

# Erin Zwick

POSTDOCTORAL FELLOW

Institute for Global Health, Department of Preventive Medicine, Northwestern University

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## Education

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### University of Wisconsin-Madison

PHD | EPIDEMIOLOGY

Madison, Wisconsin

July 2020

### The Ohio State University

BS (HONORS) | MATHEMATICS AND PHILOSOPHY

Columbus, Ohio

May 2014

## Research experience

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### Northwestern University

POSTDOCTORAL FELLOW

Chicago, IL

Aug. 2020 - present

- Identified key determinants of the effectiveness of seasonal malaria chemoprevention programs in high burden countries using individual-based simulation modeling.
- Developed mathematical pharmacokinetic/pharmacodynamic (PK/PD) models of three antimalarial drugs to incorporate into a malaria simulation model.
- Estimated intervention costs from national budget data and simulated effects of intervention strategies to optimize malaria intervention in high burden settings.

### University of Wisconsin-Madison

GRADUATE RESEARCHER

Madison, WI

Sep. 2015 - July 2020

- Developed and built an agent-based simulation model of a tuberculosis (TB) epidemic to elucidate population-level implications of complex individual-level transmission dynamics.
- Estimated TB transmission variation using novel evolutionary modeling methods and approximate Bayesian computation.
- Produced novel estimates of length of TB treatment by analyzing historical medical records.

### The Ohio State University

UNDERGRADUATE RESEARCHER

Columbus, Ohio

Aug. 2013 - May 2014

- Modeled dengue and cholera outbreaks using mathematical compartmental modeling methods.
- Developed proof of an estimate for the type reproduction number, a measurement of heterogeneity in infectious disease epidemics.

## Teaching experience

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### University of Wisconsin-Madison

GRADER

Madison, WI

Jan. 2019 - May 2019

- Developed homework and test questions and graded all exams and assignments for 'Decision Making in Healthcare' in the Industrial Systems and Engineering department.

### The Ohio State University

TEACHING ASSISTANT

Columbus, Ohio

Aug. 2013 - Jan. 2014

- Taught 100 students across three discussion sections, graded all exams and homework, tutored two hours per week, and proctored all exams for 'Precalculus' in the Math department.

## Publications

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1. **Zwick, ED**, CS Pepperell, and O Alagoz (Apr. 2021). Representing Tuberculosis Transmission with Complex Contagion: An Agent-Based Simulation Modeling Approach. *Med Decis Making*. Publisher: SAGE Publications Inc STM, 0272989X211007842.
2. **Zwick, ED** and CS Pepperell (Nov. 2020). Tuberculosis sanatorium treatment at the advent of the chemotherapy era. *BMC Infectious Diseases* **20**(1), 831.
3. Ackley, SF, RS Lee, L Worden, **E Zwick**, TC Porco, MA Behr, and CS Pepperell (2020). Multiple exposures, reinfection and risk of progression to active tuberculosis. *Royal Society Open Science* **6**(3) (). Publisher: Royal Society, 180999.

## Presentations

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### ORAL

#### Computational Informatics in Biology and Medicine Seminar

COMPUTATIONAL MODELING OF COMPLEX TRANSMISSION DYNAMICS IN A TUBERCULOSIS EPIDEMIC

Madison, WI

Apr. 2019

#### National Library of Medicine Informatics Training Conference

ANALYSIS OF HISTORICAL MEDICAL RECORDS IN WESTERN CANADA IN THE 20TH CENTURY

Nashville, TN

June 2018

### POSTER

#### American Society of Tropical Medicine and Hygiene

DETERMINING THE KEY FACTORS THAT IMPACT THE PROGRAMMATIC PERFORMANCE OF SEASONAL MALARIA CHEMOPREVENTION:

A MODELING APPROACH

Virtual

Nov. 2020

#### Value in Health

MODELING THE EFFECT OF TARGETED TREATMENT IN A TB OUTBREAK WITH COMPLEX CONTAGION

Virtual

May 2020

#### Epidemics-International Conference on Disease Dynamics

REPRESENTING TB TRANSMISSION WITH COMPLEX CONTAGION: AN AGENT-BASED SIMULATION MODELING APPROACH

Charleston, SC

Dec. 2019

## Fellowships

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#### Computation and Informatics in Biology and Medicine

PREDOCTORAL TRAINEE

UW-Madison

Sep. 2016 - Aug 2019

#### Morgridge Institute

MORGRIDGE FELLOW

UW-Madison

Sep. 2015 - Aug. 2016

## Other experience

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#### Epic Systems

TECHNICAL SERVICES

Verona, WI

Sep. 2014 - Aug. 2015

- Solved complex problems and provided technical support for HIM and Identity applications for four major hospital systems.
- Developed custom scripts to manage complex, sensitive patient data.