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boarded every state to submit laboratory results to this system—the first of its kind in the US. We set out to evaluate the quality of data collected by CELR.

Methods & Materials: We compared jurisdiction-level data collected through CELR and published by HHS to the testing data published by jurisdictions on their health department webpages. Because jurisdictions define their testing data differently, we anticipated some differences from federal testing data. However, jurisdictions also tend to prioritize their dashboard reporting—since it is what is used for policy decisions like reopening—so we hypothesized that differences from federal data absent a definitional explanation could point to problems with federal data. Where we found differences between jurisdictional and federal data, we conducted interviews with public health officials to understand their cause.

Results: Of the 56 states and territories, as of April 2021 (the first month when all states were onboarded to CELR), 38 had federal total data that diverges from state data by more than 5%. Of those states, the differences of 27 could not be explained by definitional factors. Based on our interviews, we identified three problems: non-electronic reporting streams, out-of-date surveillance systems, and deduplication of laboratory data.

Conclusion: The federal testing dataset displays major unresolved quality problems, and because states present testing data so differently, state-published data forms a poor alternative to federal datasets. The federal government, which is uniquely positioned to provide testing data on infectious diseases, must work to improve the quality of laboratory data submissions by states. To support better national laboratory data, the United States should invest in updating state and laboratory data surveillance infrastructure—including updates to state surveillance systems and laboratory system updates to eliminate outdated reporting methods like faxes—and in creating more national laboratory data infrastructure.

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PS04.18 (606)

COVID-19 Surveillance Enhanced by an Integrated Electronic Infectious Diseases Information System in Albania

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Purpose: The objective of this paper is to showcase how COVID-19 control has been enhanced by interrelating syndromic surveillance, case based surveillance and laboratory surveillance and outbreak investigation into an integrated electronic Infectious Diseases Information System (IDIS).

Methods & Materials: Development of IDIS began in December 2016 with the goal to modernize the Albanian surveillance system by developing a user-friendly, comprehensive database for case investigation, contact tracing, and laboratory data focusing on the improvement of the timeliness indicators of disease detection and response. The platform is based on open-source software solutions featuring (1) integration of data from different surveillance systems such as indicator, syndromic and event base; (2) better investigation and management of outbreaks and reduced data-entry time and errors (3) generation of line listing and contact-tracing and workflows to appropriately follow-up of cases and contacts; (4) integration with the national vaccination registry for retrieving vaccination history and prospectively apply ring vaccinations during

outbreak control; (5) integration with laboratory information system public and private to retrieve diagnostic information; and (6) repository with qualitative and quantitative cache of epidemiological information and data;

Results: The IDIS system has assisted public health surveillance to document COVID-19 cases and to take disease control actions such as case isolation, contact tracing and contact isolation, and more recently vaccination. To date 400.000 potential cases of COVID-19 have been notified in the system has been notified 273.000 have been individually investigated. About 487.000 laboratory results have been linked with case based information and respective contacts. The system has proved useful for data analysis as a series of epidemiological indicators have been calculated to inform evidence based decision making in controlling COVID-19 epidemic in Albania.

Conclusion: IDIS implementation has improved the consistency, communication, and effective use of public health data. In particular integration of different surveillance systems and workflows which are developed within IDIS provide an array of instruments to epidemiologists to detect cases faster, make better decisions based on multiple data sources and more effectively plan response measures.

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Quantifying Contact Patterns: Development and Characteristics of the British Columbia COVID-19 Population Mixing Patterns Survey

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Purpose: Several non-pharmaceutical interventions such as physical distancing, self-isolation, a stay-at-home order, hand washing, and schools and businesses closures were implemented in British Columbia (BC) following the first lab-tested case of COVID-19 on January 26, 2020. These interventions were aimed at minimizing in-person contacts that could potentially lead to new COVID-19 infections. The BC COVID-19 Population Mixing Patterns survey (BC-Mix) was established as a surveillance system to measure behaviour and contact patterns in BC over time to inform the timing of the easing/re-imposition of control measures. We describe the BC-Mix survey design and the demographic characteristics of respondents.

Methods & Materials: The ongoing repeated online survey was launched in September 2020. Participants are recruited through a variety of social media platforms including Instagram, Facebook, YouTube, and community group mailing lists. A follow up survey is sent to participants two to four weeks after completing the first iteration. Survey responses are weighted to BC's population by age, sex, geography, and ethnicity to obtain generalizable estimates. A survey completion rate of at least 33% AND a valid response for the sex questionnaire item AND a valid response for age questionnaire item were required for inclusion in weighting and further analysis. Additional indices such as material and social deprivation index,

and residential instability are generated using census and location data.

Results: As of June 14, 2021, over 58,000 residents of BC had participated in the survey of which 31,007 survey responses were eligible for analysis. Of the eligible participants, about 60% provided consent for monthly follow up and about 26% provided their personal health numbers for linkage with other healthcare utilization databases. Approximately 51% were females 39% were 55 years or older, 63% identified as white or not a visible minority and 48% had at least a university degree.

Conclusion: The pandemic response is best informed by surveillance systems capable of timely assessment of behaviour patterns. BC-Mix survey respondents represented a large cohort of British Columbians providing near real-time information on behavioural and contact patterns in BC. Data from the BC-Mix survey continues to inform provincial COVID-19-related control measures.

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Democracy and Pandemic: Evaluating Health Protocol Compliance in Regional Election Using Integrated Monitoring System

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Purpose: Indonesia decided to hold simultaneous local elections on December 9, 2020, along with 270 regionals including provincial, regency, and city election although concerns arise that it will have an impact to the number of Covid-19 cases in the country. The aim of this study is to describe the health protocol compliance during simultaneous regional elections in the midst of the Covid-19 pandemic in Indonesia using an integrated monitoring system.

Methods & Materials: The data has been collected from the Indonesia National Task Force for the Acceleration of COVID-19 Mitigation by using the Bersatu Lawan COVID-19 (BLC) digital monitoring app. The monitoring system was reported in real-time by Indonesian front-line public order forces (such as police and military) at regional election places. Individual and polling stations compliance were monitored in order to minimize the potential of COVID-19 transmission during the election process.

Results: A total of 309,236 voters' behaviours were monitored in 272 districts/cities across 32 provinces in Indonesia. The overall figures show 95.96% compliance of wearing masks and 90.77% of people kept a social distance during the election day. However, the results have shown variation of compliance rate among districts and cities. Out of 272 districts/cities observed, 16 (5.88%) had wearing mask compliance rate <75% and 44 (16.18%) had distance compliance rate <75%.

A total of 4,065 polling stations were observed with 92.82% of them had high compliance to the implementation of health protocol with details as follow. 91.55% provided hand washing facilities; 90.71% provided hand sanitizers; 89.52% had temperature check; 87.29% had health protocol compliance supervisors; 75.23% performed disinfection; 91.66% provided plastic gloves for voters;

92.91% election committee wore face shield; 88.98% provided ink drops; and 77.80% provided special chamber for voters with 37.3°C.

Conclusion: In general, using the application of digital health, Indonesia as the 4th most populous country in the world enable to monitor the compliance rate of health protocol implementation during simultaneous regional elections in 2020. This represents the first time in which an app implemented nationally can produce data to be analysed on real-time basis and using an integrated approach to inform policy makers.

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Harmonized Scenario-Based Laboratory Coding System to Guide Real-Time Public Health Actions in Quebec Province, Canada

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Purpose: Effective public health (PH) response to emerging pathogens requires effective information systems integrating surveillance data from multiple sources. For laboratories, data entry of multiple variables both at pre-analytical steps and again in laboratory information systems (LIS) is time-consuming and difficult to implement in a resource-limited setting and negatively affects the timeliness of the surveillance system. We set up a simple harmonized laboratory query that summarized 22 public-health relevant scenarios and variables, reduced to a two-digit code.

Methods & Materials: Information data specialists were mobilized to integrate data from the 108 different LIS using the harmonized query, which provided timely access to COVID-19 testing indications, volumes, and positivity rates stratified by age, health region, clinical settings, outbreak context or Health-Care worker status. The information system allowed to develop multiple indicators for a better understanding of the pandemic and the COVID-19 transmission in population subgroups.

Results: Dashboards were available for public health and infection prevention and control officers in their location. Multiple stakeholders were able to interpret real-time data for more than 40 000 different qPCR tests every day. The data allowed to adjust prescription practice and promote optimal usage and plan contingencies within Quebec's qPCR lab capacities. It also served as the basis to monitor community transmission through test positivity rate in various settings. The coding system also allowed labs to