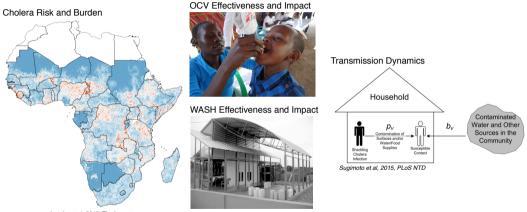
# Update on Cholera Serology Work

Andrew Azman with Emily Gurley, Daniel Leung, Firdausi Qadri, Jason Harris, Francisco Luquero, Justin Lessler and many others

GTFCC Epi/Surveillance Working Group :: 15 April 2019

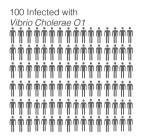


# Counting Cholera Cases



Lessler et al, 2018, The Lancet

## Challenges in Counting Cases



### Symptomatic

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#### Identified and Reported as Cholera

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## SCIENCE TRANSLATIONAL MEDICINE | RESEARCH ARTICLE

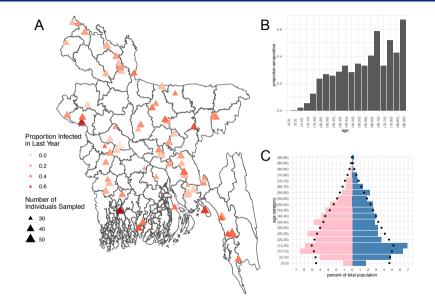
## INFECTIOUS DISEASE

# Estimating cholera incidence with cross-sectional serology

Andrew S. Azman<sup>1</sup>\*, Justin Lessler<sup>1</sup>, Francisco J. Luquero<sup>2,3</sup>, Taufiqur Rahman Bhuiyan<sup>4</sup>, Ashraful Islam Khan<sup>4</sup>, Fahima Chowdhury<sup>4</sup>, Alamgir Kabir<sup>4</sup>, Marc Gurwith<sup>5</sup>, Ana A. Weil<sup>6,7</sup>, Jason B. Harris<sup>6,8,9</sup>, Stephen B. Calderwood<sup>6,7</sup>, Edward T. Ryan<sup>6,7,10</sup>, Firdausi Qadri<sup>4</sup>, Daniel T. Leung<sup>11,12</sup>

- 2778 individuals (673 households) randomly sampled nationally
- Data collection from 12-2015 to 1-2016
- Serum tested for suite of immunologic markers
  - vibriocidal (Ogawa and Inaba)
  - anti-CTB IgG, IgM and IgA
  - anti-LPS IgG, IgM and IgA

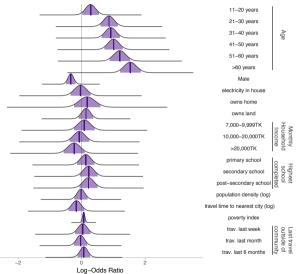
## Nationally Representative Serosurvey in Bangladesh



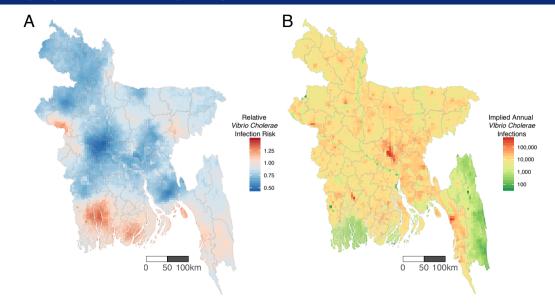
## Nationally Representative Serosurvey in Bangladesh

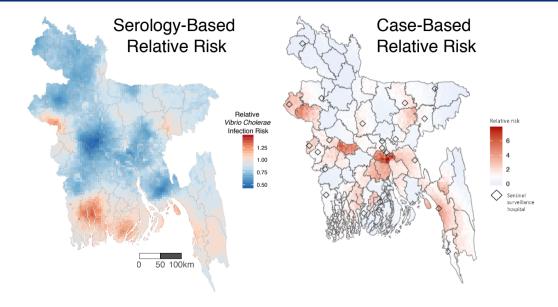
Posterior Log-Odds Ratio Distributions

with 95% credible intervals



## Nationally Representative Serosurvey in Bangladesh





- Refinement of models to identify recent infections
- Simplification of antibody panel and identification of new markers
- Methods to discriminate between vaccinees and natural infections
- Guidance on serosurvey design and sample size