbiologic methods. Reviewed and edited manuscript.
- 57) **Mathers AJ**, Vegesana K, German-Mesner I, Ainsworth J, Pannone A, Crook DW, Sifri CD, Sheppard A, Stoesser N, Peto T, Walker AS, Eyre DW. Risk factors for *Klebsiella pneumoniae* carbapenemase (KPC) gene acquisition and clinical outcomes across multiple bacterial species. *J Hosp Infect.* (2020) 104(4):456-468. Cited 10 times. Rank 18 of 95 in Infectious Diseases, Rank 18 of 210 in Public, Environmental & Occupational Health
- 58) Robinson ED, Volles DF, Kramme K, **Mathers AJ**, Sawyer RG. Collaborative Antimicrobial Stewardship for Surgeons. *Infect Dis Clin North Am.* (2020) 34(1):97-108. Review. PMID: 32008698 Cited 4 times. Rank 55 of 162 in Immunology, Rank 29 of 95 in Infectious Diseases. Mentored Evan Robinson in review of manuscript, writing and editing and then working with other authors on submission of manuscript.
- 59) Davies TJ, Stoesser N, Sheppard AE, Abuoun M, Fowler P, Swann J, Quan TP, Griffiths D, Vaughan A, Morgan M, Phan HTT, Jeffery KJ, Andersson M, Ellington MJ, Ekelund O, Woodford N, **Mathers AJ**, Bonomo RA, Crook DW, Peto TEA, Anjum MF, Walker AS. Reconciling the potentially irreconcilable? Genotypic and phenotypic amoxicillin-clavulanate resistance in *Escherichia coli*. *Antimicrob Agents Chemother.* (2020) 64(6). PMID: 32205351 Cited 15 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Amy Mathers contributed scientifically to the analysis, writing and revision of the manuscript.

- 60) Constantinides B, Chau KK, Quan TP, Rodger G, Andersson MI, Jeffery K, Lipworth S, Gweon HS, Peniket A, Pike G, Millo J, Byukusenge M, Holdaway M, Gibbons C, **Mathers AJ**, Crook DW, Peto TEA, Walker AS, Stoesser N. Genomic Surveillance of *Escherichia coli* and *Klebsiella* Spp. In Hospital Sink Drains and Patients. Microbial Genomics. (2020); 6(7)mgen.0.000391. PMID: 32553019. Cited 13 times. Rank 39 of 175 in Genetics & Heredity, Rank 55 of 137 in Microbiology. Amy Mathers contributed to study design and methods as well as assisted with some sample gathering as well as writing and review of the manuscript.
- 61) Kotay SM, Parikh HI, Barry K, Gweon HS, Guilford W, Carroll J, **Mathers AJ**. Nutrients influence the dynamics of *Klebsiella pneumoniae* carbapenemase producing Enterobacterales in transplanted hospital sinks. Water Research. (2020) 176:115707. PMID: 32224328. Cited 9 times. Rank 15 of 279 in Environmental Sciences, Rank 1 of 100 in Water Resources
- 62) **Mathers AJ**. The Practical Challenges of Making Clinical Use of the Quantitative Value for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Viral Load Across Several Dynamics. Clin Infect Dis. (2021) 73(11):e4206-e4207. PMID: 32645717. Cited 0 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology
- 63) Laura J Dunphy LJ, Kolling GL, Jenior ML, Carroll J, Attai AE, Farnoud F, **Mathers AJ**, Hughes MA, Papin JA. Multidimensional Clinical Surveillance of *Pseudomonas aeruginosa* Reveals Complex Relationships between Isolate Source, Morphology, and Antimicrobial Resistance mSphere. (2021) 6(4):e0039321. PMID: 34259555. Cited 1 times. Rank 52 of 137 in Microbiology. Amy Mathers helped with the study analysis as well as the drafting and revision of the manuscript.
- 64) Burgos-Garay M, Ganim C, de Man TJB, Davy T, **Mathers AJ**, Kotay S, Daniels J, Perry KA, Breaker E, Donlan RM. Colonization of carbapenem-resistant *Klebsiella pneumoniae* in a sink-drain model biofilm system. Infect Control Hosp Epidemiol. (2021); 42(6):722-730. PMID: 33234179. Amy Mathers helped establish the methods and model used as well as writing and revising the manuscript.
- 65) Robinson ED, Stilwell A, Attai AE, Donohue LE, Shah MD, Hill BK, Elliott ZS, Poulter M, Brewster F, Cox HL, **Mathers AJ**. Implementation of a Rapid Phenotypic Susceptibility Platform for Gram-Negative Bloodstream Infections with Paired Antimicrobial Stewardship Intervention: Is the Juice Worth the Squeeze? Clin Infect Dis. (2021) 73(5): 782-93. PMID: 33580233. Cited 8 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology

- 66) Donlan AN, Sutherland TE, Marie C, Preissner S, Bradley BT, Carpenter RM, Sturek JM, Ma JZ, Moreau GB, Donowitz JR, Buck GA, Serrano MG, Burgess SL, Abhyankar MM, Mura C, Bourne PE, Preissner R, Young MK, Lyons GR, Loomba JJ, Ratcliffe SJ, Poulter MD, **Mathers AJ**, Day AJ, Mann BJ, Allen JE, Petri WA Jr. IL-13 is a driver of COVID-19 severity. *JCI Insight*. (2021) 6(15):150107. PMID: 34185704 Cited 49 times. Rank 19 of 139 in Medicine, Research & Experimental. Amy Mathers provided insight and data gathering got SARS CoV-2 PCR diagnostic testing as well as editing and revising of the manuscript.
- 67) Tamma PD, Aitken SL, Bonomo RA, **Mathers AJ**, van Duin D, Clancy CJ. Infectious Diseases Society of America Guidance on the Treatment of Extended-Spectrum β -lactamase Producing Enterobacterales (ESBL-E), Carbapenem-Resistant Enterobacterales (CRE), and *Pseudomonas aeruginosa* with Difficult-to-Treat Resistance (DTR-P. *aeruginosa*). *Clin Infect Dis*. (2021) 72(7):e169-e183. PMID: 33106864. Cited 206 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Amy Mathers contributed to primary writing of the ESBL treatment section as well as review and editing for all other sections.
- 68) **Mathers AJ**, Lewis JS. CON: Testing for ESBL production is unnecessary for ceftriaxone-resistant Enterobacterales. *JAC Antimicrob Resist*. (2021) 3(2):dlab020. PMID: 34223109. Cited 9 times.
- 69) Tamma PD, **Mathers AJ**. Navigating treatment approaches for presumed ESBL-producing infections. *JAC Antimicrob Resist*. (2021) 3(1):dlaa111. PMID: 33659895. Cited 6 times.
- 70) Colosi LM, Barry KE, Kotay SM, Porter MD, Poulter MD, Ratliff C, Simmons W, Steinberg LI, Wilson DD, Morse R, Zmick P, **Mathers AJ**. Development of wastewater pooled surveillance of SARS-CoV-2 from congregate living settings. *Appl Environ Microbiol*. (2021) 87(13): e0043321. PMID: 33858836. Cited 28 times. Rank 46 of 159 in Biotechnology & Applied Microbiology, Rank 53 of 137 in Microbiology
- 71) Tamma PD, Aitken SL, Bonomo RA, **Mathers AJ**, van Duin D, Clancy CJ. Infectious Diseases Society of America Guidance on the Treatment of AmpC β -lactamase-Producing Enterobacterales, Carbapenem-Resistant *Acinetobacter baumannii*, and *Stenotrophomonas maltophilia* Infections. *Clin Infect Dis*. (2022) 74(12):2089-2114. PMID: 34864936. Cited 84 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Amy Mathers contributed to primary writing of the *Stenotrophomonas maltophilia* treatment section as well as review and editing for all other sections.

- 72) Kotay SM, Tanabe KO, Colosi LM, Poulter MD, Barry KE, Holstege CP, **Mathers AJ**, Porter MD. Building-Level Wastewater Surveillance for SARS-CoV-2 in Occupied University Dormitories as an Outbreak Forecasting Tool: One Year Case Study. ACS ES&T Water. (2022) WOS:000819849800001 Cited 1 times. Oversaw and coordinated all collection, testing, resulting and interpretation of data. Edited and reviewed manuscript. Journal's Impact IF of Environmental Science is 4.25. Does not have PubMed number as environmental science.
- 73) Robinson ED, Keng MK, Thomas TD, Cox HL, Park SC, **Mathers AJ**. Reducing Repeat Blood Cultures in Febrile Neutropenia: A Single-Center Experience. Open Forum Infect Dis. (2022) 9(11):ofac521. PMID: 36408469. Cited 0 times. Rank 89 of 162 in Immunology, Rank 46 of 95 in Infectious Diseases, Rank 61 of 137 in Microbiology
- 74) Sasson J, Donlan AN, Ma JZ, Haughey HM, Coleman R, Nayak U, **Mathers AJ**, Laverdure S, Dewar R, Jackson PEH, Heysell SK, Sturek JM, Petri WA Jr. Safety and Efficacy of Dupilumab for the Treatment of Hospitalized Patients With Moderate to Severe Coronavirus Disease 2019: A Phase 2a Trial. Open Forum Infect Dis. (2022) 9(8):ofac343. PMID: 35959207. Cited 5 times. Rank 89 of 162 in Immunology, Rank 46 of 95 in Infectious Diseases, Rank 61 of 137 in Microbiology Amy Mathers led and completed all the whole genome sequencing of SARS CoV-2 from patient samples. She reviewed, edited and revised the manuscript.
- 75) Mojica MF, Humphries R, Lipuma JJ, **Mathers AJ**, Rao GG, Shelburne SA, Fouts DE, Van Duin D, Bonomo RA. Clinical challenges treating *Stenotrophomonas maltophilia* infections: an update. JAC Antimicrob Resist. (2022) 4(3):dlac040. PMID: 35529051. Cited 5 times. Amy Mathers led much of the writing in the clinical microbiology section with the challenges around testing as they relate to treatment. Working with group to submit NIH grant for study of this difficult to treat organism.
- 76) Tamma PD, Harris PNA, **Mathers AJ**, Wenzler E, Humphries RM. Breaking Down the Breakpoints: Rationale for the 2022 Clinical and Laboratory Standards Institute Revised Piperacillin-Tazobactam Breakpoints Against Enterobacterales. Clin Infect Dis. (2022) PMID: 36001445. Cited 6 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Amy Mathers helped establish the approach and guide discussion and decisions regarding the breakpoint change at Clinical Laboratory Standards Institute as well as writing and revising the manuscript.
- 77) Pierce VM, **Mathers AJ**. Setting Antimicrobial Susceptibility Testing Breakpoints: A Primer for Pediatric Infectious Diseases Specialists on the Clinical and Laboratory Standards Institute Approach. J Pediatric Infect Dis Soc.

- (2022) 11(2):73-80. PMID: 34888640. Cited 2 times. Rank 38 of 95 in Infectious Diseases, Rank 14 of 130 in Pediatrics
- 78) Sturek JM, Thomas TA, Gorham JD, Sheppard CA, Raymond AH, Petros De Guex K, Harrington WB, Barros AJ, Madden GR, Alkabab YM, Lu DY, Liu Q, Poulter MD, **Mathers AJ**, Thakur A, Schalk DL, Kubicka EM, Lum LG, Heysell SK. Convalescent Plasma for Preventing Critical Illness in COVID-19: a Phase 2 Trial and Immune Profile. *Microbiol Spectr.* (2022) 10(1):e0256021. PMID: 35196802. Cited 1 times. Rank 20 of 137 in Microbiology. Amy Mathers helped to coordinate trial and enrollment reviewed and edited manuscript.
- 79) Kamruzzaman M, **Mathers AJ**, Iredell JR. A Novel Plasmid Entry Exclusion System in pKPC_UVA01, a Promiscuous Conjugative Plasmid Carrying the blaKPC Carbapenemase Gene. *Antimicrob Agents Chemother.* (2022) 66(3):e0232221. PMID: 35007138. Cited 0 times. Rank 35 of 137 in Microbiology, Rank 51 of 279 in Pharmacology & Pharmacy. Amy Mathers discovered the plasmid involved and worked to confirm findings from collaborators lab. Writing and editing manuscript.
- 80) Marino AC, Robinson ED, Durden JA, Cox HL, **Mathers AJ**, Shaffrey ME.J The effects of avoiding extended antimicrobial drain prophylaxis on *Clostridioides difficile* and postprocedural infection rates: a 5-year retrospective. *Neurosurg.* (2022) 1-7. PMID: 35171828. Cited 0 times. Rank 45 of 212 in Clinical Neurology, Rank 23 of 213 in Surgery. Amy Mathers gathered original cases and described initial findings. Mentored Fellow Evan Robinson in co-writing with neurosurgery resident.
- 81) Loudermilk EM, Kotay SM, Barry KE, Parikh HI, Colosi LM, **Mathers AJ**. Tracking *Klebsiella pneumoniae* carbapenemase gene as an indicator of antimicrobial resistance dissemination from a hospital to surface water via a municipal wastewater treatment plant. *Water Res.* (2022) 213:118151. PMID: 35167966. Cited 9 times. Rank 15 of 279 in Environmental Sciences, Rank 1 of 100 in Water Resources
- 82) Humphries R, Tamma PD, **Mathers AJ**. Disk Correlates for Revised Clinical and Laboratory Standards Institute *Enterobacterales* Piperacillin-Tazobactam MIC Breakpoints. *J Clin Microbiol.* (2022) 60(5):e0024322. PMID: 35443782. Cited 1 times. Rank 15 of 137 in Microbiology
- 83) Tamma PD, Aitken SL, Bonomo RA, **Mathers AJ**, van Duin D, Clancy C. J. Clin Infectious Diseases Society of America 2022 Guidance on the Treatment of Extended-Spectrum β -lactamase Producing Enterobacterales (ESBL-E), Carbapenem-Resistant Enterobacterales (CRE), and Pseudomonas aeruginosa with Difficult-to-Treat Resistance (DTR-P. aeruginosa). *Clinical Infect Dis.* (2022) 75(2):187-212 PMID: 35439291. Cited 33 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in

Microbiology. Amy Mathers contributed to primary writing of the ESBL treatment section as well as review and editing for all other sections. As of December 2022, this highly cited paper received enough citations to place it in the top 1% of the academic field of Immunology based on a highly cited threshold for the field and publication year.

- 84) Park SC, Gillis-Crouch GR, Cox HL, Donohue L, Morse R, Vegesana K, **Mathers AJ**. Consecutive antibiotic shortages highlight discrepancies between microbiology and prescribing practices for intra-abdominal infections. *Antimicrob Agents Chemother.* (2023) 95 (5) e01980-20. PMID: 33593836. Cited 2 times. Rank 15 of 137 in Microbiology
- 85) Simner PJ, Palavecino EL, Satlin MJ, **Mathers AJ**, Weinstein MP, Lewis JS 2nd, Humphries R. Potential of Inaccurate Cefiderocol Susceptibility Results: a CLSI AST Subcommittee Advisory. *J Clin Microbiol.* (2023) e0160022. Online ahead of print. PMID: 36946754. Cited 0 times. Rank 15 of 137 in Microbiology. Amy Mathers assisted in the review of the data and the writing of the manuscript with feedback in the context of the clinical impact of inaccurate test results.
- 86) Bixby ML, Salay JM, Krueger AR, **Mathers AJ**, Hirsch EB. Fosfomycin Disk Diffusion Testing among *Klebsiella pneumoniae* Results in Frequent Inner Colonies and Categorical Disagreement Based on Conflicting Breakpoint Organization Recommendations. *Microbiol Spectr.* (2023):e0336322. Online ahead of print. PMID: 36877020. Cited 0 times. Rank 20 of 137 in Microbiology. Amy Mathers assisted in the review of the data and the writing of the manuscript with feedback given in the context of other fosfomycin findings.
- 87) Manuel C, Maynard R, Abbott A, Adams K, Alby K, Sweeney A, Dien Bard J, Flores II, Rekasius V, Harrington A, Kidd TS, **Mathers AJ**, Tekle T, Simner PJ, Humphries RM. Evaluation of Piperacillin-Tazobactam Testing against *Enterobacteriales* by the Phoenix, MicroScan, and Vitek2 Tests Using Updated Clinical and Laboratory Standards Institute Breakpoints. *J Clin Microbiol.* (2023) 61(2):e0161722. PMID: 36719243. Cited 2 times. Rank 15 of 137 in Microbiology Amy Mathers oversaw the collection of isolates and susceptibility testing at the University of Virginia and then reviewed data and assisting with the writing and editing of the manuscript.
- 88) Tamma PD, Harris PNA, **Mathers AJ**, Wenzler E, Humphries RM. Deconstructing the 2023 Clinical Laboratory and Standards Institute Revised Piperacillin-tazobactam Breakpoints Against *Pseudomonas aeruginosa*. *Clin Infect Dis.* (2023) ciad012. doi: 10.1093/cid/ciad012. Online ahead of print. PMID: 36625154. Cited 1 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Amy Mathers participated in the evaluation and review of the historic clinical data as well as placing the breakpoint changes in the context of the Clinical and Laboratory Standards Institute process. She assisted in the manuscript writing and review.

- 89) Tamma PD, **Mathers AJ**, Wenzler E. Reply to: Cefepime for Ceftriaxone Resistant Enterobacteriales with Chromosomal AmpC Beta-Lactamases. Clin Infect Dis. (2023) Online ahead of print. PMID: 36978246. Cited 0 times. Rank 7 of 162 in Immunology, Rank 6 of 95 in Infectious Diseases, Rank 6 of 137 in Microbiology. Amy Mathers reviewed the data and gathered manuscripts to describe the rebuttal position. She reviewed and edited the manuscript.

B. Peer Reviewed Abstracts

- 1) **Mathers A**, Smith R, Lubelczyk C, Holman M, Lacombe E, Rand P, Morris S, Vary C. Strain Diversity of *Borrelia burgdorferi* in *Ixodes scapularis* Removed from Migratory Birds. Abstract Poster Presentation at the 10th International Conference on Lyme Borreliosis and Other Tick-Borne Diseases. Poster 12, Page: 24 (2005)
- 2) **Mathers A**, Smith R, Lubelczyk C, Holman M, Lacombe E, Rand P, Morris S, Vary C. Limited Strain Diversity of *Borrelia burgdorferi* on Maine Coastal Islands. Abstract Poster Presentation at the 43rd Annual Meeting of Infectious Diseases Society of America, Poster 220, Page: 68 (2005)
- 3) **Mathers A**, Martin E, Lee G, Kane D, Scheld WM. TNF- α Neutralization Improves Liver Function in the Anthrax Rapid Death Model. Oral Abstract Presentation. 45th Annual Meeting of Infectious Diseases Society of America, 1214, Page 76 (2007)
- 4) **Mathers A**, Martin E, Lee G, Scheld WM. Innate Stimulation through Toll-like – receptor-4 (TLR-4) Improves Survival in a Mouse Model of Anthrax. Abstract Poster Presentation at the 45th Annual Meeting of Infectious Diseases Society of America, Poster 456, Page: 144 (2007).
- 5) **Mathers A**, Cox H, Carroll J, Brassinga AK, Bonatti H, Scheld WM, Hazen K, Sifri C. Multi-species Outbreak of *Klebsiella pneumoniae* carbapenemase (KPC) - Producing Bacteria: Detection and Genetic Description. Oral Abstract Presentation. Annual Meeting of Infectious Diseases Society of America, Abstract Number 3369 (2008)
- 6) **Mathers A**, Cox H, Carroll J, Gosseling M, Hall K, Hazen K, Sifri C. Surveillance for *Klebsiella pneumoniae* Carbapenemase (KPC)-Producing Enterobacteriaceae with Reduced Lactose Fermentation. Abstract Poster Presentation at the 47th Annual Meeting of Infectious Diseases Society of America, Poster 852, Page: 74 (2009).

- 7) **Mathers A**, Cox, HL, Carroll J, Hazen K, Sifri CD. Does the Mechanism of Ertapenem Resistance Impact Outcome of Enteric Gram-Negative Infection? Abstract Poster Presentation. 50th Interscience Conference on Antimicrobial Agents and Chemotherapy Annual Meeting Poster 4025 (2010)
- 8) **Mathers, AJ**, Donowitz, GR Bactericidal Effect of Antimicrobial-Treated Textiles on Multi-drug Resistant Gram Negatives. 51th Interscience Conference on Antimicrobial Agents and Chemotherapy Annual Meeting. (2011) Poster K-1460
- 9) Sifri CD, **Mathers AJ**, Cox HL, Bonatti H, Kitchel BJ, Brassinga AKC, Wispelwey B, Pruett TL, Hazen KC. Molecular anatomy of a plasmid-mediated outbreak of KPC-producing CRE. The Society for Healthcare Epidemiology of America (SHEA): Fifth Decennial International Conference on Healthcare-Associated Infections, Dallas, TX, April (2011). Abstract #5068.
- 10) **Mathers AJ**, Hazen KC, Yeh AJ, Carroll J, Cox HL, Sifri CD. First Identification of OXA-48 Carbapenemase-producing Enterobacteriaceae (CPE) in the United States. 52th Interscience Conference on Antimicrobial Agents and Chemotherapy Annual Meeting. Late Breaker Poster. San Francisco, CA (2012). Abstract # C2-097b
- 11) Cox H, Sifri CD, Sawyer R, Scheld WM, **Mathers A**. Institutional Outbreak of Linezolid-nonsusceptible *Enterococcus faecium* (LNEF) Emerges During Linezolid Cycling in a Surgical Intensive Care Unit (SICU) Abstract Poster Presentation at the 50th Annual Meeting of Infectious Diseases Society of America; IDWeek. (2012) Poster 728 Page:93
- 12) Huq N, Enfield K, Gosseling M, Low D, Toney D, Kundzins J, **Mathers A**, Sifri CD. Simultaneous Outbreaks of Extensively Drug Resistant *Acinetobacter baumannii* and Carbapenemase Producing Enterobacteriaceae in an Intensive Care Unit: Interruption of Epidemic but not Endemic Transmission. Abstract Poster Presentation at the 50th Annual Meeting of Infectious Diseases Society of America; IDWeek. (2012) Poster 257 Page:88
- 13) Sifri CD, Enfield K, Gosseling M, Kundzins J, **Mathers A**. A Propagated Plasmid-Mediated Outbreak of KPC Carbapenemase-Producing Enterobacteriaceae (CPE) in Virginia, 2007-2011 Abstract Oral Presentation at the 50th Annual Meeting of Infectious Diseases Society of America; IDWeek. (2012) Delivered on October 18th Abstract 91 Page:19
- 14) **Mathers AJ**, Carroll J, Cox HL, Sifri CD, Hoffman P, Hazen KC. Improved Phenotypic Detection of *Klebsiella pneumoniae* Carbapenemase (KPC) in Non-*K. pneumoniae* Enterobacteriaceae by an Indirect Assay: A Prospective Study. Abstract Poster Presentation at the 50th Annual Meeting of Infectious Diseases Society of America; IDWeek. (2012) Poster 158 Page:87

- 15) Lewis, J, **Mathers A**, Cox HL, Enfield K, Sifri C. Not Daptomycin's Fault? Potential Nosocomial Transmission of Daptomycin Non-Susceptible Enterococci. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Francisco, CA (2013). Poster 397
- 16) **Mathers A**, Harris K, Day S, MD Smith D, Crigler P, Cox HL Antimicrobial Stewardship Program (ASP) at a Small Community Hospital Improves Susceptibility Patterns and is Cost-Saving after the First Year. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Francisco, CA (2013). Poster 996 (Selected for Poster Walk for Exceptional Posters)
- 17) **Mathers A**, Carroll J, Poulter M, Dirks D, Sifri C; Clinical Microbiology Costs for Methods of Active Surveillance for Carbapenem-Resistant Enterobacteriaceae (CRE). 53rd Interscience Conference on Antimicrobial Agents and Chemotherapy Annual Meeting. Denver, CO (2013). Poster D-1145 Page 114
- 18) **Mathers A**, Harris K, Day S, MD Smith D, Crigler P, Cox HL Antimicrobial Stewardship Program (ASP) at a Small Community Hospital Improves Susceptibility Patterns and is Cost-Saving after the First Year. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Francisco, CA (2013). Poster 996
- 19) **Mathers A**, Yeh A, Cox HL, Carroll J, Hoffman PS, Poulter M, Sifri C; Nosocomially-Acquired *Klebsiella pneumoniae* Carbapenemase (KPC)-Producing *Aeromonas hydrophilia* Associated with KPC Transmission to Multiple Species of Enterobacteriaceae. 53rd Interscience Conference on Antimicrobial Agents and Chemotherapy Annual Meeting. Denver, CO (2013). Poster C2-1095 Page 111
- 20) **Mathers A**, Stoesser N, Cox HL, Sifri CD, Giess A, Crook D, Sheppard A. Species-dependent *bla*_{KPC}-plasmid Diversity in a Single Hospital: *Citrobacter freundii* versus *Klebsiella pneumoniae*. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). Washington DC (2014) Poster C-076
- 21) Stoesser N, Sheppard A, Giess A, Yeh A, Cox HL, Sifri CD, Crook D, **Mathers A**. Dynamics of the KPC Transposon: Tn4401 in a Single US Hospital, 2007---2012 Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). Washington DC (2014) Poster 1395
- 22) Lewis J, Enfield K, **Mathers A**, Giannetta E, Sifri CD. Utility of Carbapenem-Resistant Enterobacteriaceae Surveillance Cultures in Predicting Clearance of Colonization ID Week. Joint Meeting of Infectious Diseases Society of America

- (IDSA) and Society for Healthcare Epidemiology of America (SHEA). Philadelphia, PA (2014). Poster 364
- 23) Sheppard A, Geiss A, Stoesser N, Bashir A, Sebra R, Kasarkis A, Sifri CD, Crook DW, **Mathers AJ**. Emergence and spread of a novel carbapenem resistance plasmid in a hospital cohort involving multiple species of Enterobacteriaceae (ECCMID). 24th European Congress of Clinical Microbiology and Infectious Diseases. Barcelona, Spain. (2014) PosterP1031
- 24) **Mathers AJ**, Stoesser N, Sheppard A, Geiss A, Didelot X, Sifri CD, Crook, DW. The host bacterial-plasmid network: observations of *Klebsiella pneumoniae*-carbapenemase (KPC) gene mobility in a *K. pneumoniae* cohort using whole genome sequencing. 24th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Barcelona, Spain (2014). Poster eP014
- 25) Hardiman CA, Weingarten RA, **Mathers A**, Dekker JP, Conlan S, Palmore TN, Segre JA, Frank KM. Evaluation of Interspecies Plasmid Transfer and Comparison with Hospital Epidemiology Data. 115th General Meeting of American Society for Microbiology, New Orleans, LA (2015) Poster 1880
- 26) Stoesser N, Peirano G, Sheppard A, Anson L, Pankhurst L, Sebra R, Kasarskis A, **Mathers AJ**, Walker S, Peto T, Crook D, Hoban D, Bradford P, Pitout J. Characterization of Global *Escherichia coli* bla_{KPC} Plasmids Reveals Substantial Diversity. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). San Diego (2015) Poster C-1080 (Selected for Poster Walk for Exceptional Posters)
- 27) M. Sidlak M, Platts-Mills J, Hutter S, Giannetta E, Sifri C, Ensinger S, Carroll J, Poulter M, **Mathers AJ**. Early Experience with a Multiplex PCR Gastrointestinal (GI) Pathogen Panel: Implications for Infection Control. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). San Diego (2015) Poster D-208
- 28) Cheruvanky A, Carroll J, Hoffman P, Cox H, **Mathers AJ**. Effect of Molecular Class of β -lactamase on the Accuracy of Cefepime (FEP) Susceptibility in Ceftriaxone Non-susceptible Enterobacteriaceae (CNSE). Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). San Diego (2015) Poster D-1160
- 29) Cheruvanky A, Stoesser N, Sheppard A, Crook D, Ramakrishnan G, **Mathers AJ**. Enhanced *Klebsiella pneumoniae* Carbapenemase (KPC) Expression from a Novel Tn4401 Deletion. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). San Diego (2015) Poster C-625 (Selected for Poster Walk for Exceptional Posters)

- 30) Carroll J, Cox H, **Mathers AJ**. Fosfomycin (FOS) Susceptibility Testing of *Klebsiella pneumoniae* Carbapenemase-producing Enterobacteriaceae (KPC-E) Comparison of 2 Methods Using *Escherichia coli* Breakpoints Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). San Diego (2015) Poster D-190
- 31) **Mathers AJ**, Stoesser N, Sifri C, Sebra R, Kasarskis A, Crook D, Sheppard A. Multiple Occurrences of Chromosomal Integration of the *Klebsiella pneumoniae* carbapenemase gene (*bla_{KPC}*) within High Risk Clones of *K. pneumoniae*. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). San Diego (2015) Oral Presentation
- 32) Gray M, Cox, HL, Poulter, MP, Eby, J, **Mathers, AJ**. Impact of Infectious Disease Fellow Consultative Intervention combined with Rapid Microarray Assay Technology on Outcomes for Patients with Enterococcal Blood Stream Infection. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). New Orleans, LA (2016) Poster
- 33) Cheruvanky A, Carroll J, Barry K, Hoffman P, Cox HL, **Mathers AJ**. Accuracy of Cefepime (FEP) Susceptibility Testing of Ceftriaxone Non-Susceptible Enterobacteriaceae (CNSE) by Three Methods. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). New Orleans, LA (2016) Poster 2012.
- 34) Orr RP, Chai W, Cheruvanky A, Denecke M, Carroll J, **Mathers AJ**. Analysis of Surface Longevity of *Klebsiella pneumoniae* carbapenemase (KPC)-Producing Enterobacteriaceae on an Environmental Surface. American Society of Microbiology Annual Meeting (ASM Microbe) Boston, MA (2016) Poster SA-212
- 35) Subramanian P, Hasan NA, Grim C, **Mathers AJ**, White JR, Isom R, Colwell R. Metagenomic Evaluation of Sink Trap Biofilms as a Nosocomial Reservoir for Carbapenemase Producing Gammaproteobacteria. American Society of Microbiology Annual Meeting (ASM Microbe) Boston, MA (2016) Poster LB-082
- 36) Donohue L, Cox HL, Carroll J, Cheruvanky A, **Mathers AJ**. Performance of ceftazidime-avibactam susceptibility testing methods using real-world multi-drug resistant clinical isolates American Society of Microbiology Annual Meeting (ASM Microbe) Boston, MA (2016) Poster
- 37) **Mathers AJ**, Stoesser N, Carroll J, Ainsworth J, Sifri C, Crook D, Sheppard A. Genomic Evaluation of Nosocomial *Klebsiella pneumoniae* Carbapenemase-Producing *Serratia marcescens* (KPC-Sm). American Society of Microbiology Annual Meeting (ASM Microbe) Boston, MA (2016) Poster SU-275

- 38) Sheppard A, Stoesser N, Walker S, Peto TE, Sebra R, Kasarskis A, Crook D, **Mathers AJ**. Promises and Pitfalls of Illumina Sequencing for Resistance Plasmid Tracking. American Society of Microbiology Annual Meeting (ASM Microbe) Boston, MA (2016) Poster SU-273
- 39) **Mathers AJ**, Eyre D, Wilson D, Vegesana K, German-Mesner I, Ainsworth J, Walker AS, Sheppard A, Crook D, Stoesser N. Differing Rates of Evolutionary Change for Species of Nosocomial *Klebsiella pneumoniae* Carbapenemase-Producing Enterobacteriaceae (KPCE) Symposium: Water, Bugs and Hospital Pipes. Selected for Oral Abstract Presentation. American Society of Microbiology Annual Meeting (ASM Microbe) New Orleans, LA (2017) Selected for oral abstract presentation.
- 40) Elliott ZS, Stoesser N, Cox HL, Carroll J, Barry K, Sheppard AE, Crook D, **Mathers AJ**. Fosfomycin *In Vitro* Susceptibility Assessment of Whole Genome Sequenced Multispecies KPC-producing Clinical Isolates. American Society of Microbiology Annual Meeting (ASM Microbe) New Orleans, LA (2017) Poster SA-1044
- 41) **Mathers AJ**, Hope W, Kaye KS, Loutit J, Alexander E, Dudley M, Vazquez J. Meropenem-Vaborbactam: Outcomes in Subjects with Renal Impairment in Phase 3 Studies TANGO I and II. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Diego (2017) Poster 1879
- 42) Sheppard A, Stoesser N, Eyre D, Sebra R, Vegesana K, German Mesner I, Ainsworth J, Peto T, Walker SA, Crook DW, **Mathers AJ**. Rapid reshuffling of Tn4401 transposon variants and plasmids carrying blakpc in *Klebsiella pneumoniae* ST196 within a single hospital outbreak. 27th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Vienna, Austria. (2017) Session: The complex epidemiology of carbapenemases. Oral Presentation. #2295
- 43) Sheppard A, Stoesser N, Peto T, Walker SA, Crook DW, **Mathers AJ**. Molecular Epidemiological Investigation of Mobile Resistance Genes using Illumina Data. Applied Bioinformatics and Public Health Microbiology. Wellcome Genome Campus, Hinxton, Cambridge, UK. (2107) Poster Presentation.
- 44) **Mathers AJ**, , Stoesser N, , Crook DW, Sheppard A. Tracking a selfish gene through patients, pathogens, plasmids and plumbing Applied Bioinformatics and Public Health Microbiology. Wellcome Genome Campus, Hinxton, Cambridge, UK. (2017) Oral Presentation.

- 45) Kotay SM, Barry KE, Guilford W, **Mathers AJ**. Dynamics and Stability of *Klebsiella pneumoniae* carbapenemase producing Enterobacteriaceae (KPCE) from Hospital Hand Washing Sinks American Society of Microbiology Annual Meeting (ASM Microbe) Atlanta, GA (2018). Selected for oral abstract presentation.
- 46) Lewis S, Seidelman J, Huslage K, Carriker C, Hnat A, Lobaugh-Jin E, Sova C, Taylor B, Strittholt N, Vereen S, Willis R, Campbell C, Addison R, Hazen K, **Mathers AJ**, Vegesana K, Carroll J, Kotay S, Baker A, Sexton D, Anderson D, Smith B. Contaminated Sinks May be an Environmental Source for Serial Transmission of Carbapenem-Resistant Enterobacteriaceae (CRE) to ICU Patients ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Francisco, CA (2018) Poster 1251.
- 47) Barry K, Vegesana K, Sheppard AE, Crook D, Kotay S, **Mathers AJ**. Carbapenemase Plasmids Travel with Help: An Evaluation of the Transfer Rate of Small Non-Carbapenemase Plasmids Accompanying KPC plasmids. Plasmid Biology (2018). International Society of Plasmid Biology Bi-Annual Meeting. Seattle, WA. Poster 108.
- 48) Burgos-Garay M, Ganim C, Davy T, **Mathers AJ**, Kotay S, Donlan R. Supplemental carbon and energy sources stimulate the amplification of carbapenem-resistant *Klebsiella pneumoniae* (CRKP) in a defined sink drain biofilm reactor model. American Society of Microbiology Annual Meeting (ASM Microbe) Atlanta, GA (2018) Poster AES-LB3
- 49) McCullough S, Cox Hall HL, Elliott Z, Carroll J, **Mathers AJ**. Evaluation of the Accelerate Pheno™ System for clinical decision-making in Gram-negative bacillary bloodstream infections. American Society of Microbiology Annual Meeting (ASM Microbe) Atlanta, GA (2018) Poster SU-237
- 50) Smith B, Mathers AJ, Kotay S, Parikh H, Barry K, Seidelman J, Addison R, Huslage K, Hnat A, Sova C, Lewis S. What's Lurking in the Drain? Serial Transmission of NDM-1 *Klebsiella pneumoniae* to Patients Admitted 9 Months Apart to the Same ICU Room. IDweek, Washington DC (2019), Poster 2466.
- 51) Mathers AJ, Sheppard A, Nicole Stoesser N, Crook D, Barry KE, Eyre D, Parikh H. Making of a "Super-Duper Bug": Plasmid Mediated Resistance Accumulation in a Carbapenemase-Producing *Klebsiella quasipneumoniae* from Patients and the Environment IDweek, Washington DC (2019), Poster 505.
- 52) Cox HL, Attai AE, Stillwell AM, Vegesana KB, Brewster F, Poulter M, **Mathers AJ**. Attempting to Add Clarity to "Indeterminates" on a Deployed Rapid Diagnostic with Antimicrobial Stewardship Program (ASP) Intervention IDweek, Washington DC, (2019) Poster 2143.

- 53) Stilwell A, Cox HL, Vegesana K, Elliott Z, **Mathers AJ**. A Rapid Diagnostic Paired with Antimicrobial Stewardship Program (ASP) Intervention Helps Narrow Early but Not Completely in Patients with Gram-Negative Bacilli (GNB) Bloodstream Infections (BSIs) American Society of Microbiology Annual Meeting (ASM Microbe) San Francisco, CA (2019) Poster AAR-649
- 54) Park S, Kotay SM, Barry KE, Vegesana K, Dudley S, **Mathers AJ**. Clinical and environmental factors associated with carbapenemase-producing Enterobacteriales (CPE) positivity in the hospital wastewater environment. Society for Healthcare Epidemiology of America (SHEA). Boston, MA (2019) Oral presentation. 373

The following abstract were presented since tenure awarded (55-68)

- 55) Robinson E, Cox HL, Attai A, Donohue L, Shah M, Elliott Z, Hill B, Mathers AJ. Impact of Discrepant Rapid Diagnostic Test (RDT) Results on Antimicrobial Stewardship Program (ASP) Interventions in Patients with Bloodstream Infections (BSI) due to Gram-Negative Bacilli (GNB) Infectious Diseases Society of America Annual Meeting (IDWeek) Virtual (2020) poster #90
- 56) Park S, Attai A, Enfield K, Bell T, Hill B, Carpenter R, Cox HL, Mathers AJ. Pseudo-outbreak of Coagulase-negative Staphylococcus Species from Blood Cultures Highlights Unique Challenges in Care of Critically Ill Patients With COVID-19. Infectious Diseases Society of America Annual Meeting (IDWeek) Virtual (2020) Poster #394
- 57) Patel A, Cox HL, **Mathers AJ**, Donowitz G, Donohue LE. Evaluation of Vancomycin Use and Clinical Outcomes in Febrile Neutropenic (FN) Patients with Viridans Group Streptococcal (VGS) Bloodstream Infections (BSI). American Society for Microbiology Annual Meeting (ASM Microbe). (2020) Virtual Poster
- 58) **Mathers AJ**, Chen L, Parikh HI, Barry KE, Peirano G, Kock M, Kreiswirth BN, Pitout JDD. Comparative Genomics of Antimicrobial Resistance Plasmids Harbored by the High-risk Klebsiella Pneumoniae ST-307 Clone Provide Insights Into Varying Plasmid Plasticity American Society for Microbiology Annual Meeting (ASM Microbe). (2020) Virtual Poster
- 59) Attai A, Robinson E, Brewster F, Poulter M, Cox HL, **Mathers AJ**. Implementation of a Rapid Diagnostic Platform for Gram-Negative Bacteremia in a Clinical Microbiology Laboratory: Mitigating Challenges Through Collaboration with an Antimicrobial Stewardship Program (ASP) American Society for Microbiology Annual Meeting (ASM Microbe). (2020) Virtual Poster
- 60) Park SC, Attai AE, Enfield K, Bell T, Hill B, Carpenter R, Cox HL, **Mathers AJ**. Pseudo-outbreak of Coagulase-negative *Staphylococcus* Species Highlights

- Unique Challenges in Care of Patients within a Special Pathogens Unit. Infectious Diseases Society of America Annual Meeting (IDWeek) (2021) Virtual Poster
- 61) Archer AW, Cox, HL, Donohue LE, **Mathers AJ**. Does Passive Reporting of *Streptococcus* spp Identified by Rapid Molecular Assay Change Antibacterial Prescribing Compared to Gram Stain (GS) Alone? Infectious Diseases Society of America Annual Meeting (IDWeek) October 20th, 2022 Washington DC. Poster #172
- 62) Haynes C, Kotay S, **Mathers AJ**. Just Flush It - Effect Of Water Flush-frequency On Bacterial Colonization In Sink Drains. American Society for Microbiology Annual Meeting (ASM Microbe). Washington DC (2022) Poster #2744
- 63) April E Attai AE, Parikh HI, Barry KE, Carroll J, Snavely E, **Mathers AJ**. Carbapenemase Producing *Serratia Marcescens*: Persistent In The Environment And Resistant In The Patient. American Society for Microbiology Annual Meeting (ASM Microbe). Washington DC (2022) Poster #2850
- 64) Archer AW, Forbes R, Berry KE, Donohue LE, **Mathers AJ**. Performance of a Multi-target PCR Assay for the Detection of *blaZ* Gene in *Staphylococcus aureus* and *Staphylococcus lugdunensis* American Society for Microbiology Annual Meeting (ASM Microbe). Washington DC (2022)
- 65) Almulhim A, Touzard Romo F, Leonard Mermel L, **Mathers AJ**, Eby JE. Correlating Symptoms to Infectivity Among Vaccinated Healthcare Workers With Covid-19. Society for Healthcare Epidemiology of America (SHEA) Seattle, WA (2023) Poster #377
- 66) Park SC, Kotay S, Barry KE, Attai AE, Guilford WH, Carroll J, **Mathers AJ**. Some Like It Hot: Variable Impact of a Tailpiece Heating Device on Different Gram-negative Bacteria. Society for Healthcare Epidemiology of America (SHEA) Seattle, WA (2023) Poster #423
- 67) Lehman D, Kotay S, Park SC, Parikh H, **Mathers AJ**. Paradoxical Consequences of Wastewater Interventions Targeting Carbapenemase-Producing Enterobacterales. Society for Healthcare Epidemiology of America (SHEA) Seattle, WA (2023) Oral Presentation.

C. Books and/or Chapters

- 1) **Mathers A**, Scheld WM Meningitis. A College Student with Altered Mental Status. Caplivsky D, Scheld WM. Consultations in Infectious Disease: A Case Based Approach to Diagnosis and Management. First Edition. 1-3. New York, NY Oxford University Press (2011).
- 2) **Mathers A**, Scheld WM Noninfectious Syndromes that Mimic Infections: A 45-Year-Old Man with Bullae and Vesicles. Caplivsky D, Scheld WM.

Consultations in Infectious Disease: A Case Based Approach to Diagnosis and Management. First Edition. 352-56. New York, NY Oxford University Press (2011).

- 3) **Mathers A**, Rein M. Gonococcus: *Neisseria gonorrhoeae*. Clinical Infectious Disease, Schlossberg D. Second Edition. 915-20. Cambridge, United Kingdom, Cambridge University Press (2015).
- 4) Paterson DL and **Mathers AJ**. Chapter 289. Infections due to Other Members of the Enterobacteriaceae, Including Management of Multidrug-Resistant Strains. Goldman-Cecil Medicine Textbook. 26th Edition Philadelphia: Elsevier/Saunders (2019).

D. Invited Articles

- 1) **Mathers AJ**. Antibiotics in laboratory medicine, 6th edition. Clin Infect Dis. (2015); 1;60(9):1446-7. PMID:25648239 Not cited. This was an invited book review of a clinical microbiology text book.

XX. INVITED LECTURES AND SYMPOSIUMS

PRESENTATIONS:

- | | |
|----------|---|
| 10/29/09 | Drug resistance in Gram Negative Bacteria in the Community. 36 th Annual Edward W. Hook Jr. Recent Advances in Clinical Medicine, Charlottesville, Virginia |
| 3/27/10 | Emerging Resistant Infections. American College of Physicians Virginia Chapter Meeting. Arlington, Virginia |
| 4/27/11 | Invited Discussant for Department of Surgery Resident Research Day. University of Virginia. Charlottesville, Virginia |
| 10/25/12 | End of the Road? Multi-drug Resistant Infections in the Community 39 th Annual Edward W. Hook Jr. Recent Advances in Clinical Medicine, Charlottesville, Virginia |
| 11/19/12 | Carbapenemase Producing Enterobacteriaceae: Keeping Pace with Evolving Epidemiology, Detection and Management. Duke University Infectious Diseases Grand Rounds, Durham, North Carolina |
| 3/22/13 | <i>C. difficile</i> : clinical dilemma, probiotics, and antibiotics. American Medical Directors Association (AMDA) Long Term Care. Annual Meeting 2013 Washington DC |

- 5/31/13 “Who Decides?” When meeting basic needs becomes a matter of life or death, and the treatment teams opinions diverge, who decides the best course of action? Swartz Center Rounds. University of Virginia Charlottesville, Virginia
- 7/23/13 Gram Negative Resistant Bacteria: Is it a Threat Worse than Terrorism? Division of Infectious Diseases and Microbiology Seminar Series. John Radcliff Hospital. Oxford University. Oxford, England
- 9/12/13 Meet-the-Experts: Approach to Antimicrobial Stewardship in Transplantation. 53rd Interscience Conference on Antimicrobial Agents and Chemotherapy Annual Meeting. Denver, Colorado
- 4/18/14 Carbapenemase Producing Enterobacteriaceae: Insights from a Plasmid Mediated Outbreak. National Institute of Health National Institute of Allergy and Infectious Diseases (NIAID). Grand Rounds. Bethesda, Maryland
- 10/9/2014 All multidrug-resistant gram negative bacteria are not created equal: Comparing epidemiology and optimizing control. Moderator, IDWeek 2014. Philadelphia, Pennsylvania
- 10/31/2014 Scary Super Bugs-Are They Really Worse than Zombies? 41st Annual Edward W. Hook Jr. Recent Advances in Clinical Medicine, Charlottesville, Virginia
- 12/8/2014 Tracking a selfish carbapenemase gene through a multi-species outbreak. Modernizing Medical Microbiology 3rd Annual Conference. University of Oxford. Oxford, England
- 3/20/2015 Carbapenemase-Producing Enterobacteriaceae: Keeping Pace with Evolving Epidemiology and Detection Methods. Southeastern Association for Clinical Microbiology. Richmond, Virginia
- 06/01/2015 Clinical Microbiology Costs for Methods of Active Surveillance for *Klebsiella pneumonia* Carbapenemase-Producing Enterobacteriaceae. Diagnostic Microbiology and Epidemiology: Evolution and Revolution. 115th General Meeting of American Society for Microbiology, New Orleans, Louisiana
- 10/9/15 Multifarious Mobilization of Carbapenem Resistance in Enterobacteriaceae. Session Successful Lineages and Plasmids—Emergence of Dissemination of Multidrug-Resistant Bacteria. Infectious Disease Society of America National Meeting San Diego, California. IDWeek Invited Speaker

- 1/9/16 Clinical Laboratory and Standards Institute Educational Workshop. Future Molecular and Novel Methods on the Horizon for the Detection of Antimicrobial Resistance and the Role of Next Generation Sequencing (NGS). Semi-annual Meeting. Tempe, Arizona
- 6/19/16 American Society of Microbiology. Balancing the Budget and Convincing the Money Handlers: Performing CRO/CPO Surveillance in a World of Finite Resources Session. Invited Symposium. The Calm before the Storm: A Practical Guide for Surveillance of Carbapenem-resistant and Carbapenemase-producing Organisms (CRO/CPO). ASM Microbe Annual Meeting. Boston, Massachusetts
- 9/29/16 FDA Invited Speaker and Panelist. Coordinated Development of Antimicrobial Drugs and Antimicrobial Susceptibility Test Devices Workshop. What do you mean you can't give me a result? AST challenges from the clinicians perspective. Silver Spring, Maryland
- 2/1/17 Expert Panelist for Open Discussion. Pre-Summit: Virginia Antibiotics Stewardship. Virginia Hospital and Healthcare Association. Richmond, Virginia
- 3/11/17 Leveraging Clinical Microbiology Results in the Management of Resistant Gram Negative Infections. Greater Washington Infectious Diseases Society (GWIDS). Spring Symposium. Bethesda, Maryland
- 3/14/17 Hope versus Hype: Transmission Genomics Debate. I was asked to debate the limitations of genomics with Jennifer Gardy, University of British Columbia. Modernizing Medical Microbiology 4th Annual Conference. University of Oxford. Oxford, England
- 5/2/17 Invited panelist. University of Virginia Global Health Symposium. Global Impact of Antimicrobial Resistance.
- 5/19/17 Invited Panelist. Panel Discussion: Frontiers in public health genomics: establishing standards and dealing with complexity. Applied Bioinformatics and Public Health Microbiology. (2017) Wellcome Genome Campus, Hinxton, Cambridge, UK.
- 10/6/17 Invited Symposium Speaker. Symposium: Infection Prevention Down the Drain: Water Fixtures in Healthcare Settings. Waterborne Gram Negatives: Eradication and Control Challenges. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Diego, CA (2017)
- 10/20/17 Invited Symposium Speaker. In pursuit of a selfish carbapenemase gene through patients, plasmids and plumbing. Center for Molecular and

- Clinical Epidemiology of Infectious Diseases (MAC-EPID) Symposium. Genomics & Antibiotic Resistance: a new paradigm. University of Michigan Ann Arbor, MI
- 11/30/17 Drug-resistant Superbugs, a Major Emerging Threat. Virginia Academy of Science, Engineering and Medicine 2017 Summit: Emerging Infections and Preparedness. National Academy of Science. Washington DC
- 1/19/18 Invited Seminar Speaker. What happens in the sink does not necessarily stay in the sink: Mobile genetic exchange in the hospital environment. Seminar cosponsored by Institute for Bioinformatics and Evolutionary Studies and Randall Seminar Series. University of Idaho. Moscow, ID
- 3/12/18 Invited Speaker. The role of the environment in sustained KPC transmission at the University of Virginia Medical Center. Modernizing Medical Microbiology 5th Annual Conference. 2018 University of Oxford. Oxford, England
- 3/19/18 Invited Speaker. The role of the environment in sustained KPC transmission at the University of Virginia Medical Center. Public Health England CRE transmission Summit Meeting. Manchester, UK
- 4/11/18 Invited International Speaker. Scratching the surface: What WGS reveals about how much more there is to learn about mobile resistance genes. Australian Society of Microbiology Molecular Microbiology Meeting 2018. Sydney, Australia
- 4/20/18 Invited Speaker. The Central Role of Clinical Microbiology in Effective Antimicrobial Stewardship. Southeastern Association for Clinical Microbiology. Richmond, Virginia
- 6/20/18 Invited International Keynote Speaker. Chasing carbapenemase carrying plasmids through patients and plumbing. Canadian Society of Microbiology Annual Meeting. Winnipeg, Canada
- 8/6/18 Invited Speaker. Leveraging epidemiology to define the host range of a novel plasmid. Plasmid Biology 2018. International Society of Plasmid Biology Bi-Annual Meeting. Seattle, WA
- 8/27/18 Invited Speaker. Current and Future Applications of Next Generation Sequencing for Understanding Antimicrobial Resistance. International Conference on Emerging Infectious Diseases (ICEID) Pre-Conference Symposium. The Future of Pathogen Genomics in Public Health. Atlanta, GA
- 9/12/2018 Invited Speaker. The Role of the Hospital Environment in Propagation and Dissemination of Antimicrobial Resistance Plasmids. 27TH Annual

Symposium on Molecular Pathology. Clinical Applications of Genomic Medicine. Beaumont Laboratory. Troy, MI

- 9/25/18 Invited Speaker. Hospital Wastewater Environment and Antimicrobial Resistance. Webinar on Wastewater Treatment and Antibiotic Resistance. *National Academies of Science*. Washington D.C.
- 10/4/18 Invited Speaker. Navigating the Phenotype vs. Genotype Conundrum in Resistance: A Case-Based Symposium. ID Week. Joint Meeting of Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). San Francisco, CA (2018)
- 11/4/18 International Keynote Speaker. Control of Carbapenemase Producing Enterobacteriales. Federation of Infection Societies Meeting. New Castle, England
- 11/30/18 Invited Seminar Speaker. Down the Drain: The Exploration of Multidrug Resistant Bacteria in Hospital Plumbing. Center for Biofilm Engineering. Montana State University. Bozeman, MT
- 2/5/19 Invited Speaker. Tracking antimicrobial resistance from sink drain biofilms. Center for Biofilm Technologies Biannual Meeting. Biofilm Technologies: Pathways to Product Development 2019. Crystal City, VA
- 3/29/19 Advanced Topics in Infectious Diseases Invited Lecture. Tracking a selfish carbapenemase gene through patients, plasmids and plumbing. Weill-Cornell School of Medicine joint with Sloan Kettering Memorial Hospital. New York, NY

Presentations since Tenure Awarded

- 6/15/19 Clinical Laboratory and Standards Institute (CLSI) Educational Workshop. To MIC or not to MIC, that is the question. Molecular Characterization of Antimicrobial Resistance (AR) for Healthcare in 2019. Semi-Annual Meeting of CLSI. Dallas, TX
- 8/21/19 Next Generation Dx Summit. Managing current and future hurdles in implementing novel microbiology diagnostics for improved antimicrobial stewardship. Washington DC
- 9/12/19 Pursuing a carbapenemase gene from patients to plumbing and back. 4th Annual Infection Prevention Conference. Virginia Commonwealth University. Richmond, VA
- 9/20/19 Hospital Pathogens. Translation into practice – genome based pathogen surveillance: hype or real benefit? in collaboration with European Society

- of Clinical Microbiology and Infectious Diseases (ESCMID). 12th International Meeting on Microbial Epidemiological Markers (IMMEM XII) Dubrovnik, Croatia
- 10/22/19 Source versus “Sink”: Examination of Carbapenemase Producing Enterobacterales in Hospital Plumbing. 12th Annual British Columbia Center for Disease Control (BCCDC) Research Symposium, Vancouver, Canada
- 11/8/19 The Hospital Physical Environment and Patient Risk. Duke University Annual DICON-DASON Educational Symposium, a one-day meeting hosted each November. Raleigh, NC
- 5/1/20-22 Virginia Governor’s Testing Advisory Council. Invited to present monthly with updates as to testing protocols and emergence of testing protocols and approaches
- 1/6/21 Learning how to do new things: How to try to creatively meet the testing demands of the pandemic. Virginia Pathology Society Annual Meeting. Virtual
- 2/15/21 Wastewater monitoring for SARS CoV-2 RNA. Virginia Hospital & Healthcare Association. COVID-19 Testing Capacity & Technology Committee Virginia Zoom Meeting
- 6/9/21 Sinks: HAI Friend or Foe? American Society for Health Care Engineering (ASHE) Annual Meeting.
- 6/25/21 Update on COVID-19 Variants in Virginia. Virginia Hospital & Healthcare Association. Chief Medical Officers Monthly Meeting. Virginia Zoom Meeting
- 9/15/21 Epidemiology and genomic applications to track plasmid transmission within a hospital outbreak. 3rd Annual International Conference on Prevention and Infection Control (ICPIC) Geneva, Switzerland
- 10/1/21 Building the plane while flying: Dorm wastewater testing during a pandemic. University of Virginia School of Engineering Graduate Student Council Lecture Series. Charlottesville, VA
- 10/23/21 Implementation Hurdles: Scientific merits and practical considerations for site-specific susceptibility testing. Infectious Disease Society of America Annual Meeting (IDWeek) 2021 Virtual Meeting.

- 6/12/22 The Enduring Breakpoint. In-depth Symposium AAR18. The Importance of Breakpoints: A Point - Counterpoint Discussion American Society for Microbiology Microbe Meeting Washington DC
- 6/13/22 Microbiology and Stewardship Lessons Learned During the COVID-19 Pandemic. AAR12. American Society for Microbiology Microbe Meeting, Washington DC
- 6/23/22 Investigations in Antimicrobial Resistant Bacteria in Wastewater Premise Plumbing. Invited Speaker. Gordon Research Conference: Microbiology of the Built Environment.
- 7/11/22 Discussion on Quinolones. Antimicrobial Agents and Resistance Series. American Society for Microbiology. National Virtual Discussion. Featured Panelist
- 9/17/22 Discussion on Polymyxins. Antimicrobial Agents and Resistance Series. American Society for Microbiology. National Virtual Discussion. Featured Speaker
- 9/19/22 Can New Discoveries Combat Antimicrobial Resistance? National Health Research Forum. Research America. Featured Panelist.
- 10/20/22 How Stewardship Can Transform the Science of Antibiotic Breakpoints Into Clinical Practice Recommendations. Invited Speaker. Infectious Disease Society of America Annual Meeting (IDWeek) Washington DC
- 10/27/22 The COVID Pandemic's Unequal Toll: Efforts and Evidence to Confront Health Inequities. Closing Plenary. Patient-Centered Outcomes Research Institute (PCORI) Annual Meeting. Invited Panelist.
- 12/1/22 Navigating the Labyrinth: Emerging diagnostic technology meets emerging antimicrobial resistance. PAUSE Seminar Series. University of North Carolina. Invited Seminar Speaker.
- 02/22/23 Introduction to NGS Infrastructure. American Society of Microbiology Next Generation Sequencing Educational Series
- 03/02/23 Exploring a Matrix of the Mysterious via Tracking Real-World Antimicrobial Resistance Plasmids. University of Idaho Institute for Interdisciplinary Data Sciences (IIDS) and the Bioinformatics and Computational Biology (BCB). Invited Seminar Speaker.

INVITED CHAIR:

- 10/9/14 Co-moderator. All Multidrug-resistant Gram-negative Bacteria are Not Created Equal: Comparing Epidemiology and Optimizing Control.

Infectious Disease Society of America Annual Meeting (IDWeek)
Philadelphia, Pennsylvania

6/19/16 Co-organizer/session chair. Symposia Title: The Calm before the Storm: A Practical Guide for Surveillance of Carbapenem-resistant and Carbapenemase-producing Organisms (CRO/CPO). American Society of Microbiology. ASM Microbe Annual Meeting. Boston, Massachusetts

4/25/17 Co-chair. Session Title: Metagenomics in the diagnostic laboratory. 27th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Vienna, Austria

8/21/19 Next Generation Dx Summit. Antimicrobial Susceptibility Testing. Washington DC

XXII. COMMUNITY

Spring 2010 Mentored High School Project to send *E. coli* into space. Selected as finalist for NASA science competition. Charlottesville High School

2011-2012 Media Interviews: newspaper (*USA Today*, *Charlottesville Daily Progress*) and radio station interviews regarding multidrug resistant Gram negative pathogens

5/8/2013 Culpeper Rotary Club. Discussion about Antimicrobial Resistance in the Community

2/25/2014 University of Virginia Hackathon. Presented and judged a problem solving/design competition to develop interventions for prevention of bacterial dispersion from healthcare sink drains

10/17/14 Third grade microbiology demonstration, Agnor-Hurt Elementary School

2/12/15 Panel Member for Discussion of Movie “Resistance”, Hosted by University of Virginia Food Collaborative

5/14/16 Skyline Girl Scout Jamboree Troop Co-Leader

2/17 International, National and Local News Interviews about antibiotic resistance relation to hospital sinks (A partial list of worldwide press on this seminal piece of research)

- Featured in **Science**: http://www.sciencemag.org/news/2017/03/pipe-climbing-bacteria-might-spread-infection-hospital-sinks?utm_campaign=news_daily_2017-03-01&et rid=17519415&et cid=1192679?

- <http://www.msn.com/en-us/health/healthtrending/superbugs-grow-in-hospital-plumbing-study/ar-AAnkyfZ>
- <http://www.nbcnews.com/health/health-news/study-tracks-how-superbugs-splash-out-hospital-sink-drains-n725426>
- <http://www.livescience.com/58014-drug-resistant-bacteria-hospital-sink.html>
- <http://www.beckershospitalreview.com/quality/how-do-superbugs-travel-from-sinks-to-patients.html>
- <http://www.mailonsunday.co.uk/health/article-4257334/Dangers-washing-hands-hospital.html>
- <http://www.dailymail.co.uk/health/article-4257334/Dangers-washing-hands-hospital.html>
- <http://www.news-medical.net/news/20170224/Researchers-chart-pathway-of-multidrug-resistant-bacteria-living-in-hospital-sink-drainpipes.aspx>
- <http://newsdog.today/a/article/58b0643e129071627e4463e0/>
- <https://www.sciencedaily.com/releases/2017/02/170224133916.htm>
- <http://www.iran-daily.com/News/188372.html>
- <https://arstechnica.com/science/2017/03/superbugs-fester-in-sink-p-traps-and-can-crawl-back-up-to-cause-infection/>
- http://www.huffingtonpost.com/entry/superbugs-can-lurk-in-hospital-sinks-and-reach-patients_us_58b5b15fe4b060480e0c3a4e
- <http://www.infectiousdiseaseadvisor.com/antibiotics-antimicrobial-resistance/hospital-sinks-spread-multidrug-resistant-bacteria/article/640652/>
- <http://www.nephrologynews.com/study-multidrug-resistant-bacteria-found-hospital-sinks/>
- http://tucson.com/lifestyles/health-med-fit/hospital-sinks-may-be-awash-in-superbugs/article_b09ddd55-413c-5c5a-8ac5-1fe6731bdb2b.html
- Featured in **Plumbing Engineer**: <http://www.plumbingengineer.com/content/study-shows-how-antibiotic-resistant-bacteria-spread-hospital-sink-drain-pipe%E2%80%8B>
- <http://tuotrodiario.hola.com/noticias/2017022866450/bacterias-resistentes-farmacos/>
- <http://www.debate.com.mx/salud/CUIDADO-hay-super-germenes-en-lavamanos-de-hospitales-20170301-0087.html>
- <http://ecodiario.economista.es/salud/noticias/8180709/02/17/Las-superbacterias-resistentes-a-multiples-farmacos-se-encuentran-en-los-lavabos-de-los-hospitales.html>
- <http://www.o2.pl/artykul/grozne-bakterie-w-szpitalach-trudno-je-zwalczyc-6094894582121601a>
- <http://www.tiede.fi/artikkeli/uutiset/lavuaari-voi-raiskyttaa-superbakteereja>
- <http://www.medigatenews.com/news/1807587043>
- http://tucson.com/lifestyles/new-research-shows-battle-against-superbugs-should-start-in-hospital/article_e655cccc-ab66-5a82-9eaf-47990a72fae2.html
- <http://www.healio.com/infectious-disease/nosocomial-infections/news/in-the-journals/%7B96d2d917-c4aa-49e8-9b50-bcd980e941b0%7D/researchers-track-spread-of-multidrug-resistant-bacteria-in-hospital-sinks>

- <http://www.europeancleaningjournal.com/magazine/articles/latest-news/people-may-be-becoming-ill-in-hospital-from-the-sinks>
- <http://genk.vn/nghien-cuu-cho-thay-chau-rua-tay-co-the-phong-ra-cac-mam-benh-chet-nguoi-xung-quanh-ban-kinh-gan-1-met-20170308173451177.chn>

10/17/18 Infectious Diseases Hub Interview regarding Antimicrobial Resistance around the World

10/18/19 American Society of microbiology Meet the Microbiologist Podcast Series. [Antibiotic-Resistant Infections in Hospital Sinks with Amy Mathers | ASM.org](#)

5/2/2019 Interview with Axios on Impact of the UN report on Antimicrobial Resistance <https://www.axios.com/drug-resistance-kill-10million-people-year-2050-4f048f02-8664-4000-8315-e4ca51c29ff7.html>

11/7/2019 American Society for Microbiology Podcast. [Antibiotic-Resistant Infections in Hospital Sinks with Amy Mathers | ASM.org](#)

2020- Frequent local interviews with local paper, radio and television for issues related to testing and transmission of COVID-19.

4/7/20 Reuters story on being the first to have clinical SARS CoV-2 testing available in the state of Virginia <https://www.reuters.com/article/us-health-coronavirus-hospital-test-spec-idUSKBN21P2UW>

8/26/20 Description of swab manufacturing [75,000 COVID-19 nasal swab tests from UVA to be distributed across Virginia \(nbc29.com\)](#)

9/10/20 Axios story where I was interviewed to discuss the impact COVID-19 has had on antimicrobial resistance [CDC official: Pandemic "explosion" of antibiotic resistance not seen \(axios.com\)](#)

9/7/20 [UVA testing wastewater at dorms to detect coronavirus \(wdbj7.com\)](#)

11/9/20 Podcast with Sanja Gupta CNN about COVID wastewater surveillance. [Flushing Out the Virus - Coronavirus: Fact vs Fiction | Podcast on Spotify](#)

11/10/20 [Patients Come First Podcast - Dr. Amy Mathers \(vhha.com\)](#). Virginia Hospital and Healthcare Association Podcast

5/8/2021 [UVA infectious disease expert discusses variants, efficacy of vaccines \(nbc29.com\)](#)

5/11/21 [U.Va. study finds wastewater testing in dorms provides early COVID-19 detection - WTOP News](#)

Amy Mathers

11/8/21 [Innovator of the Year Made Herculean Efforts Throughout the Pandemic \(virginia.edu\)](#)

11/30/21 [On the Front Lines of COVID: An Infectious Disease Expert Innovates to Save Lives | Humboldt NOW | Cal Poly Humboldt](#)

12/1/21 [UVA Health lab hunts for Omicron COVID-19 variant | WSET](#)

12/2/21 [Strange times fueled UVa physician during pandemic \(dailyprogress.com\)](#)

1/26/22 [How To Properly Store Your At-Home COVID-19 Rapid Tests in Cold Weather \(today.com\)](#)

2/1/22 Jay James of WINA News Radio on February 1, 2022, to talk about the current state of Covid safety and testing in our community. [Conversation on COVID with Amy Mathers, MD • February 1, 2022 - YouTube](#)

2/11/2022 [Some COVID-19 tests may come with a smell, a UVA doctor explains why \(nbc29.com\)](#)

6/23/22 [Is A Faint Line On COVID-19 Test Actually Positive? Here's How To Interpret Results \(today.com\)](#)

6/2/22 [UVA doctor discusses new variant detection by at-home COVID-19 tests \(nbc12.com\)](#) Richmond, VA

6/15/22 [UVA doctor explains why a negative COVID-19 home test may not be reliable \(nbc29.com\)](#)

10/25/22 Announcement of the CDC Pathogen Genomic Centers of Excellence with Biocomplexity Institute
[UVA Joins U.S. Network Preparing for Future Infectious Disease Threats \(virginia.edu\)](#)
<https://news.virginia.edu/content/uva-joins-us-network-preparing-future-infectious-disease-threats>

2/6/23 [Stanardsville woman believes she contracted histoplasmosis on farm, warns others \(nbc29.com\)](#)

4/21/23 [Fact check: False claim PCR tests implant magnetic beacons in patients \(usatoday.com\)](#)

ⁱLast Updated April 27th, 2023