

# Thi Mui Pham

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## Summary

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Analytical epidemiologist with 8+ years of experience mechanistic modeling and leveraging complex clinical, genomic, and epidemiological data to inform infectious disease control and policy. Proficient in R and C++, with a strong track record of translating quantitative insights into actionable strategies for diverse scientific and public health stakeholders.

## Education

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<b>Ph.D</b> <b>Julius Center for Health Sciences and Primary Care</b> , Infectious Disease Epidemiology	Utrecht, The Netherlands Feb 2017 – Feb 2022
<ul style="list-style-type: none"><li><b>Thesis:</b> Contagions under control: Mathematical models to inform infectious disease prevention and control</li></ul>	
<b>M.Sc.</b> <b>Utrecht University</b> , Epidemiology Postgraduate	Utrecht, The Netherlands Sept 2017 – Feb 2022
<ul style="list-style-type: none"><li>Dutch final grade: 8.1 (GPA ≈ 3.7)</li><li>Coursework: Clinical Epidemiology, Molecular Epidemiology, Machine learning: Applications in Medicine</li></ul>	
<b>M.Sc.</b> <b>RWTH Aachen</b> , Mathematics	Aachen, Germany Sept 2013 – June 2016
<ul style="list-style-type: none"><li>German final grade: 1.1 (GPA ≈ 3.9)</li><li><b>Thesis:</b> Algebraic Statistics for Ordinal Log-Linear Models</li><li><b>Coursework:</b> Decision Theory and Bayesian Inference, Introduction to Artificial Intelligence, Data Mining Algorithms</li></ul>	
<b>B.Sc.</b> <b>RWTH Aachen</b> , Mathematics	Aachen, Germany Oct 2010 – Mar 2013
<ul style="list-style-type: none"><li>Final German grade: 1.8 (GPA ≈ 3.2)</li><li><b>Thesis:</b> Algebraic attacks on stream ciphers</li><li><b>Coursework:</b> Calculus, Linear algebra, Numerical Analysis, Course in C++</li></ul>	

## Work Experience

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<b>University of Utah</b> , Postdoctoral Research Associate	Salt Lake City, UT, USA Sept 2025 – current
<ul style="list-style-type: none"><li>Advisors: Katharine Walter</li><li>Projects: Quantifying the relationship between ambient air pollution and Mtb incidence in Brazil; Developing models to estimate the size of the transmission bottleneck in Mtb.</li></ul>	
<b>Harvard T.H. Chan School of Public Health</b> , Postdoctoral Fellow/Research Associate	Boston, MA, USA Mar 2022 – Aug 2025
<ul style="list-style-type: none"><li>Advisors: Prof. Marc Lipsitch, Prof. Yonatan Grad</li><li>Analyzed clinical and genomic datasets from Veterans Affairs Healthcare System (<math>N \approx 1</math> million) and Calgary Health Region (<math>N \approx 25,000</math>) to define trends in infection incidence and antimicrobial resistance and devel-</li></ul>	

oped statistical models to assess the relationship between antibiotic use and resistance.

- Integrated epidemiological and genomic data for SARS-CoV-2 real-time outbreak analysis to distinguish importations from transmissions using data from the National Basketball Association; in collaboration with the University of Yale and the University of Nebraska

**Ministry of Education in the Netherlands**, Infectious disease modeler

- Advisor: Patricia Bruijning-Verhagen
- Developed an agent-based model to assess re-opening strategies for limiting SARS-CoV-2 transmission in secondary schools in the Netherlands

Utrecht, The Netherlands

Mar 2021 – Oct 2021

**University of Oxford**, Visiting researcher

- Advisor: Prof. Ben Cooper
- Developed statistical models to estimate the burden of nosocomial transmission of SARS-CoV-2 in the UK; part of the Hospital Onset COVID-19 Working group (subgroup of the Scientific Advisory Group for Emergencies in the UK)
- Developed statistical model to estimate the impact of hand hygiene interventions on the spread of respiratory tract infections

Oxford, UK

Feb 2020 – Aug 2020

**RWTH Aachen University**, Visiting researcher

- Research and implementation of randomization methods for rare diseases (Integrated DEsign AnaLysis of small population group trials project)

Aachen, Germany

Oct 2014 – Feb 2016

**uniquedigital**, Data analyst intern

- Conceptual design, quality assurance and implementation of customer journey and cross-channel analysis

Hamburg, Germany

May 2013 – Aug 2013

## Selected Publications

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**Pham TM**, Zhang, Y, Nevers M, Li H, Khader K, Grad YH, Lipsitch M, Samore M (2024). Trends in infection incidence and antimicrobial resistance in the US Veterans Affairs Healthcare System: a nationwide retrospective cohort study (2007–22). *The Lancet Infectious Diseases*. DOI: 10.1016/S1473-3099(24)00416-X

Knight GM, **Pham TM**, Stimson, J. et al. The contribution of hospital-acquired infections to the COVID-19 epidemic in England in the first half of 2020. *BMC Infect Dis* **22**, 556 (2022). DOI: 10.1186/s12879-022-07490-4

**Pham, TM**, Büchler AC, Voor in 't holt AF et al. Routes of transmission of VIM-positive *Pseudomonas aeruginosa* in the adult intensive care unit-analysis of 9 years of surveillance at a university hospital using a mathematical model. *Antimicrob Resist Infect Control* **11**, 55 (2022). DOI: 10.1186/s13756-022-01095-x

**Pham TM**, Tahir H, van de Wijgert JHHM, Van der Roest B, Ellerbroek P, Bonten MJM, Bootsma MCJ, Kretzschmar ME. Interventions to control nosocomial transmission of SARS-CoV-2: a modelling study. *BMC Med* **19**, 211 (2021). DOI: 10.1186/s12916-021-02060-y

Teslya A<sup>\*</sup>, **Pham TM**<sup>\*</sup>, Godijk NG<sup>\*</sup>, Kretzschmar ME, Bootsma MCJ, Rozhnova G (2020) Impact of self-imposed prevention measures and short-term government-imposed social distancing on mitigating and delaying a COVID-

19 epidemic: A modelling study. *PLoS Med* 17(7): e1003166. DOI: 10.1371/journal.pmed.1003166

\* Co-first authors

**Pham TM**, Kretzschmar M, Bertrand X, Bootsma M, on behalf of COMBACTE-MAGNET Consortium (2019). Tracking *Pseudomonas aeruginosa* transmissions due to environmental contamination after discharge in ICUs using mathematical models. *PLOS Computational Biology* 15(8): e1006697. DOI: 10.1371/journal.pcbi.1006697.

## Ongoing projects

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**Pham, TM** et al (2025). Antimicrobial selection for resistance in four major pathogens in the US Veterans Affairs Healthcare System, 2007-2021. DOI: 10.1101/2025.03.12.25323875 [Manuscript under review]

**Pham, TM** et al (2025). Trends in incidence and resistance for five major causes of bacteremia in a Canadian metropolitan area, 2006-22: a genomic and antibiotic use cohort study. [Manuscript in preparation]

**Pham, TM** et al (2025). Transmission or Importation? Using SARS-CoV-2 Genomics to Guide Infection Control protocols in the NBA. [Manuscript in preparation]

## Awards and Grants

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<b>SLAS Visiting Graduate Researcher Program Grant</b> for visit at University of Oxford	Feb 2020 – July 2020
<b>PROMOS scholarship</b> for research internship in Québec City, Canada	Aug 2016 – Nov 2016
<b>Friedrich Ebert Foundation scholarship for Master's degree</b>	Feb 2015 – Jul 2016
<b>Deutschlandstipendium scholarship for Master's degree</b>	Oct 2014 – Feb 2015
<b>DAAD scholarship</b> for an Erasmus exchange year in London, UK	Sept 2013 – Jun 2014
<b>START scholarship</b> for committed students with migration background in high school	Aug 2007 – Jul 2009

## Skills

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**Languages:** German (native), English (professional working proficiency), Vietnamese (limited working proficiency), French (limited working proficiency), Dutch (limited working proficiency)

**Programming:** R, C++, Python, Matlab

**Databases:** SQL, MonetDB

**Version control:** git

## Media coverage

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Kahn K. In-Hospital Infections, Antimicrobial Resistance Declined Over 13 Years. *MedPage Today*. August 15, 2024.

<https://www.medpagetoday.com/infectiousdisease/generalinfectiousdisease/111543>

Emerson L. New Study Warns About Increased Antibiotic Resistance Against Third-Generation Broad-Spectrum Antibiotics in VA Facilities. *U.S. Medicine*. Oct 14, 2024.

<https://www.usmedicine.com/clinical-topics/infectious-disease/new-study-warns-about-increased-antibiotic-resistance-against-third-generation-broad-spectrum-antibiotics-in-va-facilities/>

Dall C. Study finds significant pre-COVID declines in antibiotic-resistant infections at VA hospitals. *CIDRAP*. August 14, 2024. <https://www.cidrap.umn.edu/antimicrobial-stewardship/study-finds-significant-pre-covid->

declines-antibiotic-resistant