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Real-Time Population-Level Integrated Data System for Health Intelligence

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Traditional health administrative datasets are often integrated to address specific research questions, requiring the creation of new cohorts for each analysis. These cohorts are typically not real-time and are primarily used for retrospective evaluations. However, many health security priorities, such as monitoring respiratory viruses and vaccine safety, demand real-time or near real-time data. This presentation will provide an overview of a population-level integrated data platform designed for real-time monitoring and evaluation, which also serves as a tool for monitoring operational efficiency to support planning, implementation, and evaluation of programs. During the COVID-19 pandemic, provincial organizations in British Columbia developed the BC COVID-19 Cohort (BCC19C) to deliver timely public health intelligence for pandemic response. Key features included daily integration of COVID-19 datasets including laboratory testing, case data, hospitalizations, and immunizations with provincial registries and healthcare admin-

istrative data (medical visits, hospitalizations, prescriptions) for the entire province. The platform supported daily surveillance reporting and advanced evaluations, including disease severity, vaccine effectiveness, and safety. It continues to be used for long-term studies on post-COVID conditions and ongoing respiratory virus surveillance. The system has since expanded to address other health domains, including sexually transmitted and bloodborne infections, chronic diseases, substance use, and environmental health, with the integration of environmental data such as wastewater-based surveillance to enhance early detection and situational awareness. This multifaceted platform enables comprehensive health intelligence and evaluation across multiple areas critical to public health and health system planning. Additional improvement could include integration of purpose specific survey data to bridge data gaps.

