

## Enhanced Detection System for Healthcare-Associated Transmission of Infection

### Need

Hospital acquired infections are a significant yet preventable detractor of patient care. According to the CDC 1 in 31 hospital patients [1] suffers from a hospital acquired infection.

### Task / Objectives

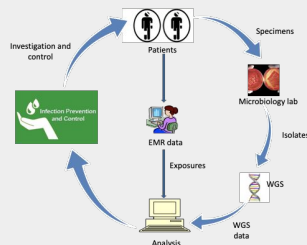
1. Given an known outbreak based on WGS, find the contaminated routes
2. Without WGS, detect the potential outbreak clusters, routes and suggested patients for WGS
3. Objective 3

### Academic Impact

AAAI  
PaperAAAI  
PosterNeurIPS  
TalkStudent  
AbstractarXiv  
Paper

Paper

### Approach



The Auton lab develops statistical models for joining disparate sources of information such as genetic tests, patient histories, geography, and other epidemiological information for detecting systematic outbreaks and identifying root cause.

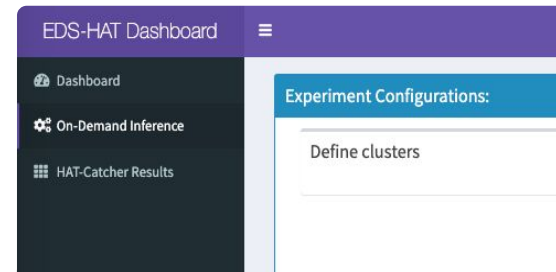
### Collaborators / Sponsors

Microbial Genomics  
Epidemiology Laboratory  
(MiGEL)

University of Pittsburgh

Sponsors

### Benefit / Results



Leveraging multiple data sources, our algorithms establish corroborating evidence to support or dismiss hypothetical outbreak scenarios, both increasing detectability and speed of analysis while maintaining low false alert rates.

### Key Contributors

Kyle Miller, Jieshi Chen, Dan Howarth, Andrew Williams