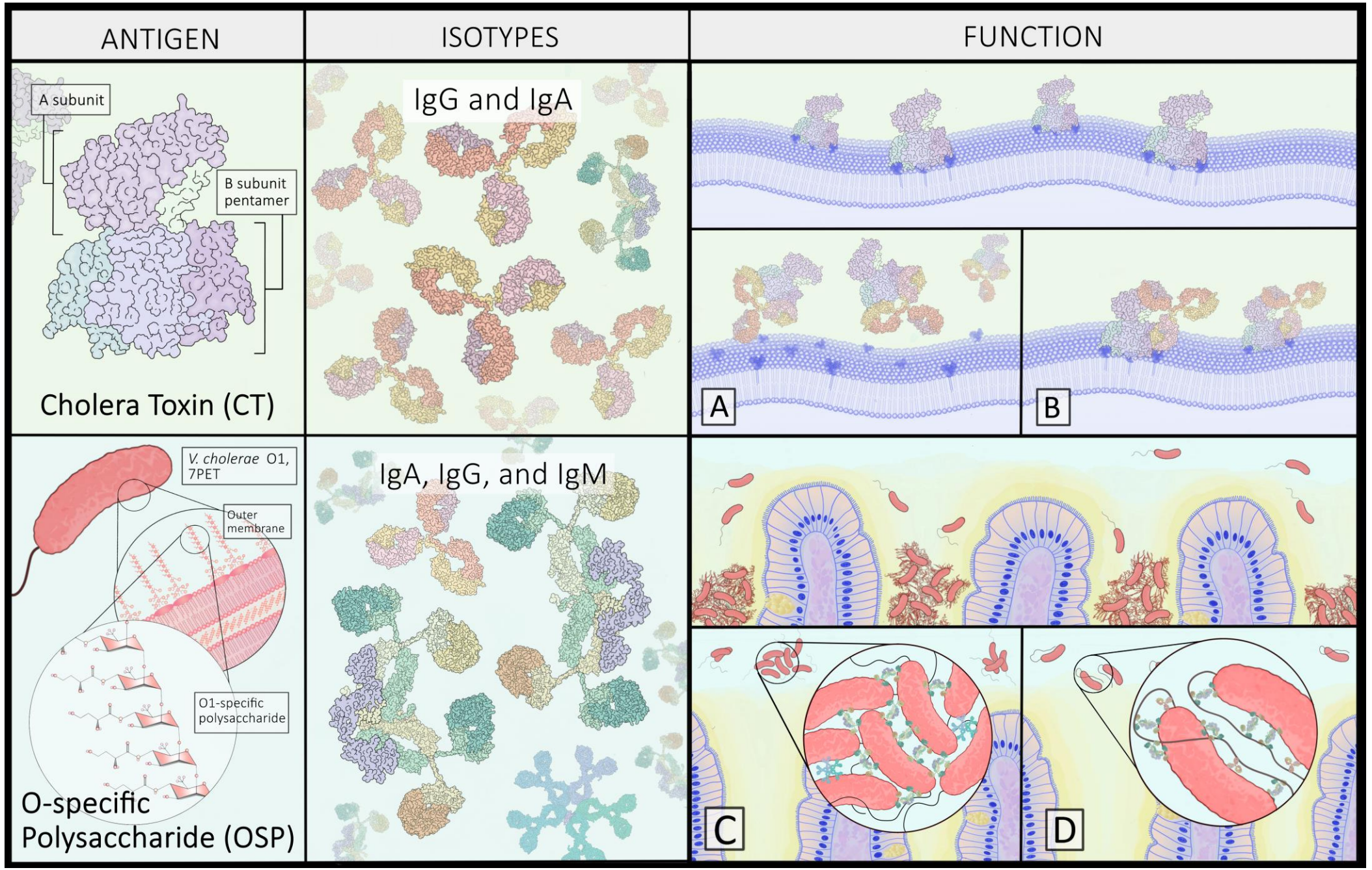
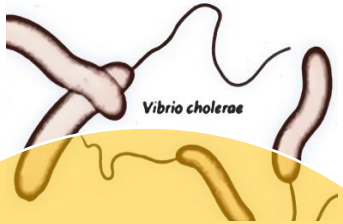
Serologic markers for *Vibrio cholerae* infection, vaccination and protection: Work in progress overview.

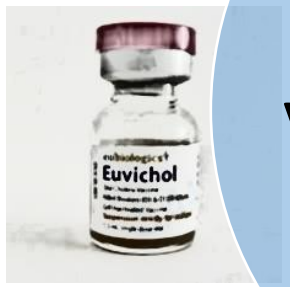
Jason Harris, MD, MPH – Presenting on behalf of a large team (see last slide)

GTFCC OCV Meeting 2021


ANTIGEN
ISOTYPES
FUNCTION
A subunit
B subunit pentamer
Cholera Toxin (CT)
IgG and IgA
A
B
V. cholerae O1, 7PET
Outer membrane
O1-specific polysaccharide
O-specific Polysaccharide (OSP)
IgA, IgG, and IgM
C
D



Infection



Vaccination

Protection

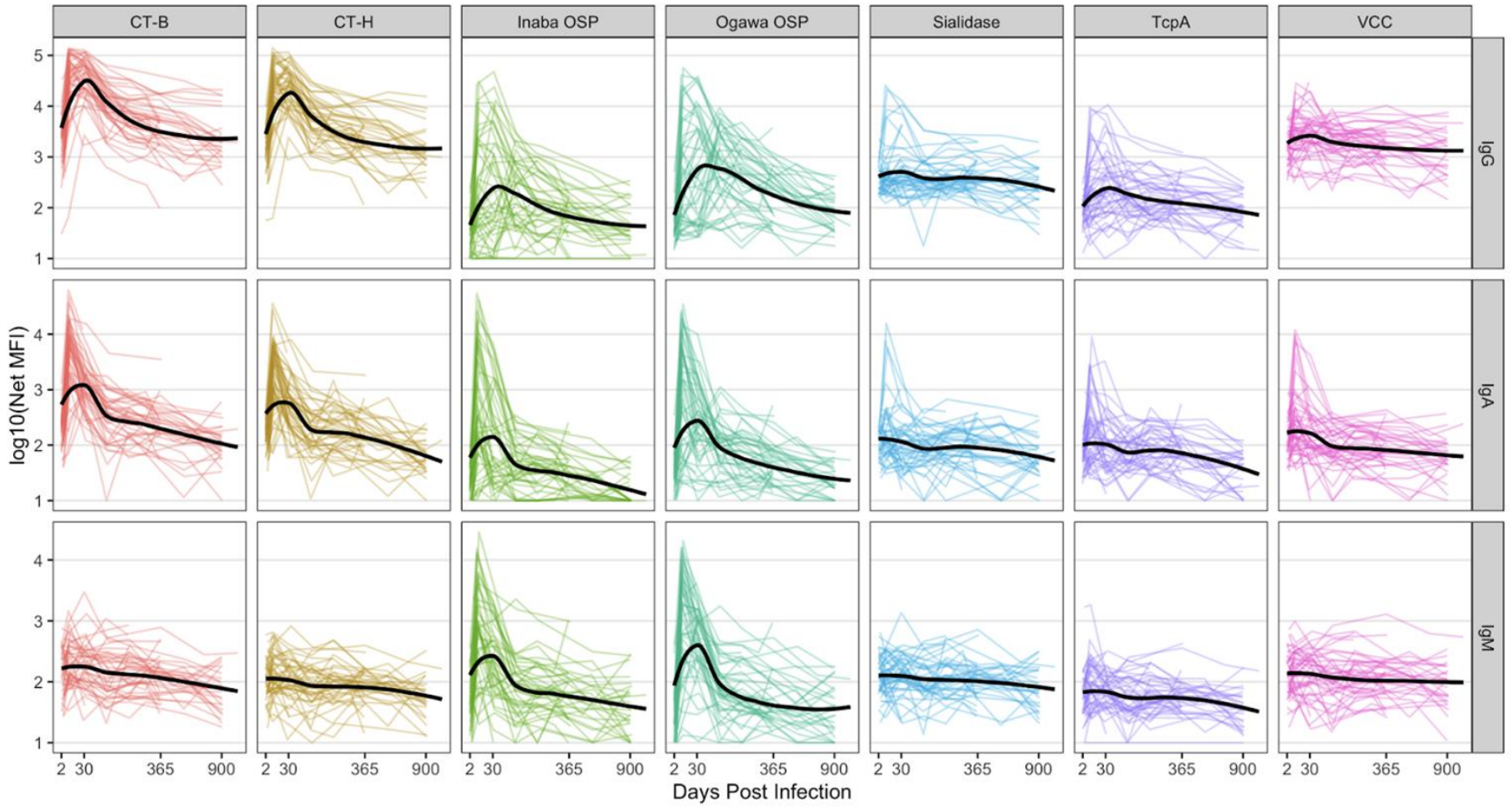
Serum vibriocidal assay

- Most accepted predictor of recent infection
  - Azman et al (Estimating cholera incidence with cross-sectional serology, Sci Transl Med. 2019)
- Most accepted Correlate of Protection (CoP) following vaccination
  - Challenge studies in human volunteers
  - Household contacts of patients with cholera
- Not an absolute or (likely) mechanistic CoP – Can we do better?

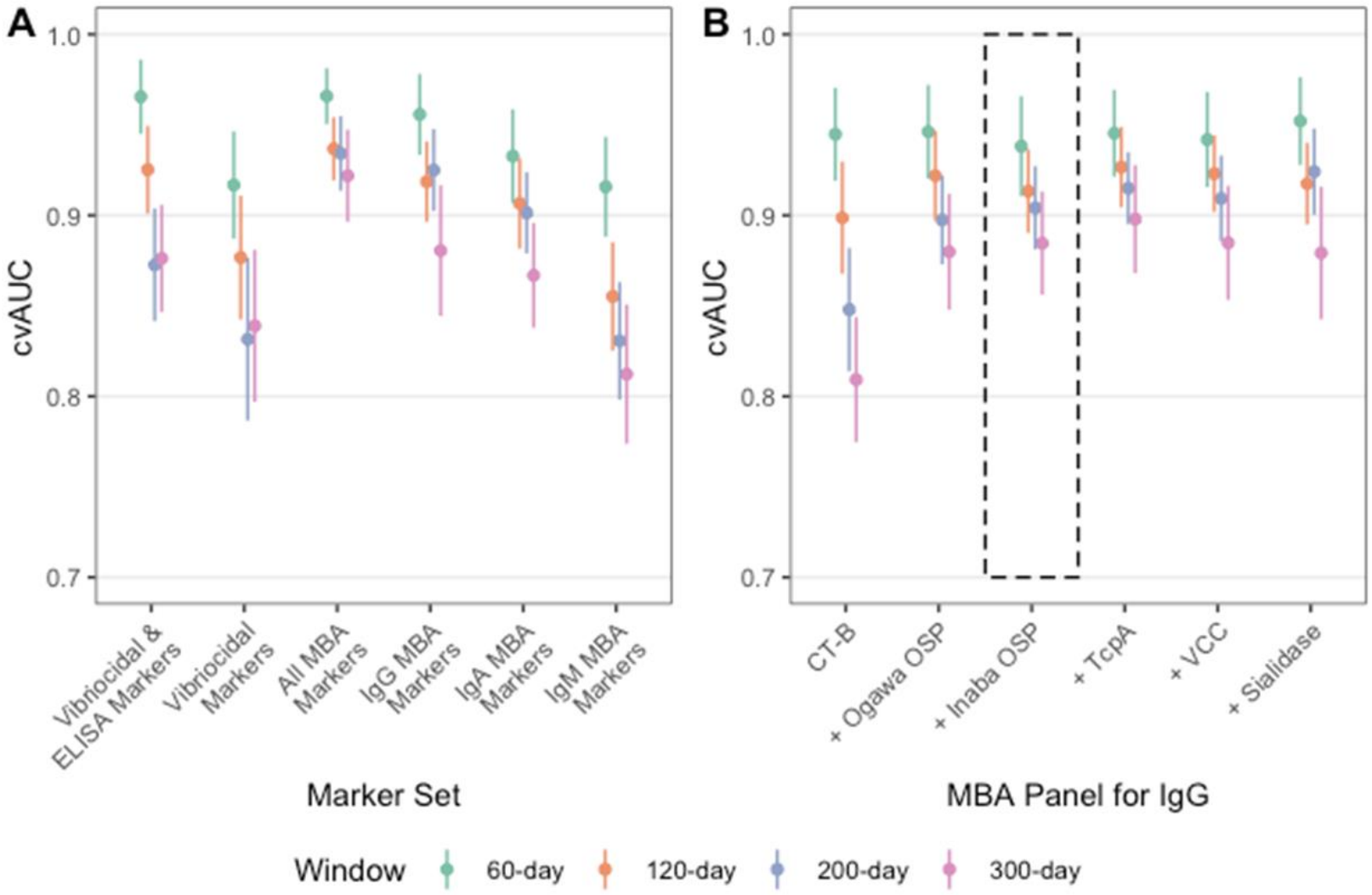
Current Work-in-Progress

- Systematic analysis of multiple targets, isotypes and function associated with past infection, vaccination and protection.
  - Expanded antigenic targets: hemolysin, sialidase and toxin-co-regulated pilus.
  - Expanded isotypes: IgG, IgA, IgM and subclasses
  - Expanded functional profiles: Complement binding, phagocytosis
  - ‘Higher throughput’ platforms: multiplex bead assays
- Comparison of past infection with vaccination
- CoP studies in both CHIMS and household contact models

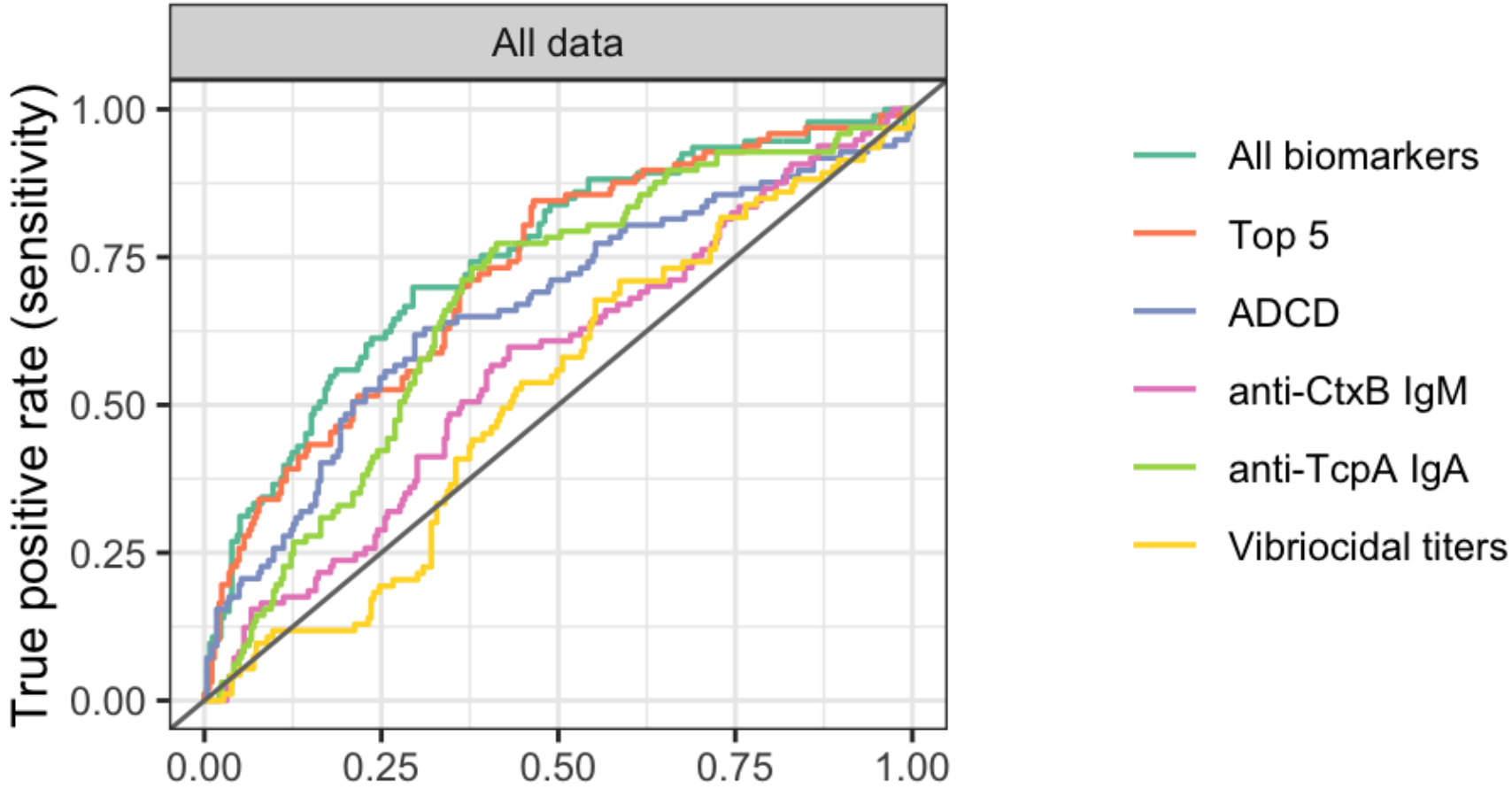
Preliminary results: Response trajectory (MBA Platform)



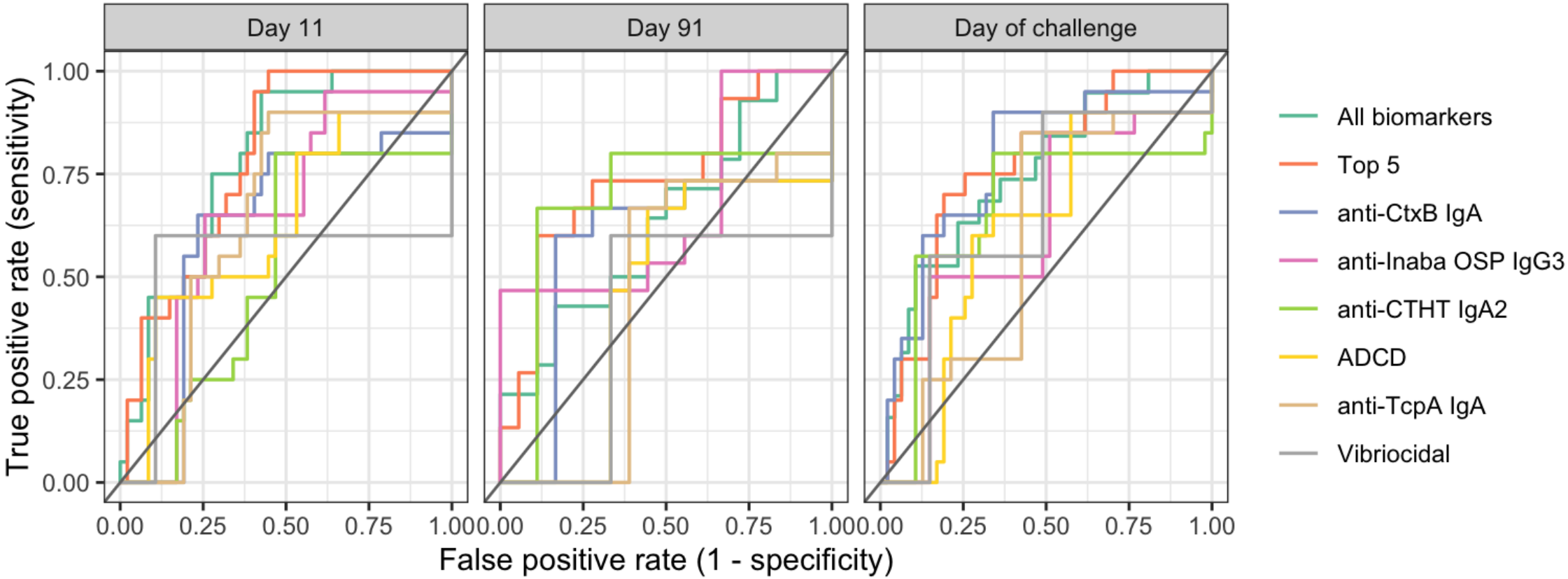
Preliminary Results: Predicting Recent Infection



Preliminary results: Systematic analysis of CoPs in Household Contacts of Patients with Cholera



Preliminary results: Systematic analysis of CoPs in Household Contacts of Patients with Cholera



Team

- JHU (Andrew Azman, Forrest Jones, Kirsten Wiens)
- icddr,b (Firdausi Qadri, Taufiqur Bhuiyan, Fahima Chowdhury, Ashraful Khan)
- Zanmi Lasante (Ralph Ternier)
- MGH/HMS/Ragon (Richelle Charles, Ed Ryan, Louise Ivers, Damien Slater, Anita Iyer, Galit Alter)
- Utah (Daniel Leung)