The Common Ground Preparedness Framework: A Comprehensive Description of Public Health Emergency Preparedness

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Currently, public health emergency preparedness (PHEP) is not well defined. Discussions about public health preparedness often make little progress, for lack of a shared understanding of the topic. We present a concise yet comprehensive framework describing PHEP activities. The framework, which was refined for 3 years by state and local health departments, uses terms easily recognized by the public health workforce within an information flow consistent with the National Incident Management System. To assess the framework's completeness, strengths, and weaknesses, we compare it to 4 other frameworks: the RAND Corporation's PREPARE Pandemic Influenza Quality Improvement Toolkit, the National Response Framework's Public Health and Medical Services Functional Areas, the National Health Security Strategy Capabilities List, and the Centers for Disease Control and Prevention's PHEP Capabilities. (*Am J Public Health.* 2012;102:633–642. doi:10.2105/AJPH.2011.300546)

"All models are wrong, some models are useful."
—*George Box*[1]

Public health emergency preparedness (PHEP) has been defined as "the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities."[2(p24)] However, compared with more traditional public health activities such as food safety inspections, outbreak investigations, community health assessments, immunization clinics, and environmental monitoring, PHEP activities are not clearly defined.[2–4]

We present a framework describing what public health agencies do to prepare for, respond to, and recover from public health emergencies. The framework was developed through a collaboration of state and local health departments, brought together by the Public Health Informatics Institute with funding from the Robert Wood Johnson Foundation to define business processes related to PHEP.

The Common Ground Preparedness Framework (CGPF) adds to other PHEP frameworks by more explicitly capturing how public health agencies prepare for and respond to public health emergencies. Combining comprehensiveness with specificity, it is especially useful in describing PHEP to both public health agencies and their partners in emergency response. It also provides a framework for incident action plans and after-action assessments, resource distribution, information systems, and training.

COMMON GROUND PREPAREDNESS FRAMEWORK

In 2006, 6 sites representing state or local public health agencies began a collaboration. "Common Ground: Transforming Public Health Information Systems," funded by the Robert Wood Johnson Foundation and managed by the Public Health Informatics Institute, was a 3-year initiative to help state and local public health agencies better respond to health threats by improving their use of information systems.[5] The 6 grantees each provided 2 or 3 core participants, drawing from 4 state and 4 local health agencies, and occasionally brought in additional experts on subject matter. Most sites had at least 1 participant who was consistently involved throughout the project. Advisors from the Centers for Disease Control and Prevention (CDC), the Association of State and Territorial Health Officials (ASTHO), and the National Association of County and City Health Officials (NACCHO) also participated.

The participants used the Public Health Informatics Institute's Collaborative Requirements Development Process to jointly define shared PHEP business processes.[6–8] Initial meetings revealed many potential business processes of varying scope and overlapping boundaries. It became apparent that some common framework was needed for organizing the processes. Participants considered their public health experience along with several frameworks, including the disaster management cycle,[9] a preparedness framework from the CDC (prevent, detect and report, investigate, control, recover, and improve),[10] the National Response Plan,[11] and the Incident Command System (ICS).[12] The participants drafted, circulated, and refined a progression of at least 8 frameworks, ultimately agreeing on 3 phases of emergency response and several business process groups, each containing specific processes. Advisors from the CDC, ASTHO, NACCHO, and a peer review group from the leadership of 10 state and local public health departments recognized the framework's potential. At their prompting, the Common Ground collaborators developed the comprehensive framework, and at their final meeting, they achieved consensus on the version, described in the next section.

General Description

The CGPF identifies the business processes required to address an incident that threatens to overwhelm the routine capabilities of a public health system. The processes are grouped into 6 categories: prepare, monitor, investigate, intervene, manage, and recover. Each of these 6 process groups falls within 1 of 3 time periods: preincident, incident, and postincident.

Before an incident, public health organizations prepare by developing capacity for incident response. They also monitor, conducting surveillance to identify new incidents as early as possible. When an incident occurs, they investigate to identify the problem and then intervene to control the problem or its effects. Throughout the incident, public health organizations manage their activities, synthesizing current information to help direct further activities. Finally, recover processes deal with long-term effects of the incident and return operations to normal.

CGPF business processes are interdependent, with output from one process serving as input to another. Figure 1 depicts the framework, with arrows indicating generalized process outputs and inputs.

Most ordinary activities of public health organizations, including prevention activities, are part of the prepare process group. The monitor and investigate groups overlap because their processes interact closely. However, the monitor processes are ongoing, whereas the investigate processes are activated only when needed. Laboratory testing supports processes from both groups, but it is in the investigate group because of the central role of laboratory testing in public health investigation. The intervene group contains a wide range of processes, including communicating with response partners and the public, isolating the source of the problem, addressing the effects, and supporting those affected. Recover group processes return public health operations to a normal state and address an incident's long-term effects. One process, "assess organizational response capacity," is shown in both the recover and prepare process groups because it ties postincident evaluations to planning for the next incident.

Consistent with the ICS,[12] the manage processes can direct and coordinate other processes by setting objectives, distributing information, and allocating resources. In the absence of ICS, management activities are often informal, occurring within the brain of the person who directs the effort. As incidents escalate, more formal, ICS-based manage processes may be invoked.

An important challenge in emergency preparedness is communication and information flow among processes. CGPF includes a "provide communications and information management" process that spans process groups and incident time periods, indicating its pervasive role.

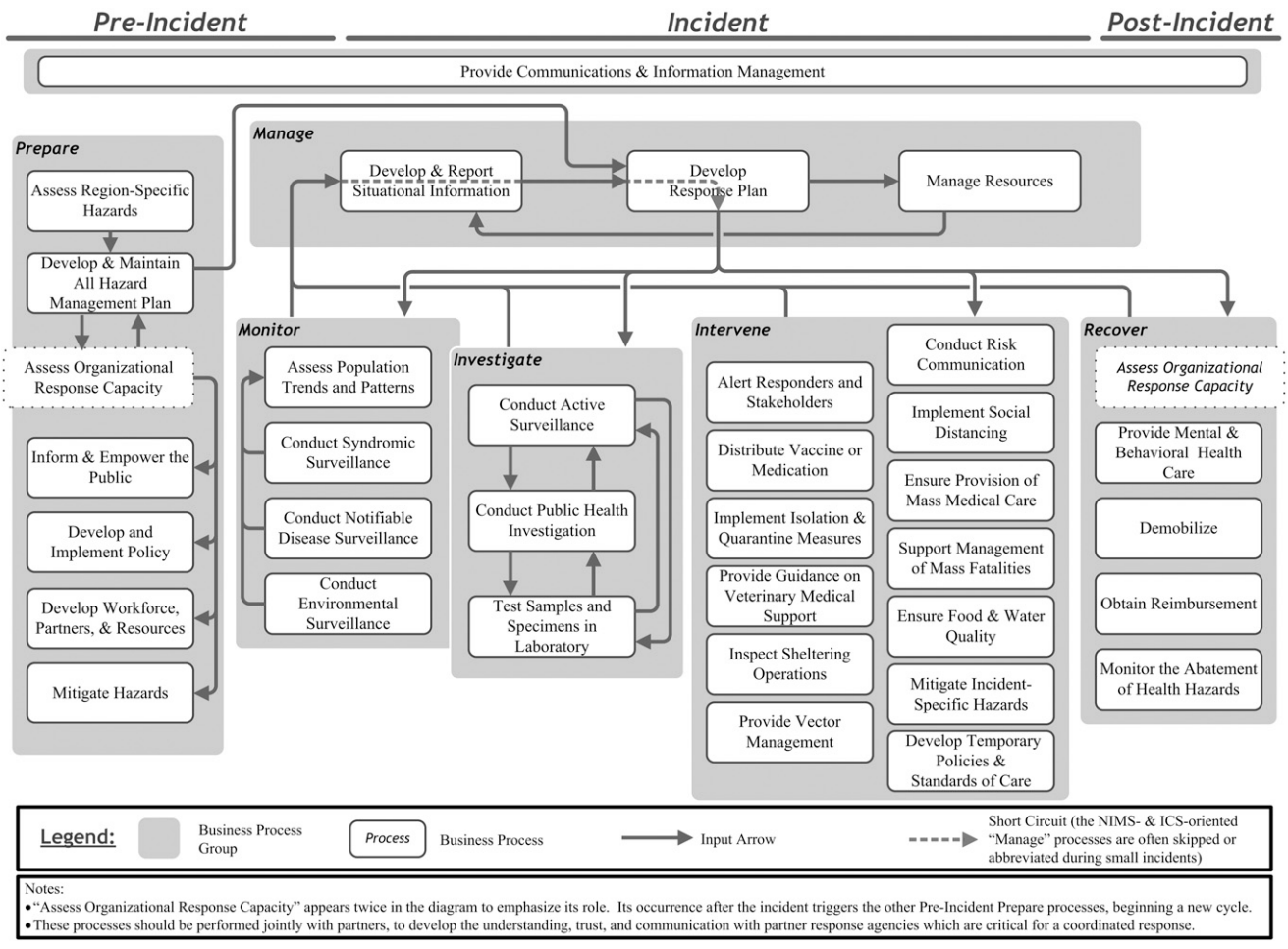

FIGURE 1—The Common Ground Preparedness Framework.

Syphilis and H1N1 Outbreaks as Framework Examples

Responses to a syphilis outbreak and the H1N1 pandemic demonstrate how the framework can be used. In these descriptions, processes from the CGPF are indicated with quotation marks.

In early 2008, the Marion County Public Health Department (MCPHD) of Indianapolis, IN, saw an increase in syphilis cases. Specifically, MCPHD's "conduct notifiable disease surveillance" and "test samples and specimens in laboratory" processes gathered information that was passed to the "assess population trends and patterns" process, where the increase was detected. The director of the sexually transmitted illness program assessed that information and then stepped up surveillance. In other words, she "developed and reported situational information" and "developed a response plan," which was to "conduct active surveillance." She also reviewed the response protocol developed after an earlier syphilis outbreak; an output from the "develop and maintain an all-hazard management plan" process informed the incident's "develop a response plan" process. Information from the ongoing monitor processes indicated a continued increase in cases. This led to another cycle of the "develop and report situational information" and "develop a response plan" processes. The resulting response plan initiated the "conduct public health investigation" process and the "alert responders and stakeholders" process. As the incident expanded, the agency implemented the ICS. With that, the manage processes became more formal, with periodic situation reports and planning meetings. Incident action plans were created by the "develop and report situational information," "develop a response plan," and "manage resources" processes. Over time, more interventions were added. The health department "conducted risk communication" to inform the affected community through outreach workers and the media. Patrons of bars and bathhouses received syphilis education and testing, increasing both the "active surveillance" and "risk communication" processes. After a few months, resources were reduced and structured for a long-term effort, through use of the "demobilize" process. Meetings held to evaluate and improve the effort exemplified the "assess organizational response capacity" process.

In its H1N1 pandemic response, the MCPHD had used many of the prepare processes long before the outbreak began. It had "developed and maintained an all-hazard-management plan" that included pandemic influenza, "assessed its organizational response capacity" through various exercises, and "developed workforce, partners, and resources" through staff training, joint planning, and memoranda of understanding with partner agencies. The MCPHD also had "developed and implemented policy" that revised isolation and quarantine ordinances as appropriate for an influenza pandemic, and "informed and empowered the public" through such means as a campaign encouraging families to store emergency supplies and develop an emergency plan. When the H1N1 outbreak began, the MCPHD held daily meetings to "develop and report situational information," "develop a response plan," and "manage resources" to fulfill that plan. The situation report was informed by many monitor, investigate, and intervene processes. Within the monitor process group, "conduct syndromic surveillance" produced critical information about emergency department use and laboratory results. The "assess population trends and patterns" process provided timely information about the local spread and impact of H1N1. Through case investigations, the "conduct active surveillance" and "test samples and specimens in laboratory" processes produced information for national trend analyses.

Many intervene processes were also employed. Early in the outbreak, school closings were used to "implement social distancing." The MCPHD public relations department "conducted risk communication," encouraging the public to take appropriate precautions, including the "implementation of isolation and quarantine measures." Several communication systems were used to "alert responders and stakeholders" about evolving treatment recommendations. The MCPHD led local hospitals to "develop temporary policies and standards of care," including hospital visitor policies and the use of air filtration masks, and to create plans to "ensure the provision of mass medical care" in case the pandemic began to overwhelm local health care resources. As vaccine became available, a huge effort to "distribute vaccine or medication" began, employing many other CGPF processes, such as using the "provide communications and information management" process to manage vaccination records.

When the local epidemic faded, H1N1 workers were "demobilized" and reassigned to their routine work. Surveys were conducted and key participants were interviewed to "assess organizational response capacity," thereby improving the MCPHD's response to future epidemics. Finally, the MCPHD's administration and finance department used information gathered in the "manage resources" process to "obtain reimbursement."

COMPARISON OF FRAMEWORKS

Besides the CGPF, there are 4 major PHEP frameworks (Table 1): the National Health Security Strategy (NHSS),[13] Emergency Support Function 8 (ESF#8)[14] of the National Response Framework (NRF),[11] the CDC's Preparedness and Emergency Response Capabilities (PHEP-C),[15] and the RAND Corporation's PREPARE for Pandemic Influenza Quality Improvement Toolkit (PPI).[16] We compare these with the CGPF to assess its completeness.

Scope Comparisons

There are significant differences in scope between these frameworks. The NHSS and the NRF's ESF#8 encompass a broad view of health-related emergency management that includes public health as one of many entities. The PHEP-C synthesizes 21 NHSS capabilities into 15 capabilities, each containing several functions and many tasks specific to public health. Rather than focusing on capabilities, the CGPF and PPI focus on processes and activities. The CGPF is more comprehensive than the PPI with regard to PHEP activities, whereas the PPI has more focus on evaluation and includes contextual factors that influence emergency response outcomes.

Completeness Comparisons

To assess the completeness of the CGPF, Table 2 lists the public health–related functional areas or capabilities of the 4 comparison frameworks, and indicates whether the CGPF business processes address each functional area or capability. The following differences were found.

TABLE 1—Preparedness and Emergency Response Frameworks

Framework (Year Released)	Background	Relevant Content	Strengths
NRF (2008)	Replaced the National Response Plan. Presents an overarching framework for all-hazards response in the United States, across all disciplines.[11]	Emergency Support Function 8 (ESF#8), "Public Health and Medical Services," describes 17 core functional areas for public health agencies and health care providers, such as health surveillance, vector control, and patient care.[14]	Clarifies which agency or other entity is responsible for what response activities. Provides a common management framework, including the ICS, to improve integration of response operations across different entities.
NHSS (2009)	Presents a comprehensive strategy focusing on protecting people's health in an emergency. Public health agencies need proficiency in most of the 50 capabilities defined in the strategy.	Eight capability categories: incident management, community resilience and recovery, infrastructure, health care services, population safety and health, disease containment and mitigation, situational awareness, and quality improvement and accountability.[13]	Provides strategic objectives and related capabilities needed by private, community, and government organizations involved in health-related incident response.
CDC's PHEP Capabilities (PHEP-C) (2011)	Defined PHEP capabilities for public health departments' PHEP cooperative agreement proposals and strategic planning.	Lists 15 capabilities in 6 categories: biosurveillance, community resilience, countermeasures and mitigation, incident management, information management, and surge management.[15]	Translates relevant NHSS capabilities into public health terms, and identifies tools, skills, and response plan elements needed by health departments for those capabilities.
PPI (2008)	The PPI evolved from several RAND Corporation projects that described public health preparedness activities.[2,17] The PPI refines this work.	Includes a framework with 6 PHEP process domains (surveillance, command and control, case reporting and investigation, risk communication, disease control, and disease treatment) and supporting factors such as "strong leadership."[16]	Provides a clear methodology for evaluating and improving PHEP. Provides specifics about some public health response processes.
CGPF (2011)	Enumerates public health agency PHEP business processes and the information flow between processes.	Contains 6 process groups (prepare, monitor, investigate, intervene, manage, and recover) and 35 PHEP business processes.	For public health agency PHEP, the comprehensiveness and specificity is useful for planning, after-action evaluation, and describing the agency's role in incident response.

Note. CDC = Centers for Disease Control and Prevention; CGPF = Common Ground Preparedness Framework; ICS = Incident Command System; NHSS = National Health Security Strategy; NRF = National Response Framework; PHEP = public health emergency preparedness; PPI = PREPARE for Pandemic Influenza Quality Improvement Toolkit.

National Response Framework and Emergency Support Function 8 core functional areas. The NRF groups emergency response activities into 15 emergency support functions (ESFs). ESF#8 is triggered "on notification of an actual or potential public health or medical emergency,"[14] so the preincident prepare business processes of the CGPF are beyond the scope of ESF#8. As indicated in the last row of Table 2, ESF#8 core functions that are not covered by the CGPF are those that usually fall to other government agencies or to the clinical care system.

National Health Security Strategy capabilities. The NHSS encompasses many interrelated systems, including public health, that contribute to national health security. The NHSS capabilities are analogous to CGPF business processes.[13] Most of the NHSS capabilities are accounted for in the CGPF, and vice versa. However, the NHSS Community Resilience and Recovery area has a broader scope than the CGPF "recover" business processes. Most NHSS capability names are more general than CGPF process names; CGPF processes are more specific to public health agencies. Unlike the CGPF, the NHSS does not show interdependences between its components. In general, the CGPF may be regarded as a more specific, structured depiction of the public health system preparedness work described in the NHSS.

Centers for Disease Control and Prevention's Public Health Emergency Preparedness Capabilities. The PHEP-C and CGPF present fairly distinct aspects of PHEP. The PHEP-C enumerates 65 distinct functions, more than 200 distinct tasks, and many resources, whereas the CGPF has more emphasis on processes and connections between processes. The PHEP-C is useful as a checklist, whereas the CGPF is more useful as a description of operations. Both cover similar content, although the PHEP-C has relatively greater emphasis on direct clinical care activities and resource management, and less on the other CGPF areas.

RAND Corporation's PREPARE for Pandemic Influenza Quality Improvement Toolkit. The PPI

TABLE 2—Comparison of the Common Ground Preparedness Framework With Other Selected Frameworks

CGPF Group	CGPF Business Process	Other Framework	Item From Other Framework
Prepare	All "prepare" processes	CDC	Community preparedness
	Assess region-specific hazards	NHSS	Risk assessment and risk management
	Develop and maintain all hazard management plan	NHSS	Integrated support from nongovernmental organizations
		NHSS	Risk assessment and risk management
		NHSS	Access to health care and social services
		NHSS	Use of capability-based performance measures
		NHSS	Use of quality improvement methods
	Assess organizational response capacity	NHSS	Reconstitution of the public health, medical, and behavioral health infrastructure
		NHSS	Sufficient, culturally competent, and proficient public health, health care, and emergency management workforce
		NHSS	Interoperable and resilient communications systems
		NHSS	Use of capability-based performance measures
		NHSS	Use of quality improvement methods
	Inform and empower the public	NHSS	Public education to inform and prepare individuals and communities
		NHSS	Public engagement in local decision-making
		NHSS	Local social networks for preparedness and resilience[a]
		NHSS	Use of quality improvement methods
	Develop and implement policy	NHSS	Sufficient, culturally competent, and proficient public health, health care, and emergency management workforce
		NHSS	Legal protections and authorities
		NHSS	Access to health care and social services
		NHSS	Use of quality improvement methods
	Develop workforce, partners, and resources	NHSS	Local social networks for preparedness and resilience[a]
		NHSS	Integrated support from nongovernmental organizations
		NHSS	Sufficient, culturally competent, and proficient public health, health care, and emergency management workforce
		NHSS	Volunteer recruitment and management
		NHSS	Use of quality improvement methods
	Mitigate hazards	NHSS	Mitigated hazards to health and public health facilities and systems
		NHSS	Risk assessment and risk management
		NHSS	Environmental health
		NHSS	Use of quality improvement methods
Monitor	All "monitor" processes	CDC	Public health surveillance and epidemiological investigation
		PPI	Surveillance
		ESF	Health surveillance
		NHSS	Risk assessment and risk management
		ESF	All-hazard public health and medical consultation, technical assistance, and support
		NHSS	Epidemiological surveillance and investigation
		NHSS	Near-real-time systems for capture and analysis of health security-related data
	Conduct environmental surveillance	ESF	Food safety and security
		ESF	Public health aspects of potable water, wastewater, and solid waste disposal[b]
		NHSS	Agriculture surveillance and food safety
		NHSS	Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation
		NHSS	Environmental health
		NHSS	Potable water, wastewater, and solid waste disposal
	Assess population trends and patterns	NHSS	Case management support or individual assistance[c]
		NHSS	Information gathering and recognition of indicators and warning

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TABLE 2—*Continued*

Investigate	All "investigate" processes	CDC	Public health surveillance and epidemiological investigation
		PPI	Case reporting and investigation
		ESF	Health surveillance
		ESF	All-hazard public health and medical consultation, technical assistance, and support
		ESF	Vector control
		NHSS	Epidemiological surveillance and investigation
		NHSS	Agriculture surveillance and food safety
	Conduct public health investigation	ESF	Public health aspects of potable water, wastewater, and solid waste disposal[b]
		NHSS	Animal disease surveillance and investigation[a]
		NHSS	Potable water, wastewater, and solid waste disposal
	Test samples and specimens in laboratory	CDC	Public health laboratory testing
		ESF	Public health aspects of potable water, wastewater, and solid waste disposal[b]
		NHSS	Animal disease surveillance and investigation[a]
		NHSS	Laboratory testing
		NHSS	Potable water, wastewater, and solid waste disposal
Intervene	Several "intervene" processes	CDC	Nonpharmaceutical interventions
	Alert responders and stakeholders	NHSS	Emergency public information and warning
		NHSS	Epidemiological surveillance and investigation
		NHSS	Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation
		NHSS	Communications among responders
	Conduct risk communication	CDC, NHSS	Emergency public information and warning
		PPI	Risk communication
		ESF	Public health and medical information
		NHSS	Epidemiological surveillance and investigation
		NHSS	Community interventions for disease control
		NHSS	Individual evacuation and shelter in place
	Distribute vaccine or medication	CDC	Medical countermeasure dispensing
		PPI	Disease control
		PPI	Disease treatment
		ESF	Patient care[a,c]
		NHSS	Epidemiological surveillance and investigation
		NHSS	Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation
		NHSS	Administration of medical countermeasures
	Implement social distancing	PPI	Disease control
		NHSS	Community interventions for disease control
	Implement isolation and quarantine measures	PPI	Disease control
		ESF	Patient care[a,c]
		NHSS	Community interventions for disease control
	Ensure provision of mass patient care	CDC, NHSS	Medical surge
		PPI	Disease treatment
		NHSS	Access to health care and social services
		NHSS	Use of remote medical care technology
		NHSS	Emergency triage and prehospital treatment[c]
		NHSS	Patient transport[c]
		NHSS	Palliative care education for stakeholders[a,c]
	Provide guidance on veterinary support	ESF	All-hazard public health and medical consultation, technical assistance, and support
		ESF	Veterinary medical support[a,b]
		NHSS	Animal disease surveillance and investigation[a]
	Support management of mass fatalities	CDC, NHSS	Fatality management

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TABLE 2—*Continued*

		ESF	Mass fatality management, victim identification, and decontaminating remains
	Inspect sheltering operations	CDC, NHSS	Mass care (sheltering, feeding, and related services)[a,c]
	Ensure food and water quality	ESF	Food safety and security
		ESF	Public health aspects of potable water, wastewater, and solid waste disposal[b]
		NHSS	Reconstitution of the public health, medical, and behavioral health infrastructure
		NHSS	Agriculture surveillance and food safety
		NHSS	Potable water, wastewater, and solid waste disposal
	Provide vector management	ESF	Vector control
		NHSS	Reconstitution of the public health, medical, and behavioral health infrastructure
		NHSS	Animal disease surveillance and investigation[a]
		NHSS	Environmental health
	Mitigate incident-specific hazards	NHSS	Reconstitution of the public health, medical, and behavioral health infrastructure
		NHSS	Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation
		NHSS	Environmental health
Recover	All "recover" processes	CDC	Community recovery
		NHSS	Reconstitution of the public health, medical, and behavioral health infrastructure
	Provide mental and behavioral health care	ESF	Behavioral health care[a,c]
		NHSS	Case management support or individual assistance[c]
		NHSS	Access to health care and social services
		NHSS	Evidence-based behavioral health prevention and treatment services
		NHSS	Monitoring of physical and behavioral health outcomes
	Demobilize	NHSS	Critical resource monitoring, logistics and distribution
	Obtain reimbursement	NHSS	Critical resource monitoring, logistics and distribution
	Monitor the abatement of health hazards	NHSS	Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation
		NHSS	Monitoring of physical and behavioral health outcomes
		NHSS	Environmental health
Manage	All "manage" processes	CDC	Emergency operations coordination
		PPI	Command and control
		ESF	Assessment of public health and medical needs
		ESF	Health, medical, and veterinary equipment and supplies
		ESF	Medical care personnel
		ESF	Patient care[a,c]
		ESF	All-hazard public health and medical consultation, technical assistance, and support
		NHSS	Monitoring of available health care resources
		NHSS	On-site incident management and multiagency coordination
	Develop and report situational information	NHSS	Coordination with US and international partners[a]
		NHSS	Critical resource monitoring, logistics and distribution
	Manage resources	CDC	Medical materiel management and distribution
		CDC	Volunteer management
		CDC, NHSS	Medical surge
		CDC, NHSS	Responder safety and health
		PPI	Disease treatment
		NHSS	Reconstitution of the public health, medical, and behavioral health infrastructure
		NHSS	Volunteer recruitment and management
		NHSS	Critical resource monitoring, logistics and distribution
		NHSS	Research, development, and procurement of medical countermeasures[a]
		NHSS	Management and distribution of medical countermeasures
		NHSS	Medical equipment and supplies monitoring, management, and distribution
		NHSS	Monitoring of physical and behavioral health outcomes

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TABLE 2—*Continued*

	Provide communications and information management	CDC	Information sharing
		NHSS	Interoperable and resilient communications systems
		NHSS	Near-real-time systems for capture and analysis of health security-related data
		NHSS	Information gathering and recognition of indicators and warning
		NHSS	Communications among responders
		NHSS	Medical equipment and supplies monitoring, management, and distribution
		NHSS	Use of remote medical care technology
Not in CGPF	Not in CGPF	ESF	Patient evacuation[c]
		ESF	Safety and security of drugs, biologics, and medical devices[c]
		ESF	Blood and blood products[c]
		ESF	Agriculture safety and security[b]
		ESF	Worker safety and health[b]
		NHSS	Postincident social network reengagement
		NHSS	Support services network for long-term recovery
		NHSS	Application of clinical practice guidelines[c]
		NHSS	Emergency public safety and security

Note. CDC = Centers for Disease Control and Prevention's Preparedness and Emergency Response Capabilities; CGPF = Common Ground Preparedness Framework; ESF = Emergency Support Function 8 [ESF#8] Core Functional Area; NHSS = National Health Security Strategy Capability; PPI = RAND Corporation's PREPARE for Pandemic Influenza Quality Improvement Toolkit Activity. Five CGPF processes had no specific matching items from the other frameworks: "conduct syndromic surveillance," "conduct notifiable disease surveillance," "conduct active surveillance," "develop temporary policies and standards of care," and "develop response plan."
[a]CGPF provides only minimal coverage.
[b]Public health agencies usually play a supporting rather than lead role.
[c]Primarily a Clinical Care System responsibility.

includes 6 domains, similar to CGPF business process groups, and 6 supporting factors necessary to achieve desired outcomes.[16] A notable difference in scope is that the PPI omits processes related to preparing for and recovering from an incident. The PPI includes supporting and contextual factors, such as "robust supply chain" and "strong leadership," not directly addressed in the CGPF.

REMARKS

The CGPF comprehensively describes PHEP activities. Its organization, information flow, and level of detail are sufficient to provide good descriptions of a health department's response to ordinary and extraordinary public health emergencies.

Compared with the broad preparedness framework of the NRF, the CGPF more precisely defines the work of public health within emergency preparedness and response, and presents it in terms familiar to public health practitioners. The NHSS capabilities list is at a level of detail and comprehensiveness similar to that of the CGPF, but the CGPF uses terms that better describe public health tasks, and shows the roles and relationships of processes as incident response unfolds. However, the CGPF might be improved by expanding its recovery process group with content from the NHSS. The CGPF and PHEP-C are similar in scope, but differ in emphasis and approach. Compared with the PPI, the CGPF provides substantially more detail and includes processes beyond the PPI's scope. However, the CGPF does not address important contextual, supporting capabilities such as leadership and community support.

Uses of the Common Ground Preparedness Framework

Preparedness planning, coordination, and quality improvement. Because it is comprehensive and process oriented, the CGPF can organize system development, response planning, and evaluation. The CGPF structure supports comprehensive planning and after-action assessments, resource coordination, and development of incident action plans. For instance, Ohio's Department of Health used the framework to help organize their response to the nH1N1 pandemic (R. Campbell, deputy director, Center for Public Health Statistics and Informatics, Ohio Department of Health, written communication, September 7, 2011). During a multiagency incident response, the CGPF may clarify which operations might be best addressed with public health agency resources.

Systems development. Because the CGPF is understandable to program staff yet uses a format familiar to system developers, it can help bridge the gap in understanding that often exists between program and technical groups. For instance, an earlier draft of the CGPF was included in public health recommendations for syndromic surveillance reporting requirements,[18] so that vendors seeking Meaningful Use certification[19] for their electronic health record software could understand how syndromic surveillance interacts with other public health processes. It was also used by the Common Ground collaborators to prioritize PHEP processes for detailed analysis and redesign; the results are

available on the Public Health Informatics Institute's Web site.[20]

Training. The CGPF is also useful for explaining PHEP to new public health staff and to external partners. The prepare, monitor, investigate, intervene, and recover process groups provide a sensible framework for audiences that are not familiar with public health operations. The framework illustrates the breadth of preparedness activities, and supporting materials[20] can then provide additional detail for processes of interest.

Resource prioritization. By providing a systematic view of PHEP, the CGPF may help identify high-consequence failure points or, conversely, opportunities for investments that will support multiple processes. Aligning resource allocations against the CGPF can highlight gaps or imbalances. This is especially useful when explaining how new resources may be optimally applied. For instance, a grant application that explains how enhancements will improve related processes and strengthen the agency's overall preparedness may be more successful than applications lacking a systems-oriented justification.

Incident Command System. Since 2006, public health agencies receiving federal preparedness funding have been required to adopt ICS for emergency response.[21] It has been difficult for many in public health to integrate the formal, compartmentalized ICS management methods into their work.[22] The CGPF places familiar public health activities into a flow that includes ICS processes. Public health managers already routinely, though usually informally, assess situations, develop informal action plans, and allocate resources. The CGPF explicitly includes these processes in the manage process group, clarifying how ICS may be integrated with traditional pubic health operations.

Future Work

The CGPF and supporting documents are currently available through the Public Health Informatics Institute.[20,23,24] The framework continues to be presented to public health practitioners at meetings and conferences. NACCHO, ASTHO, and the National Association for Chronic Disease Directors have distributed the framework to their members and continue to host links to the Public Health Informatics Institute's Web site. Materials for emergency responders are being prepared to aid their understanding of public health's role in emergency response. However, we expect refinement of the CGPF will continue.

The CGPF might be enhanced by adding information about contextual factors, such as leadership or community support, although that would make the framework more complex. Additions to the recovery process group, modeled on NHSS community resilience and recovery capabilities, might also enhance the CGPF. The processes listed at the end of Table 2 might be included in jurisdictions where public health is responsible for those activities.

Evaluating how specific scenarios flow through the framework may identify gaps and areas for improvement. The framework's robustness might best be tested by using it to describe incidents that vary with respect to threat (biological vs chemical), occurrence (natural vs intentional), and scope (local vs national).

PHEP frameworks such as the CGPF must allow for the evolution of public health threats and interventions. Although specific processes may change over time, however, we believe that the CGPF structure will remain robust.

The CGPF will only be valuable if it is used, and wide adoption of something new depends more on successful use by early adopters and opinion leaders than on publication in a journal.[25] Most public health authority in the United States resides in state and local agencies, so a rollout strategy must rely heavily on a partnership with those agencies. Toward that end, the Public Health Informatics Institute continues to work with associations of those agencies, as well as with federal partners, to gain endorsement for the framework and to integrate it into public health training.

CONCLUSIONS

The CGPF concisely yet comprehensively captures the emergency preparedness activities of public health agencies. It uses processes and information flows familiar to public health workers, helping them recognize how their daily work fits within emergency preparedness. The level of specificity is also useful in planning, training, system development, quality improvement, and explaining public health's role to emergency response partners. It reflects the cohesiveness and flexibility of PHEP, with interdependent, linked business processes that can be selectively invoked and scaled in response to the specifics of an incident.

The CGPF is consistent with the frameworks used by other emergency response entities, but it uses terms and concepts familiar to public health workers. Ultimately, adoption of CGPF will reduce confusion over public health's role in emergency response and move us toward a clearer common vision of public health emergency preparedness. ■

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Contributors

P. J. Gibson led the writing. F. Theadore led the comparison of the new framework with other preparedness frameworks. J. B. Jellison substantially contributed both to the writing and to the comparison of the frameworks.

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Human Participant Protection

Because this article did not use human participant research, institutional review board approval was not needed.

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