

Kyle Gontjes, MPH

PhD Candidate in Microbiology & Immunology

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Education and Training

Education

09/2014-12/2017 BSc, Biology, Calvin University, Grand Rapids, MI
09/2018-05/2020 MPH, Hospital & Molecular Epidemiology, University of Michigan, Ann Arbor, MI
09/2020-05/2026 PhD, Microbiology & Immunology, University of Michigan, Ann Arbor, MI

Work Experience

Research Positions

05/2018-09/2020 Research Assistant, University of Michigan (Laboratory of Dr. Lona Mody), Ann Arbor, MI

Research Interests

- Genomic epidemiology of microbial pathogens
- Microbial evolution
- Antibiotic resistance
- Healthcare epidemiology and infection prevention
- Method development for public health

Grants

Current Grants

F31AI186288: *Genome-driven identification of patient and bacterial drivers of resistance to novel beta-lactam/beta-lactamase inhibitor combination therapies*
PI
NIH-DHHS-US
08/2024-07/2026 \$83,754

Honors and Awards

National

2020 SHEA Yoshikawa-High Award, The Society of Healthcare Epidemiology of America, Atlanta, GA

Regional

2025 NIH Trainee Award, Midwest Microbial Pathogenesis Conference, St. Charles, IL

Institutional

2025 University of Michigan Rackham Travel Award, University of Michigan, Ann Arbor, MI

Departmental

2025 Frederick Novy Award, University of Michigan, Ann Arbor, MI

Study Sections, Editorial Boards, and Journal/Abstract Review

Journal/Abstract Reviews

Journal Reviewer

2024-Present	Antimicrobial Resistance & Infection Control (Ad Hoc)
2025-Present	Scientific Reports (Ad Hoc)
2025-Present	BMC Infectious Diseases (Ad Hoc)
2025-Present	Journal of Infectious Diseases (Ad Hoc)

Teaching

Mentorship

Graduate Student

09/2025-Present	Sara Hantgan, University of Michigan, Working in the lab
02/2026-Present	Saniya Hadge, University of Michigan, Working in the lab

Undergraduate Student

10/2023-Present	Aryan Singh, University of Michigan, Working in the lab
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Teaching Activity

Institutional

01/2023-04/2025	Course assistant, Assisted in class discussion, laboratory assistance, and grading for EPID 582 Molecular Epidemiology & Pathogen Genomics. University of Michigan School of Public Health, Ann Arbor, MI
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Memberships in Professional Societies

2017-Present	Member, American Society for Microbiology (ASM)
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Committee Service

Departmental

2020-2021	Organization of Microbiology & Immunology Students, University of Michigan, Co-Social Chair
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Scholarly Activities

Presentations

Invited Extramural Presentations

Speaker

1. The Making of A Disease Detective: A Journey in Healthcare & Molecular Epidemiology, **Gontjes KJ**, Calvin University, 02/2023, Grand Rapids, MI
2. Application of Whole-Genome Sequencing to the Study of Antibiotic Resistance, **Gontjes KJ**, Calvin University, 09/2024, Grand Rapids, MI

Publications/Scholarship

Peer-Reviewed

Journal Articles

1. **Gontjes, KJ**, Gibson, KE, Lansing B, Cassone M, Mody L: Contamination of Common Area and Rehabilitation Gym Environment with Multidrug-Resistant Organisms. *J Am Geriatr Soc.* 68(3): 478-485, 2020. PMC9190293
2. **Gontjes, KJ**, Gibson, KE, Lansing B, Cassone M, Mody L: Assessment of race and sex as risk factors for colonization with multidrug-resistant organisms in six nursing homes. *Infect Control Hosp.* 41(10): 1222-1224, 2020. PMC9005106
3. Cassone, M, Mantey, J, **Gontjes, KJ**, Lansing BJ, Gibson, KE, Wang J, Mody, L: Seasonal Patterns in Incidence and Antimicrobial Resistance of Common Bacterial Pathogens in Nursing Homes Patients and Their Rooms. *Front Public Health.* 9:671428, 2021. PMC8311345
4. Mody L, **Gontjes KJ**, Cassone M, Gibson KE, Lansing BJ, Mantey J, Kabeto M, Galecki A, Min L: Effectiveness of

- a Multicomponent Intervention to Reduce Multidrug-Resistant Organisms in Nursing Homes. *JAMA Netw Open*. 4(7): e2116555. 2021. PMC8285736
5. **Gontjes KJ**, Gibson KE, Lansing BJ, Mantey J, Jones KM, Cassone M, Wang J, Mills JP, Mody L, Patel PK: Association of Exposure to High-risk Antibiotics in Acute Care Hospitals With Multidrug-Resistant Organism Burden in Nursing Homes. *JAMA Netw Open*. 5(2): e2144959. 2022. PMC8808331
 6. **Gontjes KJ**, Gibson KE, Lansing B, Cassone M, Mody L: Can alternative anatomical sites and environmental surveillance replace perianal screening for multidrug-resistant organisms in nursing homes? *Infect Control & Hosp Epidemiol*. 43(8): 1063-1066. 2022. PMC9190292
 7. Zhang HL, **Gontjes KJ**, Han JH, Alby K, Lapp Z, Snitkin E, Goldstein EJC, Muldoon S, Tolomeo P, Lautenbach E: Characterization of resistance to newer antimicrobials among carbapenem-resistant *Klebsiella pneumoniae* in the post-acute-care setting. *Infect Control Hosp Epidemiol*. 44(7): 1159-1162. 2023. PMC9883590
 8. Wolfensberger A, Mang N, Gibson KE, **Gontjes K**, Cassone M, Brugger SD, Mody L, Sax H: Understanding short-term transmission dynamics of methicillin-resistant *Staphylococcus aureus* in the patient room. *Infect Control Hosp Epidemiol*. 43(9): 1147-1154. 2023. PMC9272746
 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*. 138: 8-18. 37160232
 10. Lapp Z, Octaria R, O'Malley SM, Nguyen TN, Wolford H, Crawford R, Moore C, Vagnone PS, Noel D, Duffy N, Pirani A, Thomas LS, Pattee B, Pearson C, Bulens SN, Hoffman S, Kainer M, Anacker M, Meek J, See I, **Gontjes KJ**, Chan A, Lynfield R, Maloney M, Hayden MK, Snitkin E, Slayton RB: Distinct Origins and Transmission Pathways of *bla_{KPC}* Enterobacterales across Three U.S. States. *J Clin Microbiol*. 61(8): e0025923. 2023. PMC10446861
 11. Mody M, Hodges AN, Gibson KE, Mantey J, **Gontjes KJ**: Does high school health education class satisfaction influence student perceptions of public health and pandemic response? *Am J Infect Control*. 52(6): 719-725. 2024. 38253288
 12. Unverdorben LV, Pirani A, **Gontjes K**, Moricz B, Holmes CL, Snitkin ES, Bachman MA: *Klebsiella pneumoniae* evolution in the gut leads to spontaneous capsule loss and decreased virulence potential. *Mbio*. 16(5): e02362-24. PMC12077207
 13. Thiede SN, Steinberg H, Benedict E, Sansom S, Aroutcheva A, **Gontjes KJ**, Winner K, Royzenblat S, Pirani A, Weinstein RA, Zawitz C, Moore NM, Popovich KJ, Snitkin ES: Antibiotic-resistance plasmid amplified among MRSA cases in an urban jail and its connected communities. *Nat Commun*. 17(1):420. 2026. PMC12796171
 14. **Gontjes KJ**, Singh A, Sanson SE, Boyko JD, Smith SA, Lautenbach E, Snitkin E: Phylogenetic Context of Antibiotic Resistance Provides Insights into the Dynamics of Resistance Emergence and Spread. *J Infect Dis*. 232(6): e992-1002. 2025. PMC12718047
 15. Boyko JD, **Gontjes KJ**, Snitkin ES, Smith SA: Resolving competing evolutionary histories in joint ancestral state reconstruction. *Proc Natl Acad Sci U S A*. 123(15): e2528064123. 2026. 41955119

Commentary

1. **Gontjes KJ**, Collier K: From a culture of blame to a culture of grace: A letter in reply to papadakis. *Infect Control Hosp Epidemiol*. 44(5): 852-853. PMC8446583
2. Mody M, **Gontjes KJ**: Health education after COVID-19: A time to revisit, revamp, and revitalize?. *A J Infect Control*. 51(4): 486, 2022. PMC9699711

Interview

1. **Gontjes, KJ**: Hospital Exposure to Antibiotics Associated with C diff Pose Higher Risk of MDRO. 10/2020. *Contagion*, <https://www.contagionlive.com/view/hospital-exposure-to-antibiotics-associated-with-c-diff-pose-higher-risk-of-mdro>

Submitted Publications

Articles

1. **Gontjes KJ**, Pirani A, Narayanan DB, Lojek LJ, Han JH, Tolomeo P, Goldstein EJC, Lautenbach E, Snitkin E: Identifying drivers of β -lactam/ β -lactamase inhibitor resistance emergence and spread before their clinical deployment. *Nat Commun*. (Submitted)
2. **Gontjes KJ**, Snitkin E, Kelly BJ, Ziegler M, Cole SD, Tino R, Cressman L, Jaskowiak-Barr A, Glaser L, Cowden L, Patel A, Lautenbach E: Clinical and Genotypic Characterization of Prolonged Community Colonization With Extended-Spectrum Cephalosporin-Resistant Enterobacterales: A Prospective Cohort Study. *BMC Infect Dis*. (Submitted)

Software/App

1. **Gontjes, KJ**: *ISScreener* – Snamekmake workflow to run insertion sequence detection on Illumina sequencing data. 2024. Ann Arbor, MI, <https://github.com/kylegontjes/ISScreener/commits/master/>

2. **Gontjes, KJ:** *GeneScreener* – Snakemake workflow to quickly screen for a query sequence in a subject sequence. 2024. Ann Arbor, MI, <https://github.com/kylegontjes/phyloAMR>
3. **Gontjes, KJ:** *phylokit* – Snakemake pipeline to generate a phylogenetic tree from a whole-genome alignment. 2024. Ann Arbor, MI, <https://github.com/Snitkin-Lab-Umich/phylokit>
4. **Gontjes, KJ:** *CoverageStats* – Snakemake workflow to calculate coverage statistics after mapping reads to a reference genome. 2025. Ann Arbor, MI, <https://github.com/kylegontjes/CoverageStats>
5. **Gontjes, KJ:** *phyloAMR* – R package for phylogenetic analysis of antimicrobial resistance. 2025. Ann Arbor, MI, <https://github.com/kylegontjes/phyloAMR>

Abstract/Posters

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. Annual Meeting for Society for Healthcare Epidemiology of America, Boston, MA, 2019.
2. **Gontjes K,** Gibson KE, Lansing B, Cassone M, Mody L. Multidrug-Resistant Organism Burden of Common Area & Rehabilitation Environment in Skilled Nursing Facilities. Oral Presentation. University of Michigan Department of Internal Medicine 27th Annual Research Symposium, Ann Arbor, MI, 2019.
3. **Gontjes KJ.** Contamination of Common Area and Rehabilitation Gym Environment with Multidrug-Resistant Organisms. Oral Presentation. University of Michigan Division of Geriatric & Palliative Medicine's Clinical Epidemiology Conference, Ann Arbor, MI, 2019.
4. **Gontjes KJ.** Simplifying Surveillance Screening: Can Environmental Surveillance Replace Perianal Screening? Oral Presentation. University of Michigan Division of Geriatric & Palliative Medicine's Clinical Epidemiology Conference, Ann Arbor, MI, 2020.
5. **Gontjes K,** Gibson KE, Lansing B, Cassone M, Mody L. Simplifying Surveillance Screening: Can Environmental Surveillance Replace Perianal Screening?. Oral Presentation. 6th International Conference on Healthcare Associated Infections, 2020. Did not present due to COVID.
6. 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. 6th International Conference on Healthcare Associated Infections, 2020. Did not present due to COVID.
7. **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? Oral Presentation. IDWeek, Virtual, 2020.
8. **Gontjes K,** Gibson KE, Lansing B, Cassone M, Mody L. Simplifying Surveillance Screening: Can Environmental Surveillance Replace Perianal Screening? Oral Presentation. IDWeek, Virtual, 2020
9. **Gontjes K,** Miihlbach A, Lautenbach E, Snitkin E, Carbapenem-resistant *Klebsiella pneumoniae* Non-susceptibility to Two β -lactamase Inhibitor Combination Therapy Agents Before Their Market Introduction. Poster. National Human Genome Research Institute (NHGRI) Professional Development Conference, Salt Lake City, UT, 2023.
10. **Gontjes K,** Miihlbach A, Lautenbach E, Snitkin E, Carbapenem-resistant *Klebsiella pneumoniae* Non-susceptibility to Two β -lactamase Inhibitor Combination Therapy Agents Before Their Market Introduction. Oral Presentation. ASM Microbe, Houston, TX, 2023
11. **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. University of Michigan Department of Internal Medicine Research Seminar, Ann Arbor, MI, 2024
12. **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. Virtual, 2024
13. **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. Poster. Lake Arrowhead Microbial Genomics Conference. Lake Arrowhead, CA, 2024.
14. **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, Ann Arbor, MI, 2025.
15. **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, Ann Arbor, MI, 2025
16. **Gontjes K,** Identifying drivers of β -lactam/ β -lactamase inhibitor resistance emergence and spread before their clinical deployment, Oral Presentation, Midwest Microbial Pathogenesis Conference, St. Charles, IL, 2025
17. **Gontjes K,** Identifying drivers of β -lactam/ β -lactamase inhibitor resistance emergence and spread before their clinical deployment, Oral Presentation, National Institute of Allergy and Infectious Diseases (NIAID) Genomic Centers for Infectious Diseases (GCID) Annual Meeting, Virtual, 2026