

Kyle Gontjes, MPH

PhD Candidate in Microbiology & Immunology

CONTACT: kgontjes@umich.edu (616) 617-7843

X (TWITTER): [@KyleGontjes](https://twitter.com/KyleGontjes) LINKEDIN: [Kyle-Gontjes](https://www.linkedin.com/in/Kyle-Gontjes)

WEBSITE: <https://kylegontjes.github.io/>

CAREER MISSION STATEMENT

My career goal is to be an independent researcher developing strategies solutions to combat antibiotic resistance. I integrate bacterial sequencing, epidemiological analyses, and wet lab experimentation to uncover bacterial genotypes and clinical factors that drive the emergence and spread of antibiotic-resistant pathogens.

EDUCATION

University of Michigan, Ann Arbor, Michigan 2020 – Present
PhD Candidate, Microbiology & Immunology Expected April 2026
Dissertation: Application of whole-genome sequencing to study the emergence and spread of antibiotic resistance

University of Michigan School of Public Health 2018 – 2020
Master of Public Health, Hospital & Molecular Epidemiology
Certification: Healthcare Infection Prevention & Control
Thesis: Contamination of common area and rehabilitation gym environment with multidrug-resistant organisms

Calvin University, Grand Rapids, Michigan 2014 – 2017
Bachelor of Science, Biology
Thesis: Antibiotic Stewardship – A Universal Framework Through the Lenses of Three Model Organisms

RESEARCH EXPERIENCE

University of Michigan Medical School Mar 2021 – Present
PhD Candidate
Advisor: Evan Snitkin, PhD

- Characterized epidemiology of resistance to novel and last-line antibiotics in long-term acute care hospitals
- Linked patient characteristics and bacterial genomic traits with the emergence and spread of resistance
- Designed a method to account for genetic background in experiments and genome-wide association studies
- Revealed antibiotic-specific differences in the contribution of *de novo* resistance evolution and spread
- Developed *phyloAMR*, an open-source R package, integrating evolutionary context to track the emergence and spread of bacterial genome-informed traits, such as antibiotic resistance and infection severity
- Built numerous easy-to-use, open-source Snakemake pipelines for molecular epidemiology research

University of Michigan Medical School May 2018 – Aug 2020
Graduate Research Assistant
Advisor: Lona Mody, MD, MSc

- Investigated the epidemiology and transmission of multidrug-resistant bacteria in nursing homes
- Participated in a cluster-randomized trial testing infection prevention interventions in six nursing homes
- Explored the utility of less-invasive specimen collection to reduce bias and improve enrollment in studies
- Contributed to the Preventing Resistance and Infection by Integrating Systems in Michigan project, an intervention that encourages collaboration between hospitals and their partnering nursing homes
- Piloted study design to evaluate short-term transmission of bacteria between patients and the environment
- Designed surveys assessing public health and COVID-19 knowledge gaps in high school students

HONORS, FUNDING, AND AWARDS

Trainee Award for Midwest Microbial Pathogenesis Conference (MMPC) Oral presentation and waiving of registration fees	Sept 2025
University of Michigan Rackham Travel Award \$900 for conference fees	Sept 2025
University of Michigan Frederick Novy Award Recognition of student excellence in bacteriology research	July 2025
National Institutes of Allergy & Infectious Diseases F31 Fellowship (F31-AI186288) (Two years, \$84,318) Genome-driven identification of patient and bacterial drivers of resistance to novel beta-lactam/beta-lactamase inhibitor combination therapies	July 2024 - July 2026
Genome Science Training Program T32 Trainee, Two Years of PhD Funding (Website)	Mar 2021 – Mar 2023
SHEA Yoshikawa-High Award Top Abstract in Long-Term Care at IDWeek 2020 Conference	Oct 2020
Michigan Institute for Clinical & Health Research Trainee, MICHR Summer Immersion Program (5TLTR002242-04) (Website)	May 2020 – Aug 2020
Distinguished Oral Presentation 6th International Conference on Healthcare Associated Infections	Mar 2020
Plenary Oral Presentation University of Michigan, Department of Internal Medicine 27 th Annual Research Symposium	Apr 2019
SHEA Top Poster Award Annual Meeting for Society for Healthcare Epidemiology of America (SHEA)	Apr 2019
University of Michigan School of Public Health Certificate in Hospital and Molecular Epidemiology Summer Internship (Website)	May 2019 – Aug 2019
UM-SPH Travel Award \$500 for SHEA Annual Conference	Apr 2019
UM-SPH Scholarship Award 50% Tuition-Only Scholarship	Sep 2018 – May 2020
Calvin College Academic Scholarship Award Faculty Honors Scholarship	Sep 2014 – Dec 2017
Boy Scouts of America Eagle Scout Order of the Arrow (Honor Society)	Sep 2008 – May 2014

PUBLICATIONS

Published Peer-Reviewed Manuscripts

1. **Gontjes K**, Gibson KE, Lansing B, Cassone M, Mody L. Contamination of Common Area and Rehabilitation Gym Environment with Multidrug-Resistant Organisms. *J Am Geriatric Soc.*, 2020. <https://doi.org/10.1111/jgs.16284>
2. **Gontjes K**, Gibson KE, Lansing B, Mody L, Cassone M. Assessment of Race and Sex as Risk Factors for Colonization with Multidrug-Resistant Organisms in Six Nursing Homes. *ICHE*, 2020. <https://doi.org/10.1017/ice.2020.215>
3. **Gontjes K**, Gibson KE, Lansing B, Mody L, Cassone M. Can alternative anatomical sites and environmental surveillance replace perianal screening for multidrug-resistant organisms in nursing homes? *ICHE*, 2021. <https://doi.org/10.1017/ice.2021.134>
4. Mody L, **Gontjes K**, Cassone M, Gibson KE, Lansing B, Mantey J, Kabeto M, Galecki A, Min L. Effectiveness of a Multicomponent Intervention to Reduce Multidrug-Resistant Organisms in Nursing Homes: A Cluster Randomized Clinical Trial. *JAMA Network Open*, 2021. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8285736/>
5. Cassone M, Mantey J, **Gontjes K**, Lansing B, Gibson KE, Wang J, Mody L. Seasonal Patterns in Incidence and Antimicrobial Resistance of Common Bacterial Pathogens in Nursing Home Patients and Their Rooms. *Frontiers in Public Health*, 2021. <https://doi.org/10.1017/ice.2021.350>
6. Wolfensberger A, Mang N, Gibson KE, **Gontjes K**, Cassone M, Brugger SD, Mody L, Sax H. Understanding the Short-Term Dynamics of MRSA Between Patients and Their Immediate Environment. *ICHE*, 2021. <https://doi.org/10.1017/ice.2021.350>
7. **Gontjes K**, Gibson KE, Lansing B, Karen J, Cassone M, Wang J, Mills J, Mody L, Patel K. Association of exposure to high-risk antibiotics in acute care hospitals with multidrug-resistant organism burden in nursing homes. *JAMA Network Open*, 2022. <https://doi.org/10.1001/jamanetworkopen.2021.44959>
8. Zhang HL, **Gontjes K**, Han JH, Alby K, Lapp Z, Snitkin S, Goldstein EJC, Muldoon S, Tolomeo P, Lautenbach E. Resistance phenotypes of carbapenem-resistant *Klebsiella pneumoniae* in a multi-state network of long-term acute care hospitals. *ICHE*. 2022. <https://doi.org/10.1017/ice.2022.185>
9. Cassone M, Wang J, Lansing BJ, Mantey J, Gibson KE, **Gontjes KJ**, Mody L. Diversity and persistence of MRSA and VRE in skilled nursing facilities: environmental screening, whole-genome sequencing and development of a dispersion index. *J Hosp Infect*, 2023. <https://doi.org/10.1016/j.jhin.2023.04.015>
10. Lapp Z, ... **Gontjes K**, ..., Evan Snitkin, Rachel B Slayton. Distinct Origins and Transmission Pathways of blaKPC Enterobacterales across Three U.S. States. *J Clin Microbiol*. 2023. <https://doi.org/10.1128/jcm.00259-23>
11. Mody M, Hodges A, Gibson KE, Mantey J, **Gontjes K***. Does high school health education class satisfaction influence student perceptions of public health and pandemic response?. *A J Infection Control*, 2024. <https://doi.org/10.1016/j.ajic.2024.01.008>
12. Unverdorben LV, Pirani A, **Gontjes K**, Moricz B, Holmes CH, Snitkin ES, Bachman MA. *Klebsiella pneumoniae* evolution in the gut leads to spontaneous capsule loss and decreased virulence potential. *mBio*, 2025. <https://doi.org/10.1128/mbio.02362-24>
13. **Gontjes K**, Singh A**, Sansom SE, Boyko J, Smith SA, Lautenbach E, Snitkin E. Phylogenetic context of antibiotic resistance provides insights into the dynamics of resistance emergence and spread. *J Infectious Disease*. 2025. <https://doi.org/10.1093/infdis/jiaf478>
14. Thiede SN, Steinberg H, ... **Gontjes K**, ..., Popovich KJ, Snitkin ES. **Antibiotic-resistance plasmid amplified among MRSA cases in an urban jail and its connected communities**. *Nature Communications*. 2025. <https://www.nature.com/articles/s41467-025-67113-9>

Published Peer-reviewed Commentaries

1. **Gontjes K**, Collier K. From a Culture of Blame to a Culture of Grace: A Letter in Reply to Papadakis. *ICHE*, August 2021. <https://doi.org/10.1017/ice.2021.386>
2. Mody M, **Gontjes K***. Health Education After COVID-19: A Time to Revisit, Revamp, and Revitalize? *A J Infection Control*, December 2022.

Submitted Manuscripts

1. **Gontjes K**, Pirani A, Han J, Tolomeo P, Goldstein EJC, Lautenbach E, Snitkin E. Genomic and patient

features associated with non-susceptibility to meropenem-vaborbactam & imipenem-relebactam before their market introduction. *Under revision for Nature Communications*.

2. **Boyko J, Gontjes K, Snitkin E, Smith SA.** Uncertainty in joint Ancestral State Reconstruction: Improving the accuracy and biological interpretability of ancestral state predictions. *Under revision for Proceedings of the National Academy of Sciences*.
3. **Gontjes K, ... , Snitkin ES, Lautenbach E.** Clinical and Genotypic Characterization of Prolonged Community Colonization with Extended-Spectrum Cephalosporin-Resistant Enterobacterales. *Submitted to Clinical Microbiology & Infection in December 2025*.

Near Submission Manuscripts

1. **Gontjes K, ... , Snitkin ES, Lautenbach E** Changing resistance and molecular epidemiology of carbapenem-resistant *Klebsiella pneumoniae* in California long-term acute care hospitals. *Submitting to J Infectious Diseases in Early 2026*.

POSTERS/ORAL PRESENTATIONS

Internal Conferences

1. **Gontjes K,** Gibson KE, Lansing B, Cassone M, Mody L. Multidrug-Resistant Organism Burden of Common Area & Rehabilitation Environment in Skilled Nursing Facilities. Plenary Oral Presentation. *University of Michigan Department of Internal Medicine 27th Annual Research Symposium*, May 2019.
2. **Gontjes K.** Contamination of Common Area and Rehabilitation Gym Environment with Multidrug-Resistant Organisms. Oral Presentation. *University of Michigan Division of Geriatric & Palliative Medicine, Clinical Epidemiology Conference*, October 2019.
3. **Gontjes K.** Simplifying Surveillance Screening: Can Environmental Surveillance Replace Perianal Screening? Oral Presentation. *University of Michigan Division of Geriatric & Palliative Medicine, Clinical Epidemiology Conference*, March 2020.
4. **Gontjes K.** *Klebsiella pneumoniae* Non-Susceptibility to β -lactam Inhibitor Combination Therapy Agents Prior to Market Introduction. Oral Presentation. *University of Michigan Department of Microbiology & Immunology 812 Trainee Seminar*, February 2022.
5. **Gontjes K.** Genomic Features Influencing *Klebsiella pneumoniae* Resistance to β -lactam Inhibitor Combination Therapy Agents Prior to Market Introduction. Oral Presentation. *GSTP 2022 Orientation*, August 2022.
6. **Gontjes K.** Genomic Features Influencing *Klebsiella pneumoniae* Resistance to β -lactam Inhibitor Combination Therapy Agents Prior to Market Introduction. Oral Presentation. *University of Michigan Department of Microbiology & Immunology 812 Trainee Seminar*, January 2023.
7. **Gontjes K.** Genomic and patient features associated with non-susceptibility to meropenem-vaborbactam & imipenem-relebactam before their market introduction in clinical carbapenem-resistant *Klebsiella pneumoniae* isolates collected from long-term acute care hospitals. Oral Presentation. *University of Michigan Department of Microbiology & Immunology 812 Trainee Seminar*, November 2023.
8. **Gontjes K,** Singh A, Sansom S, Lautenbach E, Snitkin E. Application of phylogenetic context to patient risk factor analysis illuminates features associated with the emergence and spread of antibacterial resistance. Poster Presentation. *University of Michigan Department of Internal Medicine Research Seminar*, April 2024.
9. **Gontjes K.** Phylogenetics provides insights into the dynamics of β -lactam/ β -lactamase inhibitor resistance. Oral Presentation. *University of Michigan Department of Microbiology & Immunology 812 Trainee Seminar*, October 2024.
10. **Gontjes K.** Application of phylogenetic context to patient risk factor analysis illuminates features associated with the emergence and spread of antibacterial resistance. Oral Presentation. *University of Michigan Infectious Disease Scholarship Symposium*, March 2025.
11. **Gontjes K.** The role of genetic background in the emergence and spread of antibiotic resistance in carbapenem-resistant *Klebsiella pneumoniae*. Oral Presentation. *Michigan Infectious Disease Genomics (MIDGE) Center's Annual Meeting*, May 2025

Domestic & International Conferences

1. **Gontjes K,** Gibson KE, Lansing B, Jones K, Cassone M, Wang J, Mody L. Qualitative & Quantitative Assessment of Multidrug-Resistant Organism Transmission Potential of Rehabilitation Equipment in

Skilled Nursing Facilities. Poster Presentation. *Annual Meeting for Society for Healthcare Epidemiology of America*, April 2019. ***Top Poster Award**

2. **Gontjes K**, Gibson KE, Lansing B, Cassone M, Mody L. Simplifying Surveillance Screening: Can Environmental Surveillance Replace Perianal Screening?. **Distinguished Oral Presentation**. *6th International Conference on Healthcare Associated Infections*, March 2020.
3. Gibson KE, Mody L, Sax H, **Gontjes K**, Cassone M, Mang N, Wolfensberger A. Understanding the Short-Term Dynamics of MRSA Between Patients and Their Immediate Environment. Poster Presentation. *6th International Conference on Healthcare Associated Infections*, March 2020.
4. **Gontjes K**, Gibson KE, Lansing B, Karen J, Cassone M, Wang J, Mills J, Mody L, Patel K. How Does Exposure to C. diffogenic Antibiotics Impact Multidrug-Resistant Organism Colonization and Environment Contamination in Nursing Homes? **Distinguished Oral Presentation**. *IDWeek 2020*, October 2020
 - a. Interviewed by Contagion Live During IDWeek. See news article [here](#).
5. **Gontjes K**, Gibson KE, Lansing B, Cassone M, Mody L. Simplifying Surveillance Screening: Can Environmental Surveillance Replace Perianal Screening? **Oral Presentation**. *IDWeek 2020*, October 2020
6. **Gontjes K**, Genomic Features Influencing *Klebsiella pneumoniae* Resistance to β -lactam Inhibitor Combination Therapy Agents Prior to Market Introduction. Poster Presentation. *NHGRI Professional Development Conference*, April 2023.
7. **Gontjes K**, Genomic Features Influencing *Klebsiella pneumoniae* Resistance to β -lactam Inhibitor Combination Therapy Agents Prior to Market Introduction. **Oral Presentation**. *ASM Microbe*, June 2023
8. **Gontjes K**, Application of phylogenetic context to risk factor analysis illuminates patient features associated with the emergence and spread of antibacterial resistance. **Oral Presentation**. *Kleb Club Seminar Series*. April 2024.
9. **Gontjes K**, Application of phylogenetic context to risk factor analysis illuminates patient features associated with the emergence and spread of antibacterial resistance. **Oral Presentation**. *Kleb Club Seminar Series*. April 2024.
10. **Gontjes K**, Genomic and Patient Features Associated with Non-Susceptibility to Meropenem-Vaborbactam & Imipenem-Relebactam Before Their Market Introduction. Poster Presentation. *Lake Arrowhead Microbial Genomics Conference*. September 2024.
11. **Gontjes K**, Genomic and Patient Features Associated with Non-Susceptibility to Meropenem-Vaborbactam & Imipenem-Relebactam Before Their Market Introduction. Oral Presentation. *Midwest Microbial Pathogenesis*. September 2025.

Invited Talks

1. How Should Society Protect the Health of Its Most Vulnerable Members? Pubology: COVID-19 Edition. *University Lutheran Chapel*. January 2021.
2. The Making of A Disease Detective: A Journey in Healthcare & Molecular Epidemiology. Calvin Public Health Seminar Class. *Calvin University*. February 2023
3. Application of whole-genome sequencing to the study of antibiotic resistance. *Calvin University*. September 2024

TEACHING

University of Michigan School of Public Health Winter 2023, Winter 2024, Winter 2025
Course Assistant for EPID 582/MICRBIOL 582: Molecular Epidemiology & Pathogen Genomics
Designed mini-assignments, graded assignments, and assisted during live-coding class sessions

Calvin University, Grand Rapids, Michigan Fall 2017
Laboratory assistant for PUBH 248 - Epidemiology
Assisted with the deployment of laboratory course material and assignments

MENTORING

PhD Studies

University of Michigan Medical School Fall 2023 – Present
Mentor to undergraduate student researcher, Aryan Singh

University of Michigan Medical School
Public Health Educational Intervention Program Feb 2021 – Present
PIBS Peer Mentor Feb 2021 – May 2023

MPH Studies

University of Michigan School of Public Health Sep 2019 – Apr 2020
Epidemiology First-Year Student Mentoring Program

Undergraduate Studies

Science Olympiad – Caledonia High School, Caledonia, Michigan Sep 2012 – May 2018
Coach of Disease Detective, Microbe Mission, and Forensics Events

Kids Hope USA, Grand Rapids, Michigan Aug 2017 – May 2018
Kids Hope Mentor to 2nd Grader

Third 90 Network, Grand Rapids, Michigan Mar 2016 – May 2017
Project Lead & Professor Assistant

SERVICE

PhD Studies

St. Matthew Lutheran Church & School Sep 2025 – Present
Youth Ministry Volunteer

University Lutheran Chapel Sep 2022 – Present
Kids Ministry Volunteer
Co-Coordinator of Rotating Homeless Shelter

University of Michigan Medical School
Current Student Admissions Host Jan 2021 – 2024
PIBS Peer Mentor Sep 2021 – 2023
Co-Organization of Microbiology & Immunology Students Social Chair Sep 2020 – May 2021

MPH Studies

University of Michigan School of Public Health Oct 2018 – Apr 2020
Student Admissions Ambassador

Undergraduate Studies

Fuller Avenue CRC Church, Grand Rapids, Michigan Aug 2017 – May 2018
Hospitality Staff, Sunday School Assistant, & Evening Program Assistant

Project Neighborhood, Grand Rapids, Michigan Aug 2017 – May 2018
Member of the Fuller House, an Intentional Living Community Curated by Calvin

Knight Investment Management, Calvin University Sep 2014 – Dec 2017
Health Care Sector Head & Sector Analyst

Calvin University
Resident Assistant Aug 2016 – May 2017
Cultural Discerner, Student Activities organization Aug 2015 – May 2016

SCIENTIFIC PEER REVIEW ACTIVITIES

Journal of Infectious Diseases, Scientific Reports, BMC Infectious Diseases, Antimicrobial Resistance & Infection Control

SKILLS

Software: Microsoft Office, Adobe Creative Suite, BioRender, and Google Suite

Programming: R, Linux, SAS, Python, GitHub, Docker/Singularity, SLURM (high-performance computing)

Molecular Epidemiology: Whole-genome sequencing, variant calling, gene identification, pangenomics, phylogenetics

Statistical Methods: Ancestral state reconstruction, genome-wide association studies, burden testing, regression modeling

Wet Lab Experimentation: Specimen collection, bacterial cultivation, identification, and susceptibility testing

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Society for Microbiology (ASM)

Present

Association for Professionals in Infection Control & Epidemiology (APIC)

2016 - 2020