

CURRICULUM VITAE

Leigh Anne Tang, Ph.D.

CONTACT INFORMATION

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EDUCATION

2025-Present Postdoctoral Fellow, Health Policy and Management, **Indiana University**, Clem McDonald Center for Biomedical Informatics, **Regenstrief Institute**, Indianapolis, IN
Advisor: Christopher A. Harle, Ph.D., M.S.

2022-2024 *Ph.D.*, Biomedical Informatics, **Vanderbilt University**, Nashville, TN
Dissertation: “Predictive Modeling for Opioid-Related Overdose Prevention: Towards Safer Opioid Prescribing and Guiding Treatment Selection for Opioid Use Disorder”
Advisor: Colin G. Walsh, M.D., M.A.

2020-2022 *M.S.*, Biomedical Informatics, **Vanderbilt University**, Nashville, TN
Thesis: “A Drug-Based Phenotype Risk Score for Opioid-Related Adverse Events”
Advisor: Colin G. Walsh, M.D., M.A.

2018 *B.S.*, Statistics, Latino Studies Minor, **University of Notre Dame**, South Bend, IN

Fall 2016 **Universidad Popular Autónoma del Estado de Puebla**, Puebla, Mexico

RESEARCH EXPERIENCE

Current

2022-Present Predictive Modeling Intern, Statewide Unintentional Drug Overdose Reporting System Team, Office of Informatics and Analytics, Tennessee Department of Health
Supervisors: Jessica Korona, M.P.H., Sutapa Mukhopadhyay, Ph.D.

Past

2020-2024	Graduate Student Researcher, Walsh Lab, Department of Biomedical Informatics, Vanderbilt University Medical Center Principal Investigator: Colin Walsh, M.D., M.A.
2017-2018	Undergraduate Research Assistant, Center for Precision Medicine, Department of Biomedical Informatics, Vanderbilt University Medical Center Principal Investigator: Lisa Bastarache, M.S.
2017-2018	Undergraduate Research Assistant, Department of Applied and Computational Mathematics and Statistics, University of Notre Dame Principal Investigator: Alan Huebner, Ph.D.
Summer 2017	Summer Trainee, Department of Biomedical Informatics, Vanderbilt University Medical Center Principal Investigator: Kevin Johnson, M.D., M.S.
2016-2017	Undergraduate Research Assistant, Department of Psychology, University of Notre Dame Principal Investigator: Julie Braungart-Rieker, Ph.D.

WORK EXPERIENCE

Summer 2023	Graduate Teaching Assistant Vanderbilt Biomedical Informatics Summer Program, Department of Biomedical Informatics, Vanderbilt University Medical Center Program Director: Kim Unertl, Ph.D.
Summer 2022	Programmer/Analyst, Statewide Unintentional Drug Overdose Reporting System Team, Office of Informatics and Analytics, Tennessee Department of Health Supervisors: Jessica Korona, M.P.H., Sutapa Mukhopadhyay, Ph.D.
2018-2020	Application Developer, Center for Precision Medicine, Department of Biomedical Informatics, Vanderbilt University Medical Center Principal Investigator: Joshua Denny, M.D., M.S. Supervisor: Lisa Bastarache, M.S.

HONORS AND AWARDS

2024	2024 Brighter Ventures Student Award, Vanderbilt University
2018	Cum Laude, College of Science, University of Notre Dame
2014-2018	Glynn Family Honors Program, College of Science, University of Notre Dame

GRANTS

Current Funding

2025-Present T15 Training Grant
National Library of Medicine
Indiana University Public and Population Health Training Program (PIs: Dixon BE, Schleyer TK)
Funding: 100% stipend
Role: Postdoctoral Fellow

Prior Funding

2020-2024 T15 Training Grant
National Library of Medicine
Vanderbilt Biomedical Informatics Training Program (PIs: Ancker JS, Malin B, Unertl KM)
Funding: 100% stipend and graduate school tuition
Role: Predoctoral Trainee

Fall 2023 Dissertation Enhancement Grant
Graduate Leadership Institute, Vanderbilt University
Addressing Opioid Use Disorder-Related Mortality: Applying Predictive Modeling to Public Health and Clinical Care
Funding: \$2,000
Role: Principal Investigator

Summer 2023 Randolph Miller Research Award
Department of Biomedical Informatics, Vanderbilt University Medical Center
Understanding clinician attitudes towards a predictive model for opioid use disorder medication
Funding: \$500
Role: Principal Investigator

PROFESSIONAL MEMBERSHIPS

2022 American Public Health Association, Member

2018-Present American Medical Informatics Association, Member

PROFESSIONAL ACTIVITIES

Past

2021-2024 Student Representative on Diversity, Equity, and Inclusion Committee,
Department of Biomedical Informatics, Vanderbilt University Medical Center

2024 Student Volunteer at American Medical Informatics Association Clinical Informatics Conference 2024, Minneapolis, MN

2024	Member of Inaugural Leadership Cohort (ELEVATE: Enhancing Leadership through Exploration, Vision, Awareness, Teamwork, & Empowerment), Graduate Leadership Institute, Vanderbilt University
2022-2024	Outreach Chair of Student Leadership Committee, Department of Biomedical Informatics, Vanderbilt University Medical Center
2022-2023	Student Representative on Admissions Committee, Department of Biomedical Informatics, Vanderbilt University Medical Center
2021-2024	STEM Transition and Retention (START) Mentor, Vanderbilt University
2021-2022	Social Chair of Student Leadership Committee, Department of Biomedical Informatics, Vanderbilt University Medical Center
2020	Retreat Planning Committee Member, Department of Biomedical Informatics, Vanderbilt University Medical Center

TEACHING ACTIVITIES

Past

Fall 2024	Exploring Biomedical Informatics: Research, Programming, and Scientific Communication with Real-world Data Teaching assistant Will mentor 9 high school students and provide feedback on their projects Vanderbilt University Programs for Talented Youth
Spring 2024	Biomedical Informatics: Using Electronic Health Record Data to Improve Health Teaching assistant Helped design syllabus for 16-week course and provided feedback on projects Vanderbilt University Programs for Talented Youth
Summer 2023	Vanderbilt Biomedical Informatics Summer Program - Design Challenge Teaching assistant Made syllabus and co-taught 9-week course culminating in group presentations Vanderbilt University
Fall 2022	Foundations of Bioinformatics, BMIF-6310 Teaching assistant 1 Lecture entitled, "Introduction to Python" Vanderbilt University

PRESENTATIONS

Oral Presentations

“Predictive Modeling for Opioid-Related Overdose Prevention: Towards Guiding Treatment Selection for Opioid Use Disorder.” Yale University, New Haven, CT, 2024

“Predictive Modeling for Opioid-Related Overdose Prevention: Towards Safer Opioid Prescribing & Guiding Treatment Selection for Opioid Use Disorder.” Regenstrief Institute, Indianapolis, IN, 2024

“Clinician Perspectives on a Predictive Model for Recommending Opioid Use Disorder Treatment.” Center for Precision Medicine, Vanderbilt University Medical Center, Nashville, TN, 2024

“What is Biomedical Informatics?” Martin Luther King Jr. Magnet High School Outreach Event, Nashville, TN, 2024

“What is Biomedical Informatics?” Republic High School Outreach Event, Nashville, TN, 2024

“Detecting Unintentional Fatal Overdoses from Autopsies using Natural Language Processing.” American Public Health Association Data Science Collaborative Meeting, Atlanta, GA, 2023

“Accelerating Public Health Surveillance: Rapid Detection of Fatal Overdoses from Autopsies using Natural Language Processing.” National Library of Medicine T15 Training Conference, Palo Alto, CA, 2023

“Identifying Initiation of Medication for Opioid Use Disorder.” Center for Precision Medicine, Vanderbilt University Medical Center, Nashville, TN, 2023

“What is Biomedical Informatics?” Republic High School Outreach Event, Nashville, TN, 2023

“Public Health Data Integration.” National Library of Medicine T15 Training Conference, Buffalo, NY, 2022

“A Phenotype Risk Score for Opioid-Related Adverse Events.” National Library of Medicine T15 Training Conference, Buffalo, NY, 2022

“Developing a Phenotype Risk Score for Opioid Adverse Events.” American Medical Informatics Association 2020 Annual Symposium, Virtual, 2020

“Breadcrumbs: Assessing the Feasibility of Automating Provider Documentation Using Electronic Health Record Activity.” American Medical Informatics Association 2020 Annual Symposium, San Francisco, CA, 2018

Poster Presentations

“An Online Phenotype Risk Score Calculator Employing Electronic Health Records.” American Medical Informatics Association 2019 Informatics Summit, San Francisco, CA, 2019

PEER-REVIEWED PUBLICATIONS

Manuscripts

1. Basile AO, Verma A, **Tang L**, Serper M, Scanga A, Farrell A, Destin B, Carr RM, Anyanwu-Ofili A, Rajagopal G, Krikhely A, Bessler M, Reilly MP, Ritchie MD, Tatonetti NP, Wattacheril J. Rapid Identification and Phenotyping of Nonalcoholic Fatty Liver Disease Patients Using an Algorithmic Approach in Diverse, Urban Healthcare Systems. *Clinical and Translational Science*. 2025; 18:e70105. Published 2024 Dec 31.
2. Picou EM, Davis H, **Tang L**, Bastarache L, Tharpe AM. Relationships Between Hearing-Related and Health-Related Variables in Academic Progress of Children with Unilateral Hearing Loss. *Journal of Speech, Language, and Hearing Research*. 2025 Jan 2;68(1):364-376. Published 2024 Dec 13.
3. **Tang L**, Gomez M, Suresh U, Kast KA, Becker RA, Reese TJ, Walsh CG, Ancker JS. Clinician Perspectives on a Predictive Model for Recommending Opioid Use Disorder Treatment. *American Medical Informatics Association Annual Symposium Proceedings 2024*. Accepted 2024 June 28.
4. Davis H, **Tang L**, Picou E, Bastarache L, Tharpe AM. The use of electronic health records for behavioral phenotyping of school-age children with unilateral hearing loss: A methodological approach. *Journal of Speech, Language, and Hearing Research*;67(1):254-268. Published 2023 Dec 6.
5. **Tang LA**, Korona-Bailey J, Zaras D, Roberts A, Mukhopadhyay S, Espy S, Walsh CG. Using Natural Language Processing to Predict Fatal Drug Overdose From Autopsy Narrative Text: Algorithm Development and Validation Study. *JMIR Public Health Surveill*. 2023;9:e45246. Published 2023 May 9.
6. **Tang LA**, Jeffery AD, Leech AA, Osmundson SS, Schirle L, Phillippi JC. A comparison of methods to identify antenatal substance use within electronic health records. *Am J Obstet Gynecol MFM*. 2022 Mar;4(2):100535. Published 2021 Nov 19.
7. Brokamp E, Koziura ME, Phillips JA, **Tang LA**, Cogan JD, Rives JC, Robertson AK, Duncan L, Bican A, Peterson JF, Newman JH, Hamid R, Bastarache L, Undiagnosed Diseases Network. One is the loneliest number: genotypic matchmaking using the electronic health record. *Genetics in Medicine*; 23(10):1830-1832. Published 2021 July 6.
8. DeLozier S, Speltz P, Brito J, **Tang LA**, Wang J, Smith JC, Giuse D, Phillips E, Williams K, Strickland T, Davogustto G, Roden D, Denny JC. Real-time clinical note monitoring to detect conditions for rapid follow-up: A case study of clinical trial enrollment in drug-induced torsades de pointes and Stevens-Johnson syndrome. *J Am Med Inform Assoc*. 2021 Jan 15;28(1):126-131. Published 2021 Jan 15.
9. Hicks JK, El Roubi N, Ong HH, Schildcrout JS, Ramsey LB, Shi Y, **Tang L**, Aquilante CL, Beitelshes AL, Blake KV, Cimino JJ, Davis BH, Empey PE, Kao DP, Lemkin DL, Limdi NA, P Lipori G, Rosenman MB, Skaar TC, Teal E, Tuteja S, Wiley LK, Williams H, Winterstein AG, Van Driest SL, Cavallari LH, Peterson JF. Opportunity for Genotype-Guided Prescribing Among Adult Patients in 11 US Health Systems. *Clin Pharmacol Ther*. Published 2021 Jan 11.

10. Ramsey LB, Ong HH, Schildcrout JS, Shi Y, **Tang LA**, Hicks JK, El Rouby N, Cavallari LH, Tuteja S, Aquilante CL, Beitelshes AL, Lemkin DL, Blake KV, Williams H, Cimino JJ, Davis BH, Limdi NA, Empey PE, Horvat CM, Kao DP, Lipori GP, Rosenman MB, Skaar TC, Teal E, Winterstein AG, Owusu Obeng A, Salyakina D, Gupta A, Gruber J, McCafferty-Fernandez J, Bishop JR, Rivers Z, Benner A, Tamraz B, Long-Boyle J, Peterson JF, Van Driest SL. Prescribing prevalence in pediatric patients of medications with potential genotype guided dosing. *JAMA Network Open*. 2020;3(12):e2029411. Published 2020 Dec 14.
11. Bastarache L, Hughey J, Bastarache J, **Tang L**, Das S, Zaki N, Roden DM, Denny JC. Improving the Phenotype Risk Score as a Scalable Approach to Identify Patients with Mendelian Disease. *J Am Med Inform Assoc*. 2019;26(12):1437-1447. Published 2019 Dec 1.
12. **Tang LA**, Johnson KB, Kumah-Crystal YA. Breadcrumbs: Assessing the Feasibility of Automating Provider Documentation Using Electronic Health Record Activity. *American Medical Informatics Association Annu Symp Proc*. 2018; 2018:1008–1017. Published 2018 Dec 5.

In Revision/Under Review/In Preparation

1. Gomez M, Steitz B, Becker RA, **Tang L**, Unertl KM. (submitted to *Applied Clinical Informatics* on May 1, 2024). Applying Participatory Design in Formative Evaluation of a Biomedical Informatics Summer Internship Program: A Case Study of Summer 2023.
2. **Tang L**, Korona-Bailey J, Ripperger M, Mukhopadhyay S, Walsh CG. (in preparation). Prospective Validation of Ensemble Learning Models for Predicting Opioid-Related Overdose using Tennessee Statewide Data.
3. **Tang L**, Kast KA, Walsh CG. (in preparation). A Treatment Selection Model for Opioid Use Disorder Using Electronic Health Record and County-Level Data.
4. Knake L, **Tang L**, Chen Q, Weitkamp H. (in preparation). Incidence, Time to Diagnosis, and Risk Factors for Hearing Loss in a Large Neonatal Intensive Care Unit.
5. Salwei ME, **Tang L**, Vogus T, Weinger MB, France D, Anders S, Reale C, Harris J, Slagle J, Unertl KM, Novak LL. (in preparation). High Reliability Organizing in Practice: A Qualitative Study of Cancer Teams.
6. **Tang L**, Bastarache L, Chen Q, Delozier S, Denny JC, He J, Kast KA, Walsh CG. (in preparation). Quantifying drug-related adverse events using a phenotype risk score.

Abstracts/Posters

1. Becker RA, Gomez M, **Tang L**, Unertl KM. Evaluating a design challenge activity for biomedical informatics summer interns. Poster presentation at the American Medical Informatics Association 2023 Annual Symposium. November 11-15, 2023, New Orleans, LA.
2. Unertl KM, Gadd CS, Jenkins R, Malin B, Matheny ME, McCoy A, **Tang L**, Walsh CG, Wei WQ, Ancker J. GRExit in Biomedical Informatics: One Program's Experience with Moving Away from

Use of the GRE in Graduate Admissions. Podium abstract at the American Medical Informatics Association 2023 Annual Symposium. November 11-15, 2023, New Orleans, LA.

3. Salwei ME, Novak LL, Vogus TJ, **Tang L**, Anders S, Reale C, Unertl K, Slagle JM, Harris JW, Weinger MB, France D. Understanding Barriers and Facilitators to Resilient Cancer Care. Poster presentation at the American Medical Informatics Association 2022 Annual Symposium. November 5-9, 2022, Washington, DC.
4. Salwei ME, Novak LL, Anders S, Unertl KM, Reale C, Harris J, Slagle J, **Tang LA**, Gomez M, Sun Z, Mani M, Zhang R, Choudhary A, Nath P, Weinger M, France D. User centered design of a clinical deterioration response system for outpatient cancer patients. Poster presentation at the American Medical Informatics Association 2021 Annual Symposium. October 30-November 3, 2021, San Diego, CA.
5. **Tang L**, Delozier S, Bastarache L, Walsh C, Denny J. Developing a Phenotype Risk Score for Opioid Adverse Events. Podium abstract presentation at American Medical Informatics Association 2020 Annual Symposium. Virtual. November 14-18, 2020.
6. DeLozier S, Speltz P, Brito J, **Tang LA**, Wang J, Smith JC, Giuse D, Phillips E, Williams K, Strickland T, Davogustto G, Roden D, Denny JC. Real-time Clinical Note Monitoring to Detect Conditions for Follow-up: A Case Study of Clinical Trial Enrollment in Drug-induced Torsades de Pointes and Stevens-Johnson syndrome. Podium abstract presentation at the American Medical Informatics Association 2020 Annual Symposium. Virtual. November 14-18, 2020.
7. Knake L, **Tang L**, McCoy A. Pitfalls of Using Structured Data in a Pediatric De-identified Database. Poster presentation at the American Medical Informatics Association 2020 Clinical Informatics Conference. Virtual. May 19-21, 2020.
8. Knake L, **Tang L**, Van Driest S. Hearing Loss Risk Factors in a Retrospective Analysis of a Large Neonatal Intensive Care Unit. Poster presentation at the Pediatric Academic Societies 2020 Meeting. Philadelphia, PA. May 2-5, 2020.
9. **Tang L**, Chen Q, Denny JC, Bastarache L. Using phenome-wide association study results to predict Mendelian phenotypes. American Society of Human Genetics 2019 Annual Meeting. Poster presentation at the ASHG 2019 Annual Meeting. Houston, TX. October 15-19, 2019.
10. Delozier S, Speltz P, **Tang L**, Brito J, Wang J, Phillips E, Roden DM, Denny JC. Identifying Patients with Rare Adverse Events in real time using the Medical Record. Poster presentation at the American Society of Human Genetics 2019 Annual Meeting. Houston, TX. October 15-19, 2019.
11. Ramsey L, Ong HH, **Tang L**, Schildcrout JS, Shi Y, Hicks KJ, Blake KV, Williams H, Rosenman M, Teal E, Skaar TC, Beitelshes AL, Aquilante CL, Tuteja S, Empey PE, Horvat CM, Limdi NA, Obeng A, Ellis SB, Salyakina D, McCafferty-Fernandez J, Gruber J, Bishop JR, Rivers Z, Benner A, Tamraz B, Long-Boyle J, Cavallari LH, El Rouby N, Lipori GP, Winterstein AG, Peterson J, Van Driest S. Opportunity For Pharmacogenetic Prescribing In Pediatric Hospitals In The Ignite Network. Poster presentation at the Clinical Pharmacogenetics Implementation Consortium Open meeting. Memphis TN. June 6-7, 2019.

12. Hicks JK, Ong HH, Schildcrout JS, Shi Y, **Tang LA**, El Rouby N, Aquilante CL, Beitelshes AL, Blake KV, Empey PE, Limdi NA, Lipori GP, Rosenman MB, Skaar TC, Teal E, Tuteja S, Wiley L, Williams H, Winterstein AG, Van Driest S, Ramsey L, Cavallari LH, Peterson JF. Evaluation of CPIC level A drug prescribing in IGNITE-affiliated health systems: opportunity for pharmacogenomics implementation among adult patients. Poster presentation at the Clinical Pharmacogenetics Implementation Consortium Open meeting. Memphis TN. June 6-7, 2019.
13. Brokamp E, Phillips J, Bastarache L, **Tang L**, Rives L, Robertson A, Koziura M, Duncan L, Bican A, Hamid R, Newman J. Evidence for a New *MSL2*-Related Disease Using Internal VUMC De-Identified Database. Poster presentation at the 2019 American College of Medical Genetics and Genomics Annual Clinical Genetics Meeting. Seattle WA. Apr 2-6, 2019.
14. **Tang L**, Speltz P, Gangireddy S, Higby-Flowers M, Denny J, Bastarache L. An Online Phenotype Risk Score Calculator Employing Electronic Health Records. Poster presentation at the American Medical Informatics Association 2019 Informatics Summit. San Francisco CA. Mar 25-28, 2019.