Continuous updating of epidemiological parameters during outbreaks?

Establishment of a Global Repository of Epidemiology Parameters, WHO Hub Berlin
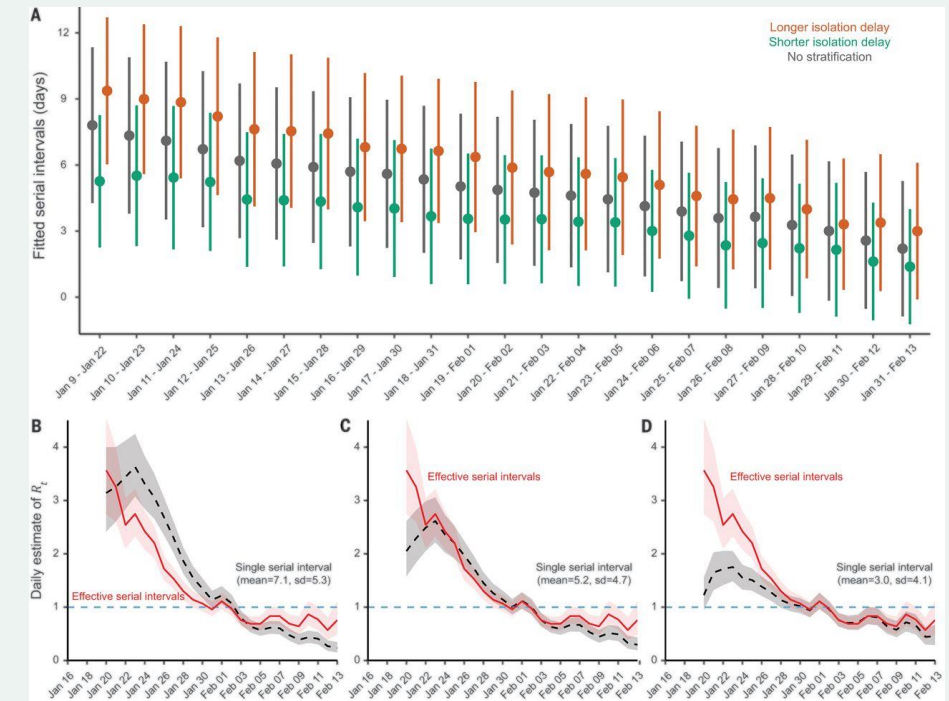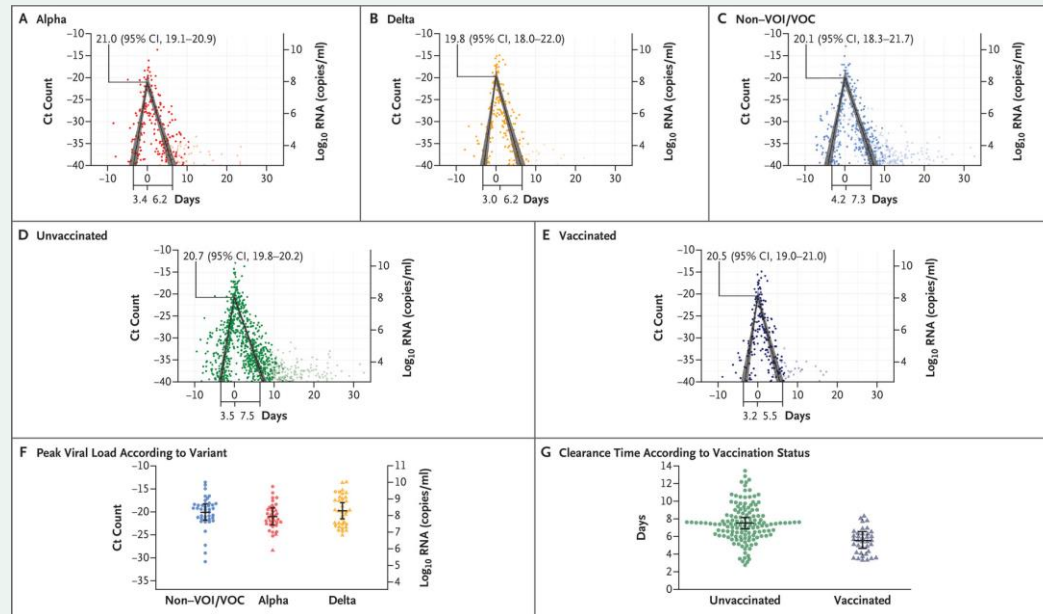*April 26, 2023*

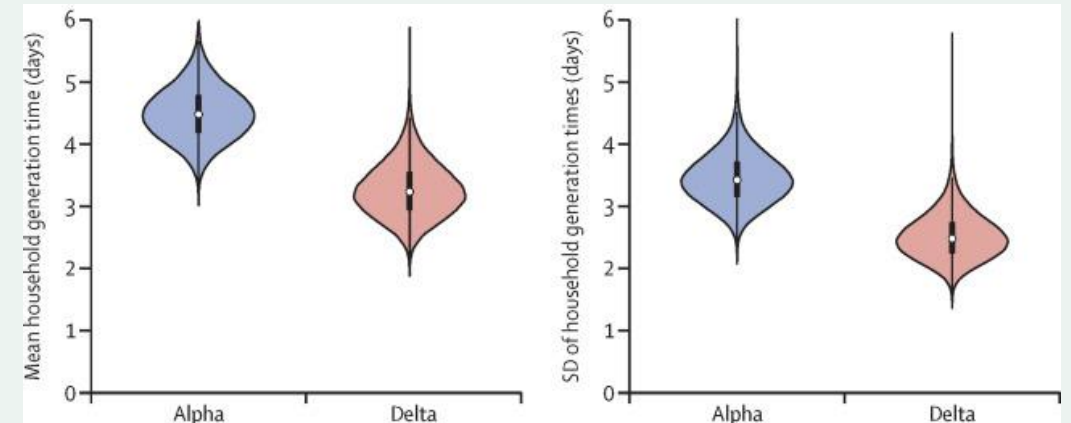*Moritz Kraemer, University of Oxford*

Motivation

- Parameters are context specific
  - Mixing
  - Household vs. community
  - Age structure
  - VOC / Lineage
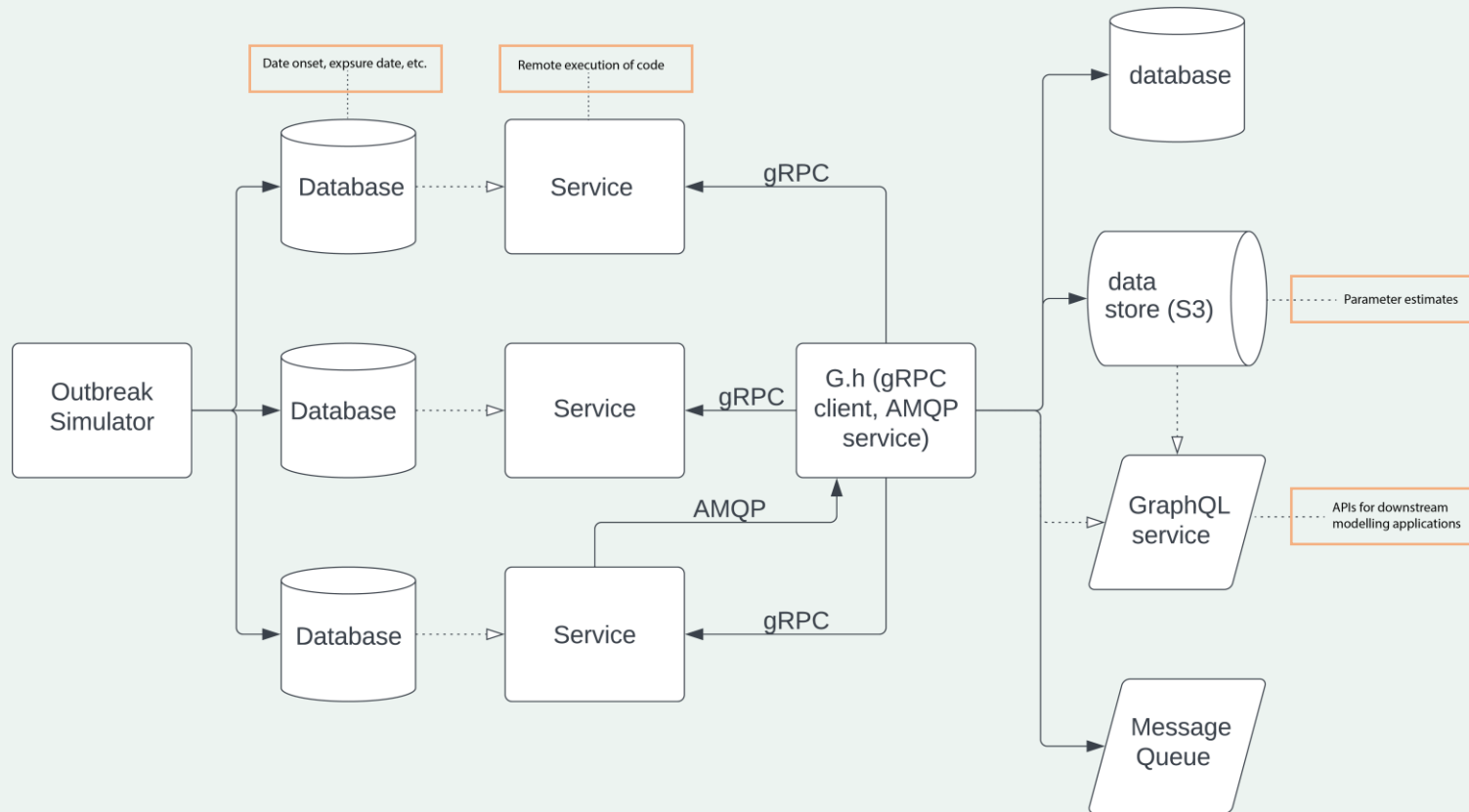 - Immunity
  - ..

Ali et al. 2020 *Science*

Kissler et al. NEJM

Hart et al. 2022 LID

Question

Can we design a system for continued updating of parameters in outbreaks?

- Problems
  - Data collection protocols differ between countries / studies
  - Data are often sensitive (e.g., exposure and symptom onset dates)
  - Analyses tools differ
  - Conventions on how to report parameters may differ
  - How can we accommodate new analysis tools in the future?

Continued updating of parameters

- Federated architecture is now working for estimating the time varying reproduction number
- gRPC is a remote procedure call framework
- AMQP is a messaging protocol
- qRPC supports mTLS, OAuth, and JWT authentication and encryption
- Cloud infrastructure is currently based on AWS and Kubernetes
- Data store is via GraphQL