

JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH
Key Informant Semi-Structured Interview Tool

Study Title: Enhancing Public Health Infrastructure and Incorporating Data-Driven Tools for Outbreak Detection and Response: A Pilot Needs Assessment of State Health Departments

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Objective

The objective of this study is to conduct a qualitative needs assessment with state public health department partners to understand existing disease surveillance and data reporting systems and how outbreak modeling and analytic tools are currently used in decision-making, with a focus on outbreak and epidemic response, in order to identify challenges and gaps in integrating these tools into existing outbreak detection and response capacities and processes and future epidemiologic modeling and analytics needs. Data collected through these interviews would inform broader state health department partnership-building efforts by the Center for Outbreak Response and Innovation (CORI), operated by the Johns Hopkins Center for Health Security (JHCHS). The overall goal of these partnership efforts is to develop strategies, protocols, and/or tools to strengthen epidemic modeling and analytics capabilities for outbreak response decision-making.

To help facilitate the discussion, fictitious scenarios will be drafted so that each state health department can walk the research team through their processes and procedures for outbreak detection, monitoring, and response. The specific scenario drafted will depend upon priority pathogens (e.g., mumps, measles, etc.) previously identified by the state public health department partners.

Focus Area 1: Current Processes and Capacities

Outbreak Detection (Identify outbreak and S/A)

- I. What are the various ways that you would receive reports of the earliest cases and where would those originate (e.g., from state health department analyses, local health departments, the healthcare system, existing surveillance or data reporting systems, news/social media)?
 - a. For those outbreaks detected using existing surveillance systems...
 - i. Where does this information come from and how do you access it?
 1. Does this process work better for some diseases than others?
 - ii. How do you integrate data from multiple sources?
 1. Are data from different sources complementary? Concordant?
 - iii. How are surveillance data extracted and analyzed?
- II. What analytic tools, if any, do you use for outbreak detection (e.g., aberration detection)?
 - a. Do these exist at both the state and local levels?
 - b. Do these tools work well? What are some of the challenges?

- i. Are there specific diseases for which these tools do not exist?
 - c. How could these tools be more useful (e.g., build in geospatial analysis)?
- III. What are the most important data sources for establishing your initial situational awareness for emerging outbreaks?
 - a. How do you share this information with relevant stakeholders?

Outbreak Monitoring & Response

- IV. Data Reporting
 - a. What processes and systems are in place for local health departments, healthcare providers, private sector laboratories, etc. to report newly identified cases?
 - i. What does the flow of information look like from the providers/labs to the local health department to the state health department?
 - ii. Are these processes/systems sufficient?
 - iii. What challenges exist (e.g., delays in reporting, reliance on old technology)?
 - b. Are there outbreak-related data/information that you wish were reported to you but aren't that could assist with situational awareness and decision-making?
 - c. Are the reporting systems from the state to the federal government easy to use and convenient?
 - i. What data or support, if any, do you get from the federal government (e.g., CDC)?
- V. Data Aggregation and Analysis
 - a. What tools and processes do you have at the state level for outbreak data aggregation and analysis?
 - i. What analysis does the state health department perform during local outbreaks at the start of an outbreak? Later in the outbreak?
- VI. Public Health Response
 - a. What is the role of your state health department in monitoring and response for local outbreaks (e.g., contact tracing, communication)?
 - i. What works well? What challenges do you face?
 - b. Is this different for a seasonal outbreak vs. other types of outbreaks
- VII. Public Health Decision-Making
 - a. What questions typically come up early in these responses that you need the data to answer, and from what stakeholders (e.g., health officials, gov't agencies, elected officials, healthcare system, public, schools)?
 - b. Do you feel like you usually have the information you need to make those decisions?
 - c. How do decision-making needs change over the course of an outbreak?
 - d. For more "routine" outbreaks (i.e., in contrast to seasonal influenza), what response activities, policies, or decisions are informed by disease surveillance data?
 - i. For some outbreaks at the state level, the focus is more on surveillance vs. Active response
- VIII. Current Use of Modeling/Analytic Tools
 - a. Do you currently use any modeling or analytic tools (e.g., data dashboards, forecasting/predictive models, tiered metrics/traffic light) to support outbreak response decision-making, operations, or communication?
 - i. What questions do these tools help answer? How do they inform decision-making?

- ii. What works well? What challenges or limitations do you face?
- iii. How do you communicate or share outbreak data or analysis with key stakeholders (e.g., other state/local health officials, other government agencies or personnel such as schools, elected officials, healthcare system, new media, public, etc.)

Focus Area 2: COVID-19 Experience with Modeling & Analytics

- I. During the COVID-19 pandemic response, to what extent do you utilize epi modeling and advanced analytics?
- II. What were the sources of these tools or products? For example:
 - a. Internal state health department or other state government agencies
 - b. Local health or government partners
 - c. CDC or other federal agencies
 - d. Nongovernmental organizations (e.g., academic institutions, think tanks, private sector businesses, news media)
- III. How effective were these tools or products in supporting your response decisions and operations?
 - a. What worked well, and what challenges did you face in integrating these into your COVID-19 response?
 - b. To what extent did these tools or products address your epi data and analysis needs?
 - c. What barriers prevented you from utilizing these tools or products more completely or effectively?
 - d. How have new data streams impacted the use of these tools (e.g., wastewater surveillance, at-home testing)
- IV. How did you share these products or analyses with relevant stakeholders during the COVID-19 response (e.g., other state/local health officials, other government agencies or personnel such as schools, elected officials, healthcare system, new media, public, etc.)
- V. What modeling or analytics tools, analysis, or capabilities did you wish you had during your COVID-19 response?

Focus Area 3: The CORI/State Partnership Collaboration

- I. What are your biggest concerns about the current state of epi modeling and advanced analytics?
- II. What are the most pressing epi data and analysis needs for your routine operations, including “routine” outbreak responses?
- III. What aspects of outbreak response could benefit most from these kinds of epi modeling or analytics tools? For example:
 - a. Identifying operational priorities
 - b. Decision-making or initiating response policies/activities
 - c. Identifying priority/high-risk individuals or populations
 - d. Coordinating with or informing relevant stakeholders
 - e. Resource allocation
 - f. Maintaining situational awareness
 - g. Public communication

- IV. How could epi modeling and advanced analytics be more useful for you during routine operations?
- V. What foundational capacities and resources need to be put into place now that would be useful on a routine basis that could enable you to make effective use of these tools and capabilities?
- VI. Where should CORI best focus its efforts to support development of these tools and capabilities that meet your greatest needs?
- VII. If you could think of something a model could do for you in the future, what would you want it to do?

Suggested citation

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