

Yale SCHOOL OF PUBLIC HEALTH

Epidemiology of Microbial Diseases

EMD Seminar Series

Windy Tanner, MSPH, PhD
Associate Research Scientist
Department of Epidemiology of Microbial Diseases
Yale School of Public Health

“Emergence of extensively drug-resistant typhoid in Pakistan: investigating the potential for resistance gene transfer in the environment”

In 2016, an extensively drug resistant (XDR) strain of *Salmonella* Typhi emerged in Pakistan. Genomic studies suggest that a non-XDR typhoid strain acquired a gene from *E. coli* through horizontal gene transfer, rendering *S. Typhi* resistant to a key antibiotic previously used to treat typhoid fever in Pakistan. Horizontal transfer of antimicrobial resistance (AMR) genes between bacteria can occur in the environment, but mainstream methods of whole-sample genomic analysis have limited ability to tie AMR genes to specific bacterial hosts. In this talk I will discuss our findings from an environmental study of *S. Typhi* in Pakistan in which we explored the potential for antimicrobial resistance gene transfer in water and biofilm matrices using a specialized metagenomic approach that facilitated identification of AMR genes associated with specific bacterial hosts and instances of shared resistance genes between multiple bacterial species.

12:00 PM Wednesday, September 21, 2022

Host: N. Grubaugh/R. Heimer/S. Perniciaro/C. Vogels

47 College St., Rm. 106A