SeroTracker: Lessons learned to optimize serosurveillance platforms and methodology for COVID-19 and other respiratory viruses

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Introduction to SeroTracker

SeroTracker.com is a novel open-access data and dashboard platform, fed by a living systematic review

Serosurveys, which sample and test for antibodies against SARS-CoV-2 and other respiratory viruses, are crucial tools to answer key questions during outbreak prevention & control. SeroTracker captured over 4000+ serosurveys.

SeroTracker was the first platform to centralize seroprevalence studies, which prior to 2020, were scattered across research sources.



Objective

In this case study, we aimed to summarize lessons learned and next steps towards modernized serosurveillance based on our experience building SeroTracker.



COVID-19 IMMUNITY TASK FORCE





Global data is centralized and can be used for analyses and modelling to inform timely infectious disease responses

Lessons Learned from our Case Study

- Issues in serosurvey reporting quality: Risk of bias was found to be high in 44% and 30% of studies in each of our recent systematic reviews, respectively;^{1,2}
- Data availability delay: Delay between sample data collection and median time to serosurvey publication of 154 days (IQR: 64-255), which impacts timeliness of estimates - an important factor in time-sensitive pandemics;³
- **Standardization and heterogeneity:** Many data sources were unclear and lacked standardization (however initiatives such as the WHO Unity protocols made efforts to create comparable serosurveillance data). Much heterogeneity still remained overall, particularly in areas such as immunoassay performance and validation.

frame.

Interactive dashboard features, regular literature reports, and partnerships with CITF to leveraged utility to stakeholders



:¹Bobrovitz N, Arora RK, Cao C, Boucher E, Liu M, Donnici C, Yanes-Lane M, Whelan M, Perlman-Arrow S, Chen J, Rahim H. Global seroprevalence of SARS-CoV-2 antibodies: A systematic review and meta-analysis. PloS one. 2021 Jun 23;16(6):e0252617. , ²Bergeri I, Whelan M, Ware H, Subissi L, Nardone A, Lewis HC, Li Z, Ma X, Valenciano M, Cheng B, Al Arigi L. Global SARS-CoV-2 seroprevalence: a systemativ review and meta-analysis of standardized population-based studies from Jan 2020-May 2022. medRxiv. 2021 Jul 26, ³Donnici C, Ilincic N. Cao C, Zhang C, Deveaux G, Clifton DA, Buckeridge D, Bobrovitz N, Arora RK. Timeliness of reporting of SARS-

Figure 2. Seroprevalence studies in Canada by population and sample



Towards integrated joint surveillance



- Need for further modernization of surveillance landscape
 - Targeting multiple priority pathogens
 - Timely data submission and accession



- Continue efforts to improve serosurvey standardization
- Prepare data infrastructure for next Pathogen X
- Create a network of open, and collaborative data sharing