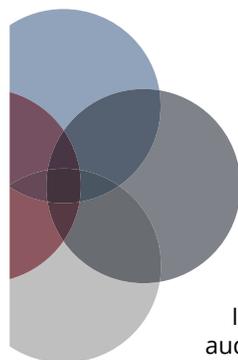


ACTION GUIDE FOR PUBLIC HEALTH PRACTITIONERS

Channels for Communicating Public Health Alerts and Guidance with Technical Audiences

A Review of the Evidence



Successful response to public health emergencies relies on effective—and often rapid—communication across federal, state, local, territorial, and tribal response partners. However, communications challenges are commonly cited in post-event evaluations as weak points in the emergency response. Rapidly changing conditions during public health emergency response frequently require repeated messaging to disseminate updated guidance and other public health information. Technical audiences may have difficulty tracking the most current guidance, and additional confusion and frustration may result from inconsistencies in guidance disseminated by different sources (e.g., national, state, local, institutional).

In the absence of clear and consistent messaging from public health agencies, technical audiences may obtain and use information from the media or other unreliable sources, which may be inaccurate or out of date. Facing an ever-growing menu of options for information sharing, public health agencies need evidence-based guidance to support them in selecting communication channels and strategies.

Scope of the Review

To examine what evidence currently exists on channels for communicating public health alerts and guidance with technical audiences during emergencies, the National Academies of Sciences, Engineering, and Medicine's Committee on Evidence-Based Practices for Public Health Emergency Preparedness and Response conducted an evidence review focused on the following questions:

What is the effectiveness of different channels for communicating public health alerts and guidance with technical audiences during a public health emergency (e.g., Health Alert Network, conference calls, bidirectional text-based messaging/SMS, provider access line, email, website, and written guidance documents)?

- » *What are the benefits and harms of engaging technical audiences in the development of communication plans, protocols, and channels?*
- » *What benefits and harms (desirable and/or undesirable impacts) of different communication channels have been described or measured?*
- » *What benefits and harms (desirable and/or undesirable impacts) of different strategies for engaging with and training CBPs have been described or measured?*
- » *What are the barriers to and facilitators of effective communication with technical audiences?*

Who are the technical audiences included in this review?

The committee's review focused on those technical audiences (governmental and nongovernmental) to whom public health agencies communicate public health alerts and guidance in preparation for and response to public health emergencies. These technical audiences include:

- » Health care partners (e.g., hospitals, clinics, long-term care facilities, emergency departments, providers, health care coalitions, health and hospital associations, vaccine providers, community health centers)
- » Emergency response agencies (e.g., emergency medical services, law enforcement, emergency management)
- » Other audiences, including syndromic surveillance partners, pharmacies, diagnostic laboratories, shelter staff, and veterinarians

The committee's review did not address risk communication with the public.

What types of public health alerts and guidance were included in this review?

For the purpose of this review, the committee considered public health alerts to be time-sensitive communication that notifies technical audiences of and provides updated status on public health threats. These alerts may convey information requiring immediate action, action in the near future, or no action. The committee considered public health guidance to be information that specifies actions that should or should not be taken (or considered) in response to a public health threat (e.g., information on diagnostic testing methods, directions for submitting confirmed cases, information on the use of personal protective equipment).

What types and characteristics of communication channels were included in this review?

The committee considered communication channels that varied across a number of characteristics, including those allowing one-way or two-way communication. Examples of common public health communication channels for technical audiences include:

- » The Centers for Disease Control and Prevention's Health Alert Network communication system
- » Public health agency-run notification systems, with alerts including email, text, phone call, pager, radio, and fax
- » WebEOC software and bidirectional surveillance and messaging systems
- » Teleconferences, in-person meetings and briefings, webinars and webcasts, and hotlines and call centers
- » Professional listservs/electronic newsletters, websites, SharePoint, discussion threads, and social media
- » Electronic health record (EHR) alerts

The committee's review did not include channels that allow only one-way reporting of information (e.g., disease cases or adverse events) to public health agencies as these were considered to be public health surveillance mechanisms.

Practice Recommendation for Channels for Communicating Public Health Alerts and Guidance with Technical Audiences

Based on its review of the relevant evidence, the committee issued the following practice recommendation:

Inclusion of electronic messaging channels (e.g., email) is recommended as part of state, local, tribal, and territorial public health agencies' multipronged approach for communicating public health alerts and guidance with technical audiences in preparation for and in response to public health emergencies. The practice should be accompanied by targeted monitoring and evaluation or conducted in the context of research when feasible so as to improve the evidence base for strategies used to communicate public health alerts and guidance with technical audiences.

Basis for the Practice Recommendation

The committee's practice recommendation is based on a mixed-method review¹ of the scientific literature (peer-reviewed and gray literature) published from 2001 to June 2019. Findings on effectiveness and the corresponding level of certainty (certainty of evidence² depicted in Table 1) were based on two quantitative studies (one randomized controlled trial and one retrospective, nonrandomized comparative study) that evaluated the impact of communication channels on relevant outcomes. Both studies evaluated the types of electronic messaging systems (e.g., email, fax, text message) used to push information out to technical audiences. Other forms of evidence considered for evaluation of effectiveness of electronic messaging systems included findings from surveys, case reports, and after action reports (AARs) that involved a real disaster or public health emergency. This body of evidence suggests that electronic messaging systems are effective channels for communicating public health alerts and guidance with technical audiences.

While channels other than electronic messaging systems are being used in practice to communicate public health alerts and guidance with technical audiences, in the absence of evidence that could be used to draw conclusions about their effectiveness, these other channels were not included in the committee's synthesis of quantitative evidence.

¹Mixed-method reviews involve the integration of quantitative, mixed-method, and qualitative evidence in a single review.

²"Certainty of evidence" refers to the level of certainty in the effect of a given strategy based on evidence from the review.

FINDINGS FROM THE REVIEW

TABLE 1 Findings from the evaluation of channels for communicating public health alerts and guidance with technical audiences.

Finding Statements and Certainty of the Evidence			
●●●● High	●●● Moderate	●● Low	● Very Low
Finding Statement	Certainty		
Electronic messaging systems such as email, fax, and text messaging are effective communication channels for increasing technical audiences' awareness of public health alerts and guidance during a public health emergency	●●●		
Electronic messaging systems are effective communication channels for increasing technical audiences' use of current public health guidance during a public health emergency	●		

Context Considerations

The vast majority of the evidence relates to technical audiences from the health care field in the context of a disease epidemic, raising questions about the applicability of the evidence to other technical audiences and settings.

The following evidence summaries were informed by evidence from 2 quantitative and 8 qualitative research studies, 12 case reports, 8 descriptive surveys, and 29 after action reports.

Benefits and Harms: The evidence suggests that certain channels such as electronic messaging systems, teleconferences, and hotlines can improve audience awareness and the messaging timeliness during public health emergencies. Negative impacts associated with communications strategies rarely relate to a specific communication channel, but instead are a result of how communication is implemented (e.g., potential for alert fatigue and information overload, as well as failure to reach key stakeholders excluded from messaging systems/email listservs).

Acceptability and Preferences: Email and fax have consistently been reported as preferred channels for communicating public health alerts and guidance, and technical audiences generally prefer information from local sources (public health or health care institutional sources) or such national authorities as the Centers for Disease Control and Prevention and medical societies.

Feasibility and Public Health Emergency Preparedness and Response System Considerations: The widespread use of traditional channels (e.g., email, fax, phone calls) suggests they are a feasible way to communicate key information, but further research is needed to determine the acceptability and feasibility of newer channels (e.g., health information exchange- and electronic health record-based alerting, purpose-built bidirectional surveillance and alert systems). The adoption of these new channels may raise concerns about an excessive volume of information; the availability of needed resources, such as personal and work devices, and technical support.

Resource and Economic Considerations: Resource requirements for communicating public health alerts and guidance with technical audiences include both direct technology costs and indirect costs related to training and technical support (including human resources). Little research has examined the cost-effectiveness of different communication channels.

Equity: Equity issues associated with different channels for communicating public health alerts and guidance with technical audiences are rarely raised in research studies and evaluations. However, one issue that has been raised is access to technology, which may be a consideration with respect to rural and underserved populations.

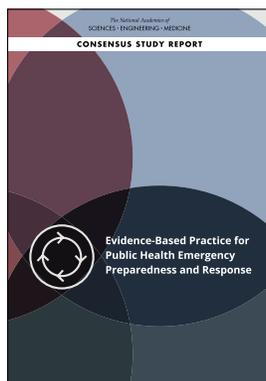
Ethical Considerations: Communicating with individuals and communities in ways that are most effective for them is important to achieve transparency (which reflects the principle of respect for persons and communities), regardless of whether decision making is improved by better information delivery (which would promote the principle of harm reduction and benefit promotion).

Considerations for Implementation

- ☑ Engage technical audiences in the development of communication plans, protocols, and channels.
- ☑ Consider contextual factors, such as the level of uncertainty or urgency, cultural preferences, and stakeholders' technical capabilities, in the selection of communication channels.
- ☑ Establish vetting processes in advance of public health emergencies and coordinate with response partners on messaging to prevent information overload, duplication of effort, and conflicting recommendations.
- ☑ Reduce message volume when feasible and highlight new information and any differences from previous or other existing guidance.
- ☑ Develop distribution lists in advance of public health emergencies and ensure that contact information is kept up to date.
- ☑ Consider designating liaisons and institutional points of contact and leverage existing networks (e.g., medical societies and associations) to facilitate broad message dissemination.

Evidence Gaps and Future Research Priorities

- » **Addressing gaps in the evidence of effectiveness for communication channels:** Overall, the evidence was insufficient to draw conclusions regarding which communication channels are most effective for reaching which technical audiences in which settings. The committee's review revealed little evidence about the effectiveness of communication channels, and the few studies evaluating effectiveness were focused solely on electronic messaging system channels (i.e., email, fax, text). Future research should include evaluations of other channels (e.g., social media, hotlines, EHR-based alerting systems), particularly as new methods for communicating alerts and guidance become available, and should examine differences in effectiveness and preferences across the range of emergencies, settings, and technical audiences. Study designs should enable the evaluation of the effectiveness of communication channels used in different locations in a real public health emergency (e.g., quasi-experimental matched comparison designs).
- » **Addressing broader strategies for communicating with technical audiences:** Future research should focus not only on channels but also on effective formats and approaches for highlighting new information and guidance when communicating with technical audiences as information changes during the course of the response to an event. This should include support for qualitative studies, which are useful for exploring the social factors involved in communicating public health alerts and guidance with technical audiences, including those that create barriers and facilitators.



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