Resource Allocation on the Frontlines of Public Health Preparedness and Response: Report of a Summit on Legal and Ethical Issues

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SYNOPSIS

Objectives. In the face of all-hazards preparedness challenges, local and state health department personnel have to date lacked a discrete set of legally and ethically informed public health principles to guide the distribution of scarce resources in crisis settings. To help address this gap, we convened a Summit of academic and practice experts to develop a set of principles for legally and ethically sound public health resource triage decision-making in emergencies.

Methods. The invitation-only Summit, held in Washington, D.C., on June 29, 2006, assembled 20 experts from a combination of academic institutions and nonacademic leadership, policy, and practice settings. The Summit featured a tabletop exercise designed to highlight resource scarcity challenges in a public health infectious disease emergency. This exercise served as a springboard for Summit participants' subsequent identification of 10 public health emergency resource allocation principles through an iterative process.

Results. The final product of the Summit was a set of 10 principles to guide allocation decisions involving scarce resources in public health emergencies. The principles are grouped into three categories: obligations to community; balancing personal autonomy and community well-being/benefit; and good preparedness practice.

Conclusions. The 10 Summit-derived principles represent an attempt to link law, ethics, and real-world public health emergency resource allocation practices, and can serve as a useful starting framework to guide further systematic approaches and future research on addressing public health resource scarcity in an all-hazards context.

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Law and ethics are inextricably linked with good public health practice in responding to natural and manmade disasters. Given the maxim that all disasters are "local" events, state and local public health leaders need a defined set of legal and ethical principles to help them make sound, real-time decisions when allocating scarce resources. The current all-hazards model of public health preparedness requires that any public health response framework be adaptable to a variety of emergency contexts, from naturally occurring epidemics to terrorism to weather-related disasters. However, to date, such guidance has not been accompanied by a set of clear principles that public health practitioners can reliably and efficiently apply when allocating scarce resources in a crisis.

To address this need, we convened a Summit on June 29, 2006, in Washington, D.C., of leading experts and emerging thinkers in public health law, ethics, and practice. Participants were tasked with generating a series of discrete principles that could facilitate effective public health allocation decisions at the state and local level. During and after the Summit, the participants iteratively proposed, defined, and revised a set of practice-based legal and ethical principles. The final product of the Summit was a set of 10 principles to guide allocation decisions involving scarce resources in public health emergencies (Figure). As discussed in this article, these principles should be considered in the contexts of underlying public health, legal, and ethical perspectives.

GENERAL CONSIDERATIONS

Public health perspective

Under the National Incident Management System, state and local health departments and other preparedness agencies are expected to set priorities for resources in emergent settings.[1] However, recent events have underscored the need for systematic frameworks to translate this expectation into legally and ethically sound decisions during public health emergencies. The 2004–2005 seasonal influenza vaccine shortage in the United States produced variable and improvised approaches to distribution of scarce resources amid considerable demand.[2] The severe acute respiratory syndrome epidemic in Toronto, Canada, illustrated the relevance of ethical decision-making in terms of psychosocial impacts on public trust, morale of providers, and stigmatizing of vulnerable communities.[3,4]

Lessons learned from these events cannot be dismissed merely as incident-specific anecdotes. Seasonal influenza vaccine shortages can be anticipated in future seasons, given existing production and stockpile concerns. The challenge of resource triage decision-making will only intensify during an influenza pandemic, an event that the World Health Organization (WHO) has characterized as "inevitable and possibly imminent."[5] The next pandemic will exert enormous strain on an already fragile public health infrastructure due to shortages and delays in antiviral and vaccine production, high morbidity and mortality, and long duration.[6] In an international context, a survey of national pandemic influenza plans revealed gaps in planning for distribution of nonpharmaceutical interventions, differences in prioritization schemes for vaccines and antivirals, and uneven adherence to WHO pandemic planning guidelines.[7] Even national pandemic flu plans with rigorously detailed allocation schemes can pose risk-communication and implementation challenges if prescribed allocation strategies require modification in the face of changing impacts of the pandemic threat.[7]

Of major importance, outbreaks of natural origin represent only one of several emergency scenarios for which a sound legal and ethical framework would be helpful for decisions regarding the allocation of scarce resources. Unintentional and intentional human acts that produce acute public health consequences, such as train car derailments with associated hazardous materials spills or terrorist attacks, also trigger the need for such decision-making. The U.S. Department of Health and Human Services' Strategic National Stockpile, for example, contains medicines, equipment, and other health resources for a variety of hazards. In assessing federal, state, and local assets, it seems clear that many, if not most, emergencies have historically been, and will likely be in the future, accompanied by the need to allocate scarce resources.

Legal perspective

Legal preparedness is an essential component of emergency response.[8] At every level of government, laws determine what constitutes a public health emergency, disaster, or general emergency. Laws help create the infrastructure through which emergencies are detected, prevented, declared, and addressed. They authorize the performance (or nonperformance) of various emergency responses, and determine the extent of responsibility for potential or actual harms that arise during emergencies.[9]

However, assessing the legal environment in states of emergency is complicated. Multiple types of laws (e.g., constitutional provisions, statutes, regulations, executive orders, judicial cases, and compacts) must be examined to assess their meaning and impact in real time during emergencies.[10] The declaration of

an emergency often triggers new or unconventional legal responses, and authorizes varying actions of uncertain legality.[11] Since the terrorist attacks and ensuing anthrax exposures in fall 2001, national, tribal, state, and local governments in the U.S. and abroad have amended their statutes, regulations, policies, and plans to reflect modern principles of public health emergency preparedness.[11] Some of these reforms are based on the Model State Emergency Health Powers Act (MSEHPA) drafted by the Centers for Law and the Public's Health at Johns Hopkins and Georgetown Universities.[12] MSEHPA and other legal tools offer definitive statutory language for public health emergency responses, but also feature flexibility in their design. The effect of many modern emergency laws is to allow government agents and their private sector partners sufficient discretion to decide how to respond to exigencies in legal ways that are efficient, effective, and ethical.

Legal flexibility during emergencies, however, may also contribute to confusion during the emergency itself. Various actors may not fully appreciate or understand how the legal environment has changed (or is changing in real time during the emergency). More likely, they may lack the opportunity to assess their legal authority because of the need to respond to the emergency itself.[11] Public health practitioners, healthcare workers, emergency volunteers, and others may not be competent to fully assess the legality of their actions during emergencies.[13] Some responders may act without significant regard for the legal ramifications (which can lead to communal and individual harms). Others may fail to act because of their legal concerns (which can stymie some public health interventions). Neither of these consequences is acceptable.

Legal practitioners in the public and private sectors must be prepared to prioritize and resolve relevant legal issues in real time. The term *legal triage* during emergencies refers to those efforts by legal actors to construct the legal environment through a prioritization of issues and solutions that facilitate legitimate public health responses.[11] The core objective is to craft laws (at a time when the traditional rules of society are in flux) that assist public health practitioners and other responders in making good decisions that benefit the community's health and that respect individual rights and expectations. This balance between individual and communal needs requires making trade-offs that are

Figure. Principles of law and ethics to guide allocation decisions involving scarce resources in public health emergencies

In deciding how to allocate scarce resources during a public health emergency, public health practitioners should:

Obligations to community

1. Maintain transparency (e.g., openness and public accessibility) in the decision-making process at the state and local levels.
2. Conduct public health education and outreach (to the extent possible) to encourage, facilitate, and promote community participation or input into deliberation about allocation decisions.

Balancing personal autonomy and community well-being/benefit

3. Balance individual and communal needs to maximize the public health benefits to the populations being served while respecting individual rights (to the extent possible), including providing mitigation for such infringements (e.g., provide fair compensation for volunteers who are injured while rendering emergency care or services for the benefit of the community).
4. Consider the public health needs of individuals or groups without regard for their human condition (e.g., race/ethnicity, nationality, religious beliefs, sexual orientation, residency status, or ability to pay).

Good preparedness practice

5. Adhere to and communicate applicable standard-of-care guidelines (e.g., triage procedures), absent an express directive by a governmental authority that suggests adherence to differing standards.
6. Identify public health priorities based on modern, scientifically sound evidence that supports the provision of resources to identified people.
7. Implement initiatives in a prioritized, coordinated fashion that are well-targeted to accomplishing essential public health services and core public health functions.
8. Assess (to the extent possible) the public health outcomes following a specific allocation decision, acknowledging that the process is iterative.
9. Ensure accountability (e.g., documentation) pertaining to the specific duties and liabilities of people in the execution of the allocation decision.
10. Share personally identifiable health information—with the patients' consent where possible—solely to promote the health or safety of patients or other people.

legally and ethically defensible. Reaching this balance, however, can be precarious. For example, emergency laws at every level of government can support community decisions on how to allocate scarce resources by:

- Authorizing expedited uses of public health powers by public and private sectors;
- Requiring unified efforts of public and private sectors to protect the public's health;
- Temporarily suspending statutes or regulations that may interfere with emergency medical responses (e.g., the Health Insurance Portability and Accountability Act Privacy Rule)[14]
- Allowing sharing of resources across local or state boundaries (e.g., Emergency Management Assistance Compact);[15]
- Helping governmental entities to quickly acquire essential supplies or volunteer services to meet surge capacity;[16] or
- Clarifying specific options and priorities for resource allocations when supplies are scarce (e.g., flu vaccine distribution requirements).[17]

However, such laws can also impinge allocation decisions by (*1*) discounting strong ethical input in the face of exigent circumstances or in favor of political objectives; (*2*) stripping control of resources from private to public sectors, or within public sectors; or (*3*) overriding ethical judgments on the basis that they conflict with constitutional norms or other legal principles, however defined during emergencies. Only through the skilled, knowledgeable, and coordinated efforts of legal practitioners can an effective legal environment be created during emergencies.[13] In addition, only through the creation of an effective legal environment during emergencies can critical questions of law and ethics, such as how to allocate scarce resources, be addressed.[11]

Ethical perspective

In general, ethical theories provide a framework through which types of actions are morally required or prohibited.[18] A consequentialist theory, for example, directs us to assess the moral worth of a particular action by evaluating that action's consequences. Different ethical theories lead to different conceptions of justice, each of which may help in assessing how to allocate benefits and burdens fairly. What constitutes a fair allocation of benefits and burdens can differ depending on what one values in making justice-based decisions. The objective may be to distribute resources—give to each an equal share, for example, or distribute according to need, acquisition in the fair market, effort, societal contribution, or merit; or distribute based on a hybrid of these.[19]

There is limited literature on just allocation of public health resources when demand outstrips supply.[20,21] Four recent accounts advocated for particular approaches to just allocation in response to pandemic flu.[4,22–24] Rather than advocating a particular method for just resource allocation, Gostin (2006) identified eight rationing criteria that should be considered when allocating lifesaving countermeasures: (*1*) prevention/public health, (*2*) scientific/medical functioning, (*3*) social functioning/critical infrastructure, (*4*) medical need/vulnerability, (*5*) intergenerational equity, (*6*) social justice/equitable access, (*7*) global perspective, and (*8*) civic engagement/fair process.[22]

Emanuel and Wertheimer (2006) focused on vaccine allocation, assumed to be a finite good, and advocated for the adoption of a "lifecycle" principle by which "each person should have an opportunity to live through all the stages of life."[23] The adoption of such a principle would favor allocation to those younger than age 40 years. Kinlaw and Levine (2007), on behalf of the Ethics Subcommittee of the Advisory Committee of the Director, Centers for Disease Control and Prevention, noted that there may be some circumstances where an assessment of social worth may be necessary to preserve civil society in the wake of a flu pandemic.[24] In addition, they advocated for a number of general ethical process considerations that should guide the adoption of particular policies. These considerations included identification of clear overall goals for pandemic planning, commitment to transparency, and public engagement and involvement.[24]

Thompson et al. (2006) advocated for the adoption of an ethical framework intended to inform policymaking.[4] The authors' proposed framework distinguished between ethical values and ethical processes. They identified 10 ethical values (duty to provide care, equity, individual liberty, privacy, proportionality, protection of the public from harm, reciprocity, solidarity, stewardship, and trust) that should inform the pandemic flu planning process and proposed that the "accountability for reasonableness" model be used to facilitate a fair decision-making process.[4]

In sum, while different theories of justice abound and authors have proposed alternate approaches to allocation in the context of pandemic flu, no general principles meant to guide the allocation of finite resources in the context of public health emergencies existed when we undertook this Summit.

METHODS

Summit recruitment and planning

A central reason for convening the Summit was to build upon current legal and ethical frameworks to inform all-hazards public health emergency resource allocation practice. The Summit planning team included faculty and staff from the Johns Hopkins Center for Public Health Preparedness, Johns Hopkins Berman Institute of Bioethics, and the Centers for Law and the Public's Health at Johns Hopkins and Georgetown Universities. Through a series of pre-Summit meetings, the planning team identified a list of participants including leaders and emerging thinkers in the areas of public health law, ethics, and practice. The final roster included 20 participants and eight observers (the latter including students and research assistants from participating organizations). Of the 20 participants, nine (45%) were from academia, and 11 (55%) were from nonacademic leadership, policy, and practice settings (these participants, and their Summit institutional affiliations, are acknowledged at the end of the article).

Prior to the Summit, participants received a series of relevant articles by e-mail for their advance review. These included articles on ethical considerations in smallpox vaccine policy; ethical and legal considerations on medical countermeasures for pandemic influenza; and allocation of finite supplies of influenza vaccine.

Summit structure

The Summit opened with two brief presentations on the relevant legal and ethical principles related to the just allocation of scarce resources in a context of a public health emergency. With this background, the group was led through a tabletop scenario called "Trouble in River City."[25] The tabletop scenario was based on previous exercises we had run, and informed by contemporary examples of emergency response. The goal of taking the group through the scenario was to explore the legal and ethical considerations of resource allocation questions in a public health practice context. The goal of this exercise was to encourage creative and practical thinking about resource allocation.

Data collection

At the conclusion of the tabletop scenario, the group was asked to generate a draft list of principles that public health practitioners ought to adopt in the allocation of scarce resources during a public health emergency. Suggestions were posted as the discussion proceeded. We drafted, printed, and distributed this tentative list of principles to the group for further discussion. Ultimately, a revised list of 34 principles was generated, which served as the basis for further analysis and refinement.

Data analysis

Our first analytic task was to review the list of 34 principles and label them as legal, ethical, or practical allocation principles. At the end of this process, we had 16 ethical principles; nine practical principles; one legal principle; four principles that included an ethical, legal and/or practical principle; and four other principles that were either too broad or too specific to be categorized. The next step in the process was to cluster these principles to generate a set of summary statements to capture the primary themes (30 themes clustered in 12 groups). Out of these themes, the group drafted a preliminary set of principles. We debated the inclusion and exclusion of a number of principles. Eventually, agreement of a draft list was reached (n=13). This draft set of principles was then returned to the attendee list for their review. The final list of principles was then further refined and categorized by the authors (n=10).

RESULTS

The final product of the Summit is a set of 10 principles to guide allocation decisions involving scarce resources in public health emergencies (Figure). The principles are grouped into three broad categories: obligations to community; balancing personal autonomy and community well-being/benefit; and good preparedness practice. The principles could also be organized as substantive and procedural in nature. Substantive principles supported by Summit participants included that allocation decisions should be (*1*) driven and supported by good data, (*2*) nondiscriminatory and sensitive to the needs of vulnerable populations, and (*3*) revisable. Procedural principles included the need for (*1*) transparency to all stakeholders, (*2*) public participation to the greatest extent possible, and (*3*) accountability. The narratives provided with each principle in the subsequent sections are based on comments from the Summit attendees, supplemented by the authors, and are organized in narrative form.

The order of the principles, as listed in the Figure and as discussed in the narrative summaries that follow, does not reflect any attempt to prioritize their importance. As well, some common legal and ethical norms may not be fully stated or captured in these principles, largely because their relevance is clear. For example, any decision maker needs to be knowledgeable of changing legal requirements at the federal, state, and local levels that arise during the declared

emergencies to make good choices about allocating scarce resources.

Obligations to community

1. Maintain transparency (e.g., openness and public accessibility) in the decision-making process at the state and local levels. One potential outcome of transparency is public trust. Public trust is a key to compliance with directives announced during a public health crisis. The process and outcomes must reflect public values and priorities and, therefore, should include representatives from the general public, including those whose cultural norms are different from the majority. Bringing appropriate stakeholders into the process in which finite resources will be allocated can enhance the quality of the process as well as increase the likelihood that the public will trust the outcomes of such processes. In addition, a transparent decision-making process promotes accountability among local and state institutions responsible for acting on the decisions made.

2. Conduct public health education and outreach (to the extent possible) to encourage, facilitate, and promote community participation or input into deliberation about allocation decisions. To engage the community in the decision-making process, the relevant local and state institutions need to make a commitment to quality public education and outreach efforts. For community engagement to be effective, clear communication and open discourse must be operative. Effective communication and community engagement during the decision-making process set a standard for what the community can expect from local and state institutions during a public health crisis. Setting a precedent for transparency and truth-telling in the planning process can be invaluable when managing community expectations during a public health crisis.

Balancing personal autonomy and community well-being/benefit

3. Balance individual and communal needs to maximize the public health benefits to the populations being served while respecting individual rights (to the extent possible), including providing mitigation for such infringements (e.g., provide fair compensation for volunteers who are injured while rendering emergency care or services for the benefit of the community). A particular challenge in the development of policy related to resource allocation is the answer to the question of when, if ever, is it appropriate to restrict the actions an individual can take in the name of community well-being? Put another way, when does acting in the best interest of the community take precedence over acting in the best interest of any particular individual? In the context of allocating finite resources during a public health crisis, the answer to this question may vary depending on the resource under consideration. During public deliberations about plans for a public health crisis, local and state officials should solicit feedback on the development of a reasonable, acceptable threshold at which the well-being of the community takes precedence. In addition, local and state institutions should consider if and how groups or individuals will be compensated when they are prevented from taking actions they believe to be in their best interest but considered not in the best interest of the larger community.

4. Consider the public health needs of individuals or groups without regard for their human condition (e.g., race/ethnicity, nationality, religious beliefs, sexual orientation, residency status, or ability to pay). The principle of distributive justice requires that public health crisis response plans take into consideration the social, economic, and cultural barriers that may limit the effectiveness of proposed interventions. Local and state institutions should avoid, as much as possible, the development of policy that treats individuals or groups of people differently according to morally irrelevant characteristics when it comes to allocating a finite resource during a public health crisis. In addition, policy makers should avoid the adoption of policy that exacerbates preexisting disparities in the community.

Good preparedness practice

5. Adhere to and communicate applicable standard-of-care guidelines (e.g., triage procedures), absent an express directive by a governmental authority that suggests adherence to differing standards. Applicable standard-of-care guidelines, including medical triage, should be the default setting for public health practitioners, absent explicit alternate directions from a governmental authority. In large-scale emergencies, postponement or cancellation of elective medical procedures and efficient, targeted physical examination may be critical when the surge capacity of the health-care system is reached. In dealing with natural or manmade crises, public health practitioners should be on the frontline of clearly communicating these emergent standards of care to patients and providers alike.

6. Identify public health priorities based on modern, scientifically sound evidence that supports the provision of resources to identified people. Just as evidence-based medicine has become an increasingly established part of routine health-care practice, so too must evidence-based decision-making become a cornerstone of disaster-response resource prioritization. Building the

evidence for resource triage in controlled nonemergent clinical settings is inherently much easier than in the fluid context of large-scale emergencies. However, a growing evidence base for the latter has emerged in a variety of forms, including modeling studies based on past disasters (e.g., pandemic influenza), and published after-action reports from emergency exercises and drills. Public health practitioners and leaders should apply this growing evidence base toward establishing priorities in an all-hazards framework.

7. Implement initiatives in a prioritized, coordinated fashion that are well-targeted to accomplishing essential public health services and core public health functions. The 10 essential services of public health are applicable in both emergent and nonemergent contexts.[26] Public health crisis resource allocation decision-making should be consistent with provision of these essential services. In a crisis, public health providers must not only address the urgent health-care needs of those immediately affected by the disease- or injury-causing agent (e.g., pandemic flu or a bioterrorism agent), but also those with unrelated acute and chronic health needs (e.g., dialysis patients or drug treatment patients) whose access to appropriate care may be compromised as the health-care system is stretched to its limits.

8. Assess (to the extent possible) the public health outcomes following a specific allocation decision, acknowledging that the process is iterative. Disaster response is by nature an imperfect process fraught with unpredictable dynamics and countless decisions. This complexity, however, does not waive the need for assessing and evaluating the outcomes of the process. While it is difficult to completely anticipate every second- and third-order effect of a public health emergency decision, such downstream effects must be factored into crisis public health decision-making and should become a standard part of pre-event agency planning to the extent possible.

9. Ensure accountability (e.g., documentation) pertaining to the specific duties and liabilities of people in the execution of the allocation decision. Legal and ethical principles support the need for the individuals who are making critical choices in the allocation of limited resources during emergencies to be accountable for their decisions. This may entail procedures to ensure that the underlying rationale for their decisions is documented and preserved for current and future reference. The goal of ensuring accountability is not to create a record to sustain future criticisms or support potential legal claims. Rather, the objective is to provide assurances to the community that the individuals vested with making critical choices (*1*) are authorized to make the decisions, (*2*) have gathered data or input to support their decisions, and (*3*) have based their decisions on available information and existing legal requirements or ethical norms.

10. Share personally identifiable health information—with the patients' consent where possible—solely to promote the health or safety of patients and other people. Personally identifiable health information is routinely exchanged during public health emergencies to facilitate the allocation of scarce resources. Acquiring, using, or disclosing identifiable health data with specific informed consent of patients is ideal. During emergencies, however, the need for such data is compelling. Clinicians performing medical triage need rapid access to patients' records. Disaster managers operating emergency response clinics may need to know the patient-specific health information to better coordinate the delivery of care. Public health officials have equal claims to needing identifiable health data to ensure community health efforts. Use or disclosure of identifiable health data in each of these examples is legally and ethically justifiable (even without informed consent) only when the overriding goal is protecting individual and public health. However, other data exchanges for nonhealth purposes may be not be permissible without patient consent. These may include, for example, disclosures to employers, law enforcement, commercial entities, researchers, and emergency responders whose efforts do not include providing health or public services to patients.

DISCUSSION

These principles are the product of a process unique in its participants and conclusions. In the face of unprecedented all-hazards preparedness challenges and expectations for public health departments, the principles represent an attempt to link law, ethics, and real-world public health emergency resource allocation practices.

It was our goal for the Summit, through its design and expert contributions, to provide a forum for cross-pollinating legal and ethical considerations in the context of frontline public health response. The tabletop exercise scenario challenged participants to apply their subject matter expertise toward practical implementation to propose and refine relevant legal and ethical principles through an iterative process. While a list of principles cannot address all the legal and ethical nuances of public health crisis decision-making, it can serve as a useful framework to guide systematic approaches and future research into challenges of resource scarcity in an all-hazards context.

In a 2008 report outlining priorities for public health preparedness research, the Institute of Medicine has identified the need for multidisciplinary and cross-disciplinary efforts involving collaboration between public health and fields including law and ethics.[27]

Limitations

Certain limitations of the Summit product must be noted, as these principles have not yet been nationally vetted nor applied to date in disasters or exercises for validation purposes. In the face of these limitations, however, the principles can nonetheless serve as a springboard for others to engage in formalized and field-tested processes regarding the allocation of scarce resources in public health emergencies. Public health practitioners could also apply them in evaluating or launching their plans for resource allocation. For example, a local public health department that has completed a plan for resource allocation in the context of pandemic flu could use the principles to measure whether their plan should be supplemented or revised. A local health department that has not yet adopted such a plan could incorporate the principles as a launching point for its efforts.

CONCLUSIONS

Public health practitioners, legal counsel, ethics boards, and others may find the principles useful starting points for assessing real-time allocation decisions. In addition, the principles could be used in educating public health practitioners about the legal and ethical considerations of limiting individuals' actions through quarantine to protect the health of populations. We encourage others interested in legal and ethical issues beyond resource allocation to consider the development of similar case-based Summits to initiate their efforts.

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REFERENCES

1. Department of Homeland Security (US). National Incident Management System. Washington: Department of Homeland Security; 2004 [cited 2008 Feb 18]. Available from: URL: http://www.fema.gov/pdf/emergency/nims/nims_doc_full.pdf
2. Schoch-Spana M, Fitzgerald J, Kramer BR; UPMC Influenza Task Force. Influenza vaccine scarcity 2004–05: implications for biosecurity and public health preparedness. Biosecur Bioterror 2005;3:224-34.
3. Bernstein M, Hawryluck L. Challenging beliefs and ethical concepts: the collateral damage of SARS. Crit Care 2003;7:269-71.
4. Thompson AK, Faith K, Gibson JL, Upshur RE. Pandemic influenza preparedness: an ethical framework to guide decision-making. BMC Med Ethics 2006;7:E12. Also available from: URL: http://www.biomedcentral.com/1472-6939/7/12 [cited 2008 Feb 18].
5. World is ill-prepared for "inevitable" flu pandemic. Bull World Health Organ 2004;82:317–8.
6. Osterholm MT. Preparing for the next pandemic. Foreign Aff 2005;84. Also available from: URL: http://www.foreignaffairs.org/20050701faessay84402/michael-t-osterholm/preparing-for-the-next-pandemic.html [cited 2008 Feb 18].
7. Uscher-Pines L, Omer SB, Barnett DJ, Burke TA, Balicer RD. Priority setting for pandemic influenza: an analysis of national preparedness plans. PLoS Med 2006;3:e436. Also available from: URL: http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.0030436 [cited 2008 Feb 18].
8. Moulton AD, Gottfried RN, Goodman RA, Murphy AM, Rawson RD. What is public health legal preparedness? J Law Med Ethics 2003;31:672-83.
9. Hodge JG Jr. Assessing the legal environment concerning mass casualty event planning and response. In: Phillips SJ, Knebel A, editors. Mass medical care with scarce resources: a community planning guide. Rockville (MD): Agency for Healthcare Research and Quality, Department of Health and Human Services (US); 2007. p. 25-38. Also available from: URL: http://www.ahrq.gov/research/mce/mceguide.pdf [cited 2008 Feb 18].
10. Gostin LO. Public health law: power, duty, restraint. Berkeley (CA): University of California Press and Milbank Memorial Fund; 2002.
11. Hodge JG Jr. Legal triage during public health emergencies and disasters. Adm Law Rev 2006;58:627-44.
12. The Centers for Law and the Public's Health at Georgetown and Johns Hopkins Universities. The Model State Emergency Health Powers Act as of December 21, 2001 [cited 2007 Jul 12]. Available from: URL: http://www.publichealthlaw.net/MSEHPA/MSEHPA2.pdf
13. Hodge JG Jr, Gebbie KM, Hoke C, Fenstersheib M, Hoffman S, Lynk M. Assessing competencies for public health emergency legal preparedness. J Law Med Ethics 2008;36(1Suppl):28-35.
14. Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule, 45 CFR § 160.100 *et seq.* (2004).
15. Emergency Management Assistance Compact (EMAC), Pub. L. No. 104-321 (Oct. 19, 1996).
16. Health Resources and Services Administration (US). Emergency system for advance registration of volunteer health professionals

(ESAR-VHP)—legal and regulatory issues. Washington: HRSA; 2006.1-144.
17. General Accounting Office (US). Flu vaccine: steps are needed to better prepare for possible future shortages. Testimony before the Special Committee on Aging, U.S. Senate, May 30, 2001 [cited 2008 Feb 18]. Available from: URL: http://www.gao.gov/new.items/d01786t.pdf
18. Kenny N, Giacomini M. Wanted: a new ethics field for health policy analysis. Health Care Anal 2005;13:247-60.
19. Beauchamp T, Walters L. Contemporary issues in bioethics. 6th ed. Boston: Wadsworth Publishing; 2003.
20. Powers M, Faden R. Social justice: the moral foundations of public health and health policy (issues in biomedical ethics). New York: Oxford University Press; 2006.
21. Kayman H, Ablorh-Odjidja A. Revisiting public health preparedness: incorporating social justice principles into pandemic preparedness planning for influenza. J Public Health Manag Pract 2006;12:373-80.
22. Gostin LO. Medical countermeasures for pandemic influenza: ethics and the law. JAMA 2006;295:554-6.
23. Emanuel EJ, Wertheimer A. Public health. Who should get influenza vaccine when not all can? Science 2006;312:854-5.
24. Kinlaw K, Levine R; Ethics Subcommittee of the Advisory Committee to the Director, Centers for Disease Control and Prevention (US). Ethical guidelines in pandemic influenza. 2007 [cited 2008 Feb 18]. Available from: URL: http://www.cdc.gov/od/science/phec/panFlu_Ethic_Guidelines.pdf
25. Johns Hopkins Center for Public Health Preparedness. Trouble in River City tabletop exercise. June 29, 2006 [cited 2008 Feb 18]. Available from: URL: http://www.jhsph.edu/preparedness/materials/TIRC.pdf
26. Centers for Disease Control and Prevention (US). 10 essential public health services [cited 2008 Feb 18]. Available from: URL: http://www.cdc.gov/od/ocphp/nphpsp/EssentialPHServices.htm
27. Institute of Medicine. Research priorities in emergency preparedness and response for public health systems: a letter report. Washington: National Academies Press; 2008. Also available from: URL: http://www.nap.edu/catalog/12136.html [cited 2008 Feb 18].