

April 2023 Thematic Committee Briefing

Theme #1: Modeling Pandemic Potential for Disease Surveillance

The PIPP Phase I PILOT (Predictive Intelligence for Limiting Outbreak Threats) project comprises three themes, and each theme is spearheaded by a thematic committee. The aim of Theme 1, *Modeling Pandemic Potential for Disease Surveillance*, is to identify scientific gaps and best practices in assessing the pandemic potential of a specific pathogen in a given context.

Following our first virtual workshop on November 4, 2022, we have released a white paper and policy brief that summarizes key discussion points from that meeting. The full documents are available on the PIPP PILOT website. These documents explore best practices for the application of novel data sources for disease surveillance and standardization of reproduction number estimates. The white paper discusses novel data sources that emerged amidst the COVID-19 pandemic and highlights issues such as variable data quality, regulatory hurdles surrounding data sharing, and interoperability between data sources as key issues facing academics and public health practitioners engaged in epidemic and pandemic response efforts. Improving data standards and risk communication were among some of the considerations introduced in the policy brief to better prepare for future disease outbreaks.

Following the workshop, our thematic committee has continued to work on several research projects to better characterize important parameters in the early days of an infectious disease emergency. Led by our trainee Kathryn Schaber, PhD (Postdoctoral Fellow, Harvard Medical School), we have built a disease modeling framework using social media, news reports, and situation reports to account for delayed or waning effects of multiple interventions, changing fatality rates, and unknown index case dates in the context of Ebola Virus Disease. Dr Schaber and Sonja Marie Neumeister, MPH (Research Assistant, University of California Davis) are also currently conducting a meta-analysis regarding modeling methods for reproduction number estimation.

Our committee also held the first of three asynchronous virtual town halls for the PIPP PILOT team on March 20, 2023. This town hall focused on “pandemic potential” and provided an opportunity for the public to ask questions related to estimating the pandemic potential of emerging and re-emerging pathogens. We responded to these questions within a 90-minute period and have posted our responses to the PIPP PILOT website.

Thematic Committee: Maimuna Majumder, PhD, MPH (PI) and Angel Desai, MD, MPH (co-PI); Sangeeta Bhatia, PhD (Imperial College London); Emily Ricotta, PhD, MSc, (NIAID); and Thomas McAndrew, PhD (Lehigh University)