

Alexandra L. Bryson, Ph.D., D(ABMM)



Assistant Professor of Pathology
Associate Director of Clinical Microbiology
Department of Pathology
Virginia Commonwealth University Health System
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Education

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| 2016 - 2018 | Mayo Clinic, Rochester, Minnesota Clinical Microbiology
CPEP Fellowship, American Board of Medical Microbiology
Certified |
| 2011 - 2016 | University of Pennsylvania, Philadelphia, Pennsylvania
Ph.D. in Microbiology, Virology, and Parasitology Howard
Hughes Medicine into Graduate School Scholar |
| 2010 | Oxford University, St. Hugh's College, Oxford, United
Kingdom, Competitive Study Abroad Research Fellowship |
| 2006 - 2010 | Texas A&M University, College Station, Texas, Bachelor of
Science in Genetics and Biochemistry, Honors: Cum laude |

Board Certifications

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| 2018 - present | American Board of Medical Microbiology |
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Awards

- 2019 Infectious Disease Teacher of the Year: Chosen by VCU Infectious Disease Fellows
- 2013 National Science Foundation Graduate Research Fellowship Honorable Mention
- 2013 New England Journal of Medicine Infectious Diseases Editors' Choice: Top Stories of 2013 for "Rapid evolution of the human gut virome"

Teaching Experience

- 2018 - present Diagnostic Clinical Microbiology Lectures, Virginia Commonwealth University Health System, Richmond, VA; Interactive lectures for medical students, pathology residents, and infectious disease fellows; 104 hours of teaching per year
- 2018 Teaching Assistant for the inaugural Microbiology Medical School Course at Mayo Clinic Arizona, Phoenix, AZ; Four weeks hosting discussion sections three times a week and four 1 hour labs
- 2016 - 2018 Educational Microbiology Diagnostic Presentations at Mayo Clinic; Over 20 Hours; Infectious disease rounds, in-lab presentations, journal clubs, and global health; Audience includes: clinical microbiology fellows, laboratory/medical directors, infectious disease fellows and attendings, pathology residents, medical students, and laboratory staff
- 2016 Assistant for Parasitology Microscopy Training in the Global Health Course, University of Minnesota, Minneapolis, MN One full day of hands-on laboratory training in identifying blood and stool pathogens

Professional Organizations

2021 - present	American Society for Microbiology. Professional Development Sub Committee
2020 - 2022	American Society for Microbiology. Clinical Microbiology Virtual Journal Club Committee
2022 - present	American Society for Clinical Pathology
2011 - present	American Society for Microbiology Member

Service Activities

2024 - present	Editorial Board for JAC – Antimicrobial Resistance
2024 - present	Co-Chair of Cefepime-Zidebactam Work Group. Clinical and Laboratory Standards Institute (CLSI). International standards organization
2023 - present	Editorial Board for the Journal of Clinical Microbiology
2022 - present	American Society for Clinical Pathology Resident Question Bank. Question writer. National organization
2021 - 2023	Co-Chair of Stenotrophomonas Work Group. Clinical and Laboratory Standards Institute (CLSI). International standards organization
2019 - 2023	Regional Director for the Southeastern Association for Clinical Microbiology
2020 - 2022	Virginia COVID-19 Testing Capacity and Technology Committee, which is a statewide committee designed to evaluate the quality of COVID-19 diagnostic assays and establish testing recommendations and guidance for the state of Virginia

2020 - 2021	Health Workplace/return to Campus Committee, which provides advice and guidance on COVID-19 testing strategies for students and athletes at VCU, William and Mary, and other VA Universities
2019 - present	Clinical and Laboratory Standards Institute (CLSI international organization), Quality Control Working Group, Committee member
2019 - 2021	American Board of Medical Microbiology Board Exam Committee (national organization), Question reviewer
2019 - 2022	Virginia Commonwealth University Health System Executive Faculty Committee, Secretary
2018 - present	Virginia Commonwealth University Health System Antimicrobial Stewardship Program, Committee member
2018 - present	Virginia Commonwealth University Health System Infection Prevention and Control, Committee member
2018 - 2022	Virginia Commonwealth University Health System Lab Test Utilization Committee, Committee member

Grants and Contracts

2022 - 2027	CDC Grant: Pathogen Genomics Centers of Excellence; The purpose of this project is to adapt and optimize a novel genomic pathogen amplification and sequencing system, which was originally developed to efficiently and economically sequence SARS-CoV-2. Total Award Amount (including Indirect Costs): \$6,427,262
2014 - 2016	NIH Bacterial Pathogenesis T32 Training Grant Recipient
2011 - 2016	Howard Hughes Medical Institute Med-into-Grad Scholar

Presentations

February 2025 Talk: "rpoB Sequencing Directly from MGIT Broth". Alexandra Bryson, Invited Speaker, Clin Miro Open, Savannah, GA

June 2024 Talk: "Wound Cultures from Bench to Bedside". Alexandra Bryson and Kyle Rodino, Invited Speaker, ASM Microbe Conference, Atlanta, GA.

June 2024 Talk: "Battle of the Brains". Alexandra Bryson and Kyle Rodino, Invited Speaker, ASM Microbe Conference, Atlanta, GA.

March 2024 Talk: "What do you do when the breakpoints are broken?". Alexandra Bryson, Invited Speaker, South Central Association for Clinical Microbiology Conference, French Lick, Indiana. Regional Conference.

October 2023 Grand Rounds Talk: "Clinical Microbiology State of the Union 2023". Alexandra Bryson and Christopher Doern, VCU Health, Department of Infectious Diseases Grand Rounds, Richmond, VA. Local.

June 2023 Talk: "Clinical Impact of Culture Independent GI Diagnostics". Alexandra Bryson, Invited Speaker, ASM Microbe Conference, Houston, TX. International Conference.

June 2023 Talk: "Clinical Microbiology Journal Club: Live! UTI Diagnostics". Alexandra Bryson, Moderator, ASM Microbe Conference, Houston, TX. International Conference.

June 2023 Talk: "Updating Stenotrophomonas Breakpoints for Trimethoprim-sulfamethoxazole and Ceftazidime". Alexandra Bryson and Elizabeth Hirsch, Invited Speaker and Co-Chair, Clinical and Laboratory Standards Institute Conference, St. Louis, MO. International Conference.

February 2023 Discussion Panel: "Investing in Clinical Microbiology". Alexandra Bryson, Invited Speaker, Clinical Microbiology Open, Carlsbad, CA. National Meeting.

January 2023 Talk: "Updating Stenotrophomonas Breakpoints for Minocycline". Alexandra Bryson and Elizabeth Hirsch, Invited Speaker and Co-Chair, Clinical and Laboratory Standards Institute Conference, Orlando, FL. International Conference.

November 2022 Talk: "Introduction to Next Generation Sequencing". Alexandra Bryson, Invited Speaker, SouthEastern Association for Clinical Microbiology Conference, Richmond, VA. Regional Conference.

October 2022 Grand Rounds Talk: "Clinical Microbiology Year in Review". Alexandra Bryson and Christopher Doern, VCU Health, Department of Infectious Diseases Grand Rounds, Richmond, VA. Local.

September 2022 Journal Club Organizer and Moderator "Diagnostic Value of Broad-Range Sequencing". Gabriela Uribe, Brad Cookson, Eleanor Powell, Laura Filkins, Matthew Thoendel, and Alexandra Bryson. American Society of Microbiology International Virtual Journal Club. International Journal Club.

Recent Publications

Doern CD, Whitman M, Doll M, Lavoie S, Friedel D, Bearman G, Kim J, Masters H, Roseff S, Willis J, Mercer R, Hill A, Feeser R, Dhindsa H, Petruzella F, Jackson A, Vitto M, Plauny J, **Bryson A**. Blood culture bottle shortage mitigation efforts: analysis of impact on ordering and patient impact. *Antimicrob Steward Healthc Epidemiol*. 2025 Jan 9;5(1):e6. doi: 10.1017/ash.2024.474. PMID: 39810856; PMCID: PMC11729487.

Bixby ML, Daley EC, Collins LB, Salay JM, **Bryson AL**, Hirsch EB. Skipped wells and scientific error during fosfomycin agar dilution and broth microdilution lead to inconsistent minimal inhibitory concentrations and may be cause for reevaluating testing methods for *Klebsiella pneumoniae*. *Microbiol Spectr*. 2024 Aug 6;12(8):e0420523. doi: 10.1128/spectrum.04205-23. Epub 2024 Jun 28. PMID: 38940588; PMCID: PMC11302225.

Pedersen L, Mikesell J, Marcaccini R, Atkinson C, Cooper K, Feldman M, Rittman B, Ching P, **Bryson A**, Doll M. *Candida auris in the burn unit: a prolonged biphasic outbreak*. *Antimicrob Steward Healthc Epidemiol*. 2024 May 27;4(1):e93. doi: 10.1017/ash.2024.74. PMID: 38807933; PMCID: PMC11131002.

Bryce Bobb, Tristan Jones, Bryce Hatfield, David Friedel, William Koch, Colin Thibodeau, Christopher Doern, **Alexandra L. Bryson**. Appendiceal Agony and Hepatic Havoc: Exploring Infection in the Immunocompromised. Accepted to the

Journal of Clinical Microbiology 2024.

Nicole Winkelmann, Mark Mochel, Christopher Doern, Sara Lamb, Colin Thibodeau, Melissa Godwin, **Alexandra Bryson**. Treatment Resistant Rash in Cardiac Transplant Patient. Accepted to the Journal of Clinical Microbiology 2024.

Bryson AL, Bhalodi A, Liesman RM, Mathers AJ. Cefazolin as a predictor of urinary cephalosporin activity in indicated Enterobacterales. J Clin Microbiol. 2024 Apr 10;62(4):e0078821. doi: 10.1128/jcm.00788-21. Epub 2024 Mar 8. PMID: 38457194; PMCID: PMC11005412.

Pierce J, Sayeed S, Doern CD, **Bryson AL**. *Emergomyces pasteurianus* in Man Returning to the United States from Liberia and Review of the Literature. Emerg Infect Dis. 2023 Mar;29(3):635-639. doi: 10.3201/eid2903.221683. PMID: 36823688; PMCID: PMC9973675.

Vissichelli NC, Morales MK, Kolipakkam B, **Bryson A**, Sabo RT, Toor AA. Cell-free next-generation sequencing impacts diagnosis and antimicrobial therapy in immunocompromised hosts: A retrospective study. Transpl Infect Dis. 2023 Feb;25(1):e13954. doi: 10.1111/tid.13954. Epub 2023 Jan 11. PMID: 36632004.

Pierce J, Sayeed S, Doern CD, **Bryson AL**. *Emergomyces pasteurianus* in Man Returning to the United States from Liberia and Review of the Literature. Emerg Infect Dis. 2023 Mar;29(3):635-639. doi: 10.3201/eid2903.221683. PMID: 36823688; PMCID: PMC9973675

Vissichelli NC, Morales MK, Kolipakkam B, **Bryson A**, Sabo RT, Toor AA. Cell-free next-generation sequencing impacts diagnosis and antimicrobial therapy in immunocompromised hosts: A retrospective study. Transpl Infect Dis. 2023 Feb;25(1):e13954. doi: 10.1111/tid.13954. Epub 2023 Jan 11. PMID: 36632004.

Vissichelli NC, Morales MK, **Bryson A**, Bruno D. Successful deceased donor liver transplantation in candidates with high MELD and ongoing positive SARS-CoV-2 PCR. Transpl Infect Dis. 2022 Apr;24(2):e13816. doi: 10.1111/tid.13816. Epub 2022 Mar 2. PMID: 35191167; PMCID: PMC9115332

Satalich J, Reznicek J, **Bryson A**, Pershad P, Hooper N, Satpathy J. Prosthetic Joint Infection due to *Histoplasma capsulatum* in a Patient from Trinidad: Workup, Pathology, and Treatment. Case Rep Orthop. 2022 Aug 5; 2022:8998996. doi: 10.1155/2022/8998996. PMID: 36034748; PMCID: PMC9410996.

Pierce J, Dalton J, Stevens MP, Godwin M, Hill A, Doern CD, **Bryson AL**. 28-Year-Old Man With an Organism Extracted From the Eyelid. *Clin Infect Dis*. 2021 Jun 1;72(11):2049-2051. doi: 10.1093/cid/ciaa1841. PMID: 34059887.

Khine Z. Sann, Nicole C. Vissichelli, **Alexandra L. Bryson**, Christopher Doern, Mark C. Mochel, Gonzalo Bearman, Sangeeta Sastry. Diffuse Skin Nodules in an Oyster Farmer: Disseminated *Mycobacterium marinum*. *The American Journal of Medicine*, Volume 134, Issue 1, 2021, Pages e57- e59, ISSN 0002-9343, <https://doi.org/10.1016/j.amjmed.2020.06.024>.

Doll ME, Pryor R, Mackey D, Doern CD, **Bryson A**, Bailey P, Cooper K, Godbout E, Stevens MP, Bearman G. Utility of retesting for diagnosis of SARS-CoV-2/COVID-19 in hospitalized patients: Impact of the interval between tests. *Infect Control Hosp Epidemiol*. 2020 Jul;41(7):859-861. doi: 10.1017/ice.2020.224. Epub 2020 May 11. PMID: 32389155; PMCID: PMC7239773.

Christensen J, Kumar D, Moinuddin I, **Bryson A**, Kashi Z, Kimball P, Levy M, Kamal L, King A, Gupta G. Coronavirus Disease 2019 Viremia, Serologies, and Clinical Course in a Case Series of Transplant Recipients. *Transplant Proc*. 2020 Nov;52(9):2637-2641. doi: 10.1016/j.transproceed.2020.08.042. Epub 2020 Sep 3. PMID: 33012543; PMCID: PMC7470894.

Filkins LM, **Bryson AL**, Miller SA, Mitchell SL. Navigating Clinical Utilization of Direct-from-Specimen Metagenomic Pathogen Detection: Clinical Applications, Limitations, and Testing Recommendations. *Clin Chem*. 2020 Nov 1;66(11):1381-1395. doi: 10.1093/clinchem/hvaa183. PMID: 33141913.

Lau AF, Walchak RC, Miller HB, Slechta ES, Kamboj K, Riebe K, Robertson AE, Gilbreath JJ, Mitchell KF, Wallace MA, **Bryson AL**, Balada-Llasat JM, Bulman A, Buchan BW, Burnham CD, Butler-Wu S, Desai U, Doern CD, Hanson KE, Henderson CM, Kostrzewa M, Ledebouer NA, Maier T, Pancholi P, Schuetz AN, Shi G, Wengenack NL, Zhang SX, Zelazny AM, Frank KM. Multicenter Study Demonstrates Standardization Requirements for Mold Identification by MALDI-TOF MS. *Front Microbiol*. 2019 Sep 20;10:2098. doi: 10.3389/fmicb.2019.02098. eCollection 2019.

Shah AS, O'Horo JC, Tang S, **Bryson AL**, Wengenack NL, Sampathkumar P. Fungal Diagnostic Stewardship in Bronchoscopy Specimens for Immunocompetent Patients in the Intensive Care Unit. *Mayo Clin Proc*. 2019 Aug 7. pii: S0025-

6196(19)30268-X. doi: 10.1016/j.mayocp.2019.02.020.

Bryson AL, Hill EM, Doern CD. Matrix-Assisted Laser Desorption/Ionization Time-of-Flight: The Revolution in Progress. Clin Lab Med. 2019 Sep;39(3):391-404. doi: 10.1016/j.cll.2019.05.010. Epub 2019 Jul 2. Review.

Fida M, Hamdi AM, **Bryson A**, Razonable RR, Abu Saleh O. 2019. Long-term Outcomes of Patients with Human Herpesvirus 6 Encephalitis. Open Forum Infect Dis, Jun 5;6(7):ofz269. doi: 10.1093/ofid/ofz269. eCollection 2019 Jul.

Ramanan P*, **Bryson AL***, Binnicker MJ, Pritt BS, and Patel R. 2018. Syndromic Panel-Based Testing in Clinical Microbiology. Clin Microbiol Rev 31. (* Co-first authors)

Mahmood M, Ajmal S, Abu Saleh OM, **Bryson AL**, Marcelin JR, Wilson JW. 2017. Mycobacterium genavense infections in non-HIV immunocompromised hosts: a systematic review. Infect Dis (Lond) doi: 10.1080/23744235.2017.1404630:1-11.

Bryson AL, Hwang Y, Sherrill-Mix S, Wu GD, Lewis JD, Black L, Clark TA, Bushman FD. 2015. Covalent Modification of Bacteriophage T4 DNA Inhibits CRISPR-Cas9. MBio 6:e00648.

Minot S, **Bryson A**, Chehoud C, Wu GD, Lewis JD, Bushman FD. 2013. Rapid evolution of the human gut virome. Proc Natl Acad Sci U S A 110:12450-5.

Kathirithamby J, Lechner GK, McMahon DP, **Bryson AL**, Johnston JS. 2012. A Free Ride and Lunch: Stylopization in the Solitary Hunting Wasp, *Ammophila Fernaldi* Murray and *A. pictipennis* (Walsh) (Hymenoptera: Sphecidae) By *Paraxenos lugubris* Pierce (Strepsiptera). Proceedings of the Entomological Society of Washington 114:464-475.

Scarisbrick IA, Epstein B, Cloud BA, Yoon H, Wu J, Renner DN, Blaber SI, Blaber M, Vandell AG, **Bryson AL**. 2011. Functional role of kallikrein 6 in regulating immune cell survival. PLoS One 6:e18376.

Other Publications

Bryson A, Theel ES. Case of the Month: Powassan. November 2017. Pan American Society for Clinical Virology.

Book Chapters

Doern CD, **Bryson AL**. 2022. Wound/Abscess and Soft Tissue Cultures. *Clinical Microbiology Procedures Handbook*, 4th edition. ASM Press – Two Textbook chapters