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Measuring Crisis Decision Making for Public Health Emergencies

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This work was prepared for the U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response. The research was conducted in RAND Health, a division of the RAND Corporation.

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Published 2009 by the RAND Corporation
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SUMMARY

Public health emergencies often involve making difficult decisions, including when to notify the public of threats, when to close schools or suspend public events, when to dispense medication, and how to allocate scarce resources. Yet, public health practitioners often have little experience or training in crisis decision making and can be uncomfortable with the need to make decisions based on often-incomplete information and short time lines. Unfortunately, there are no established tools for identifying, measuring, and improving public health crisis decision making.

This technical report describes the development and first generation of a tool to measure key aspects of crisis decision making in public health emergencies based on performance in exercises (e.g., tabletops, functional exercises, full-scale exercises) and real incidents (e.g., outbreaks of waterborne disease). The tool is a paper-and-pencil assessment form that is intended to allow public health practitioners to assess their baseline crisis decision-making capabilities and identify shortfalls and shortcomings that may represent opportunities for internal process improvements. The items in the tool focus on public health crisis decision-making *processes* that the scientific and practical literatures identify as key “building blocks” of effective crisis decision making. Given the early stage of development, this tool is intended to facilitate improvement, not to test and rate health-department performance for purposes of accountability. This tool should be considered a first generation. Further testing and development will be required before the tool can be used for accountability purposes.

The Assessment Tool Focuses on Decision-Making Processes

The tool focuses on the quality of decision-making *processes*—how decisions are made—as opposed to the quality of the decisions themselves (which is exceedingly difficult to determine, except in retrospect) or the characteristics of the individuals and organizations involved in the decision (which tell us little about the ability to actually make decisions). The focus on decision processes has a number of practical advantages. First, processes are less dependent than decision outcomes (e.g., morbidity and mortality) on contextual factors, such as a community’s prior health status, and more controllable by decision makers. Moreover, group decision processes—whether real or simulated—typically occur in specific locations and thus can be observed and assessed directly, using standardized, objective categories.

We identified three sets of processes--developing situational awareness, action planning, and using process controls--that, taken together, represent a continuous loop within public health emergency preparedness decision making. Decision making begins as decision makers develop a common operating picture of the situation requiring a response (*situational awareness*), then decide on a set of actions to mitigate human health effects (or the risk of effects) created by the situation (*action planning*). Having chosen a course of action, decision makers initiate execution of their decisions by communicating and implementing orders. This execution phase, while not formally part of decision making, provides feedback for the next round of decision making. Progress through each decision-making step is influenced by a set of activities undertaken to manage the entire decision process (*process control*)--e.g., by keeping tabs on the flow of information and other resources (e.g., expertise and time).

Measurement Focuses on Observable Activities

To allow for objective observation and coding of performance, the tool focuses on group decision making and overt behaviors, such as explicit discussion among decision makers and completion of Incident Command System (ICS) forms. Thus, the tool requires decisions that require deliberation among two or more individuals, where decision-making processes can be directly observed.

Evaluators (who should be expert practitioners themselves) use the tool to rate the performance of specific activities, using a 5-point response scale designed to assess sufficiency in performing key processes (ranging from “0, *Should have been done, but was not*,” to “4, *Completely sufficient*”). For assessment purposes, *sufficiency* implies that the action or activity in question is both complete and timely enough so that the assigned task and/or response could be accomplished. The tool also provides space for evaluators to make notes regarding the performance of specific tasks. The tool provides a characterization of crisis decision making, but does not currently provide a way to aggregate the individual items into a single score--a process that will require further pilot-testing. The tool is designed to be used prospectively (i.e., while decision processes are under way) but can also be used retrospectively (i.e., after an incident or exercise). Data collected using the tool should also provide valuable input for after action reports (AARs).

The assessment-tool items assess the execution of specific observable *activities*, which can be categorized within the three general *processes* just described.

Situational Awareness. Situational awareness incorporates an assessment of threats and vulnerabilities for human health and the resources available for mitigating health effects during a response. It includes making sense of the current state of affairs and making projections about future trends (Endsley, 2000). Items in the tool cover four main components of situational awareness:

- *Assessing the incident*, including the number and location of people affected, the agent/cause and severity of the incident, potential countermeasures, and the response time line. Specific items also address key “unknowns.”
- *Determining personnel* (staff and volunteers) needed and available to respond to the incident.
- *Determining nonpersonnel resources* (e.g., materiel, supplies, equipment, facilities) needed and available to respond to the incident.
- *Projecting future changes* in the severity of the incident, the number of people affected, as well as need for and availability of response personnel and nonpersonnel resources.

Action Planning. Action planning involves the identification, evaluation, and selection of courses of action to mitigate or control the health effects of the incident, including plans for contingencies. The tool focuses on two aspects of action planning:

- *Developing, evaluating, and selecting options*, which includes courses of action, potential consequences of each action, their assumed pros and cons, contingency planning, and the clear stating of a decision.

- *Initiating execution*, which includes specifying the concrete steps needed to execute a decision, responsibility and time line for those steps, trigger points for initiating actions, and signals that a chosen course of action may have failed.

Process Control. Process control involves steps taken to manage the flow of the entire decision process and to keep track of the flow of information and resources. The tool focuses on two aspects of process control:

- *Managing decision-making resources*, including recognizing who needs to be involved in the decision, delegating decision-making authority, identifying critical decisions, establishing and adhering to a decision-making time line, and maintaining the speed and effort required to meet the time line.
- *Engaging multiple perspectives*, including acknowledging expertise, discussing information known only to specific individuals, and encouraging multiple perspectives.

In addition, the final sections of the tool help evaluators to collect information needed to contextualize the data collected, including details about the exercise or incident being observed and the individual(s) using the tool.

Conclusion and Next Steps

The assessment tool is currently best suited for exploratory analysis and process improvement. Future testing, including field-testing and more formal pilot-testing, and refinement of the tool might provide a tool ready for accountability. Although the tool was designed for use in measuring crisis decision making for public health emergencies, and primarily at the local and state levels, it could ultimately have applications at the federal level and beyond public health emergency preparedness, such as other areas of homeland security and emergency management.

In the future, the tool might also be adapted to serve as a real-time decision aid or operational tool, or as a complement to computer-based simulation approaches to measuring crisis decision making in public health emergencies. The tool's use as a process-improvement resource could also be enhanced by pairing it with decision aids and suggested strategies for overcoming problems revealed by use of the tool.