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Leading during Bioattacks and Epidemics with the Public's Trust and Help

THE WORKING GROUP ON "GOVERNANCE DILEMMAS" IN BIOTERRORISM RESPONSE

We have learned very little that is new about the disease, but much that is old about ourselves.

Frederick C. Tilney, MD,
on the polio epidemic of 1916, New York[1]

The federal government has to have the cooperation from the American people. There is no federal force out there that can require 300,000,000 people to take steps they don't want to take.

Former Senator Sam Nunn, playing the
U.S. President in *Dark Winter*, the June 2001
smallpox bioterrorist exercise[2]

THE PROSPECT OF "DELIBERATE EPIDEMICS" caused by biological attacks on civilians and the well-chronicled vulnerabilities of human society to large-scale disease outbreaks prompted the Working Group to prepare this report. The document's purpose is to assist U.S. decision-makers, including governors, mayors, and health officials, in defining what constitutes effective, compassionate leadership in the context of an epidemic or bioattack, and to suggest some means to achieve it. The article sets forth strategic goals that make governing laudably in an epidemic of infectious disease a distinctive challenge. It illustrates special circumstances posed by biological attacks that further complicate efforts to limit the death, suffering, and disruption accompanying large outbreaks. The report identifies specific dilemmas of governing that commonly arise during epidemics and which decision-makers are likely to confront in the event of a bioattack. Lastly, it recommends principles and actions for preventing and/or resolving the apparent and sometimes genuine conflicts of interest, priority, and purpose that emerge in public health crises.

The Working Group contends that governing successfully during large, fast-moving, lethal epidemics requires a dynamic collaboration among members of a community and the community's leaders. Officials who have realistic expectations about the societal challenges posed by large outbreaks will be better prepared to protect and actively support cooperation and trust between a community and its leaders. In the absence of an engaged public, resolution of the immediate health crisis is rendered far more difficult, and the social and economic resilience of affected communities is diminished. Particularly in the context of bioterrorism, when fear and uncertainty may be significant forces, leaders' abilities to enlist communities in a collaborative effort to care for the sick and prevent the spread of disease could prove pivotal, not only in terms of implementing an adequate response to the health crisis, but in limiting social and economic losses and in preserving fundamental democratic values and processes.

CONSENSUS METHODS

The 30-member Working Group on "Governance Dilemmas" in Bioterrorism Response is composed of seasoned decision-makers at local, state, and federal levels of government; public health practitioners who have managed responses to high-profile outbreaks and terrorist attacks; subject matter experts in infectious disease, disaster psychiatry and sociology, public affairs, and risk communication; community organizers and advocates for special populations; and journalists who have covered public health and national security matters. The Working Group was the culmination of a larger project focused on articulating best practices and principles for leaders when communicating with the public in the bioterrorist context. This statement reflects the experience, professional judgment,

and consensus recommendations of working group members, as well as evidence obtained by review of relevant literatures, including social science research on crises and disasters, public health history, risk communications, and analyses of responses to contemporary health and terrorist crises (e.g., 9/11; anthrax letter attacks; SARS).

The Working Group first convened on February 3-4, 2003, in Washington, DC, to obtain agreement on the group's aim and scope and to take part in the national summit, *Leadership during Bioterrorism: The Public as an Asset, Not a Problem.*[1] Following a period of formal evidence gathering, a framework was drafted and submitted for group review in Baltimore on June 10, 2003. A first draft of the paper was prepared in accord with member suggestions, further literature review, and consultation with relevant experts. On September 11, 2003, the Working Group met in Baltimore to review the document; no significant disagreements existed. Based on the outcome of this meeting, a second draft was prepared and submitted to members for formal written comments. Another round of revisions ensued; this third draft was sent out for peer review. All working group members signed off on the fourth and final draft, which addressed outside reviewers' comments.

WHAT DEFINES SUCCESSFUL LEADERSHIP DURING AN EPIDEMIC OR BIOATTACK?

Infectious diseases have always beset humanity, though recent generations in developed countries like the U.S. have been spared the experience of lethal epidemics enveloping entire populations.[3] Large disease outbreaks can inflict tremendous loss and fear on communities; the disruption, especially in the context of a communicable disease, may be broad in scope and long in duration. Immediate governance challenges—life-or-death matters like caring for the sick—may be rapidly joined by threats to the social fabric, such as ostracism of the afflicted and/or unequal distribution of medical benefits or disease control burdens.[4–8] Similar governing predicaments can be expected with bioattacks on civilians—assaults that consciously capitalize on the suffering and disruption of natural epidemics.[9]

The specific nature of epidemics varies widely; it is not possible to anticipate every contingency associated with controlling a particular disease in a particular time, place, and population. Regardless of disease or setting, however, the Working Group suggests five strategic goals as the basis for understanding successful epidemic governance in the 21st century United States. These aims also constitute the high-order objectives of bioterrorism response:

- Limit death and suffering through proper preventive, curative, and supportive care; tend to the greater vulnerability of children, the frail elderly, and the physically compromised.
- Defend civil liberties using the least restrictive interventions to contain an infectious agent that causes communicable disease.
- Preserve economic stability, managing the financial impacts on victims as well as the near- and long-term losses of particular industries, cities, and neighborhoods.
- Discourage scapegoating, hate crimes, and the stigmatization of certain groups or locales as "contaminated" or unhealthy.
- Bolster the ability of individuals and the larger community to rebound from traumatic, tragic, and unpredictable events; provide mental health support to those who need it.

The Working Group contends that an informed and involved public, along with guidance and material support from respected leadership, is an essential means to achieve the above goals. As addressed here, the role of a leader in shaping the public's response to bioterrorism surpasses today's conventional approaches: "effective risk and crisis communicator"[10–14] or "government authority who uses force judiciously" to protect common welfare.[15–17] Leading during a deliberate epidemic consists of more than using words or force wisely to direct the population's response. Similarly, the role of the public conceived here supersedes the notion of "individuals prepared to take care of themselves" through emergency kits and self-study of unconventional threats.[18–20] Although they are essential, these approaches to leadership and civic duty fall short of what is needed to handle a deliberate epidemic.

Leaders must actively support and engage the public's willing collaboration in the societal responsibility to not infect others, to render aid to those in need when feasible, and to avoid persecuting those who bear some resemblance to supposed perpetrators of an attack. When a bioattack is discovered, decision-makers will be sorely tempted to focus on the critical managerial and scientific aspects of epidemic response, in addition to interdiction. Neglect of civic, social, economic, and ethical-moral dimensions may ultimately jeopardize technical efforts to stem the health crisis as well as damage processes of economic and psychological recovery.

[1]Proceedings are available online at http://www.upmc-biosecurity.org/pages/events/peoplesrole/introduction.html.

WHY DO BIOATTACKS PRESENT SPECIAL CHALLENGES AND HIGH-STAKES DECISIONS FOR LEADERS?

Many, but not all, of the dangerous characteristics of bioattacks that perplex leaders also pertain to natural disease outbreaks. Large outbreaks of fast-moving, potentially lethal disease are outside the experience of most U.S. elected officials, health authorities, and the public they serve.[21,22] Public health agencies are relatively invisible entities today, despite their historic role in disease containment.[23–25] Because much about deliberately induced epidemics (and their control) is unfamiliar, the following sections review some of their troubling attributes that could complicate collaborative efforts to protect the public's health. Drawing from recent crises, Figure 1 illustrates these traits more concretely.

Inability to plan for every contingency

There is a wide range of attack scenarios, making it impossible to anticipate, prepare, or educate for every bioterrorist situation. The nature and scope of a deliberate epidemic will hinge on a wide variety of factors: motivation and strategy of the attacker; characteristics of the pathogen released (e.g., its incubation period, contagiousness, lethality); medium of delivery (e.g., air, food, or water supply); environmental conditions that affect successful dispersal; swiftness with which the outbreak and its victims are identified; availability of preventive and therapeutic measures (e.g., antibiotics, vaccines, respirators) and the staff administering them; and the health status and subsequent behavior of victims and their contacts.

Pervasive uncertainty about what is happening and what to do about it

After a bioattack, uncertainties may be numerous and, in some ways, irreducible: What populations are at risk? How many exposed and/or sick people are there? How many will die? Are effective therapies and preventive measures available? Are clinical and public health interventions working? Finding answers to such questions requires time, as well as adequate expertise and labor power.[26] Much of the information required to map and manage an epidemic will have to be gathered from disparate institutions (hospitals, laboratories, public health agencies), possibly in multiple jurisdictions, before it can be analyzed and interpreted. What is already known about "natural" outbreaks of the same disease may not apply.[27] As the epidemic evolves, understanding of what to do may change; interventions may need revision. The public may view inconsistent or evolving responses as evidence of incompetent leadership. An attacker's strategy may further confound the question of whether things are getting better or worse: Is this one or multiple attacks? Is this outbreak just the beginning? Is the nation at war?[28]

Unpredictable, rapid, and far-reaching impacts

Biological attacks may have unpredictable, rapid, and far-reaching impacts, given a "closely interconnected and highly mobile world."[29] Contemporary transportation systems facilitate quick travel across vast distances, potentially speeding geographic dispersal of disease. With global media and 24/7 news reporting cycles, an outbreak in one locale, deliberate or not, can induce anxiety and dread in very distant though unaffected places. Creating victims in three crash epicenters, the 9/11 attacks sent major psychological shockwaves throughout the country.[30–32] Epidemics can have broad, indirect economic impacts owing to the tight linkages that exist among national and local economies. The world airline industry, some estimate, lost $10 billion in 2003 due to SARS.[33] Curtailed air routes hampered the Asian/Pacific electronics trade, which depends on wide-body passenger airplanes for freight shipments.[34] The Australia-based airline Qantas alone laid off 1,000 employees.[35]

Scarcity of life-saving resources

Pre-event or emergent conditions may create shortages of healthcare personnel, medicines and vaccines, and critical equipment like ventilators. Rationing and prioritized access to resources may heighten a population's sense of vulnerability. Even during ordinary, noncrisis times, the U.S. health care system suffers from intermittent scarcity.[36] Assuming the best case—sufficient resources to meet emergent demands—transient scarcity may arise due to the time it takes to move materials to those who need them. Federal officials intend to deliver the Strategic National Stockpile (e.g., pharmaceuticals, antidotes, medical supplies) within 12 hours of the decision to deploy; state and local authorities must then break down the "wholesale" cache into "retail" units.[37] Moments of absolute scarcity also could exist, forcing the question of who gets what and in what order. Antitoxin therapies for botulism, for instance, are in very short supply and must be used early to arrest the progression of paralysis.[38]

The practical difficulties of disease containment

Disease containment encompasses a variety of actions: outbreak detection; epidemiological investigation to track victims and their contacts (in the case of contagion), diagnose new cases, and tailor emergency response efforts; mass prophylaxis with appropriate vac-

FIGURE 1. SPECIAL CIRCUMSTANCES POSED BY DELIBERATE EPIDEMICS THAT COMPLICATE DECISION-MAKING

Wide range of attack scenarios makes it impossible to anticipate, prepare for, or educate for all.

- Threats or scares, such as the increasingly frequent anthrax "hoaxes"[96]
- Assassination of individuals (e.g., ricin poisoning of the Bulgarian defector, Georgi Markov)[97]
- Discrete, nonlethal attacks (e.g., 1984 salad bar contamination with hundreds becoming ill)[98]
- Few cases and deaths that are still profoundly disruptive (e.g., anthrax-laden letters)
- Localized lethal outbreak, comparable to the accidental 1979 anthrax release from Soviet bioweapons facility[99]
- Campaign of mass casualty attacks in different cities, at different times, as in the Dark Winter tabletop exercise[2]
- Lethal pandemic (or global outbreak) through an unchecked reintroduction of smallpox[2]

Uncertainties about the event and a proper response will stem from the unfolding biology, incomplete science, and barriers to quick assembly and analysis of essential information.

During the 2001 anthrax attacks, frustration and confusion arose from lack of immediate answers to basic, factual questions. Who did this? How many letters were involved? Who came in contact with the letters? Health authorities and clinicians had to make critical decisions based on absent or partial scientific knowledge. What is the best treatment? Who should receive preventive antibiotics and for how long? How many spores cause sickness? Which mailrooms should be closed and surveyed? Apparent inconsistencies and gaps in the government's response fostered more uncertainty. Were officials withholding information about the severity of the attack? Was treatment for postal workers and Capital Hill employees really different, and why?[100–101]

Rapid and far-reaching impacts are possible in a highly mobile, economically integrated, and information-saturated world.

- More than 4,000 SARS cases (half the total global count) are tied to a 1-day hotel stay in Hong Kong by a doctor who treated patients in Guangdong Province, where the outbreak first emerged.[102]
- The World Bank estimates the SARS economic impact on East Asia to be $20–25 billion (i.e., 0.4–0.5% GDP) as of June 2003.[103] Canadian losses are estimated to be $1.5 billion (i.e., 0.15% GDP).[104]
- The anthrax–mail system "link," plus the unexplained Nguyen and Lundgren deaths, created a sense of danger: One-third of respondents in a U.S. poll in November 2001 reported handling mail with precautions.[48]
- When the global SARS outbreak peaked, some New Yorkers transposed reports on conditions in hard-hit cities like Hong Kong to *their* hometown, where impact was negligible.[105]

Pre-event or emergent conditions may create temporary or absolute limits to potentially life-saving medical resources.

- A high number of vacancies exist for all hospital staff, including nurses, imaging technicians, and pharmacists. More than three-fourths of urban emergency departments operate "at" or "over" capacity.[106]
- For some Category A diseases, no vaccines or post-exposure treatment yet exist; in cases where countermeasures do exist, doses are limited, with the exception of smallpox vaccine.[38]
- Only two states (FL, IL) are now prepared to deploy adequate personnel to break down the Strategic National Stockpile of drugs, antidotes, and medical supplies once it arrives.[107]
- Few trained disaster mental health professionals, a weak infrastructure for implementing broad mental health protections, little knowledge on effective treatment, and scarce funds for long-term mental health care inhibit U.S. response to terrorism's psychological effects.[108]

The logistics and high stakes of disease containment—for example, minimizing cases, deaths, and disruption and using scarce resources well—create a fine line between overreacting and underreacting.

- During the anthrax crisis, state health agencies in affected areas postponed non–anthrax-related epidemiological investigations and laboratory studies because of limited personnel available to perform routine public health functions.[109]
- SARS infection controls (e.g., facility closures, restricted access, staff screening, isolation precautions, limited patient transfers) dominated hospital operations in greater Toronto,[110] interrupting care for other life-threatening conditions like heart disease and cancer.[111]
- Cognizant of the 1918 pandemic that killed 550,000 in the U.S., health authorities launched a national immunization campaign in 1976 after a suspicious flu virus emerged. The pandemic never materialized, and the flu shots were implicated in a rash of Guillain-Barré syndrome cases, adversely shaping attitudes toward vaccine safety.[112]

Fear and loss can trigger the impulse to ostracize, stigmatize, and blame others.

- Some employees of American Media, Inc.—the site of the first anthrax case—were doubly victimized: Long-time physicians refused to care for them; schools turned away their children; those with "second" jobs as housekeepers were not allowed into homes to clean.[113]
- Recovered SARS patients, their families and neighbors, doctors and nurses, formerly quarantined contacts, and residents of affected cities have been shunned globally.[60,110,114] Of Hong Kong residents polled in July 2003, 51.3% expressed fear of ex-SARS patients.[115]
- The Council on American-Islamic Relations reports rising anti-Muslim sentiment in the U.S., whereby "religious and ethnic features of Muslim life or Muslim religious and political views [are] set apart from what is considered normal and acceptable."[63]
- Anti-Muslim crimes increased 17-fold during 2001, according to FBI statistics.[116]

cines and/or antibiotics; treatment and, if appropriate, isolation of exposed and ill persons; coordination of health care services to meet population-wide demands; and rapid and effective communication with a worried public.[39] Analyses of high-profile public health campaigns have often judged interventions as flawed because they provided "too much too soon," "too little too late," or both. Infection control specialists in Toronto hospitals surmised that they had been too slow to implement measures to avert SARS transmission; they advised U.S. colleagues to act more vigorously and sooner.[40] Few U.S. hospitals, however, would be willing to implement costly "fever checks" for everyone entering their facilities unless an immediate problem existed.

Impulse to avoid, stigmatize, and/or blame others

Alienation, prejudice toward minorities, and loss of faith in leaders are potential social casualties of a deliberate outbreak. Both fear and loss can fuel the search for someone to blame. Who has committed the terrorist act? Who is spreading the disease? Who is responsible for a less-than-perfect response? By pointing the finger at a known target, individuals and groups may feel they can turn a mysterious and devastating epidemic into something more familiar and possibly controllable.[41] "Outsiders"—individuals and groups of different national origin or ethnic or religious background—have long been vilified as the cause or origin of disease.[4,42] Since the early sixteenth century, syphilis has been termed "morbus gallicus" (the French pox) in Italy, "le mal de Naples" (the disease of Naples) in France, the "Polish disease" in Russia, the "Russian disease" in Siberia, the "Portuguese disease" in India and Japan, the "Castilian disease" in Portugal, and the "British disease" in Tahiti.[43] Scapegoating may be more severe in the context of bioterrorism when the issue of human culpability is prominent.[44]

WHAT LEADERSHIP DILEMMAS MAY ARISE IN A DELIBERATE EPIDEMIC, AND HOW MIGHT THEY BE AVERTED?

Two main categories of governing dilemmas that surface repeatedly during outbreaks will likely characterize the aftermath of a biological attack. The first category centers on apparent and actual conflicts among strategic goals. Large-scale outbreaks are complex events that provoke fear and contradictory impulses. Because an epidemic's impact—illness, death, lost livelihood, disrupted commerce—is troubling to consider, leaders and the larger public may deny that a problem exists, or intervene too quickly without regard to the negative effects of their

actions. Once acknowledged, an epidemic exerts immense political and social pressure for swift, decisive, and visible response,[45] perhaps even more so in the case of a deliberate epidemic. Balancing the imperatives of disease control with those of individual liberty, economic stability, and protection against stigma have been the most commonly occurring dilemmas for leaders in past crises (see Figure 2).

A second set of dilemmas centers on matters of social trust. Mutual confidence and obligation among decision-makers, citizens and their leaders, and community members are the basis for achieving any and all strategic goals. Conditions that confound social trust involve preconceptions about "the government," "the public," or "the media"; the social and economic fault lines that are exacerbated by disease and dread of it; and questions about the morally defensible use of communal resources in times of crisis (see Figure 3).

Each section below identifies a specific dilemma, illustrated with actual events and accompanied by principles, actions, and guidance that the Working Group believes can help communities cope with such crises. Some recommendations relate to pre-event opportunities to avert dilemmas, others for managing them once a crisis has begun. In many cases, recommendations are counterintuitive and different from what both leaders and the public may expect.

1. Stopping disease that spreads person-to-person while upholding individual freedom

A well-informed population is more likely to cooperate with advice for reducing the spread of disease: authori-

FIGURE 2. RECOMMENDATIONS FOR HANDLING POTENTIAL CONFLICT BETWEEN STRATEGIC GOALS IN RESPONSE TO A DELIBERATE EPIDEMIC

Stopping disease that spreads person-to-person while upholding individual freedoms

- Make bioterrorism response plans public before a crisis occurs; a well-informed population is more likely to cooperate with advice for reducing the spread of disease.
- Sketch out the "big picture"; make concrete the fact that personal actions can affect the safety of others—for example, remind people that staying home from work or keeping children out of school when they are ill protects others from getting sick.
- Use disease controls that respect ideals of autonomy, self-determination, and equality. Public cooperation limits illness and death; public resistance does not.
- Provide goods and services that help people comply with health orders—for example, set up vaccination clinics in locations accessible to people without cars.
- Restrict civil liberties, if necessary, *only* in a transparent and equitable way.

Stabilizing the economy while using disease controls that could disrupt commerce

- Be mindful of the goal of long-term financial recovery when controlling disease; do not react based solely on the desire to avert short-term economic loss.
- Recognize public trust as precious "capital" that grows the economy. For example, if people see their health as your top priority, confidence in your efforts to safeguard the economy will follow.
- Account for the less visible and more scattered monetary impacts when making epidemic control decisions (e.g., the burden of victims' healthcare costs; the economic toll of stigma).

Restoring social bonds when people feel at the mercy of a mysterious disease or attacker

- Express empathy for people's fears about getting sick from contact with others; follow up with meaningful medical details that allow people to gauge personal risk accurately.
- Demonstrate compassion toward victims of disease; explain to the community-at-large the social costs of avoiding people out of fear, rather than out of actual danger.
- Provide frequent updates on the criminal investigation; counsel people not to lash out against others who "look like" presumed perpetrators.
- Spotlight community projects aimed at bringing people together across social divisions sensitized by the crisis, such as ethnic and religious affiliations in the case of 9/11.
- Direct law enforcement to deal appropriately with hate crimes in the event prevention fails.
- Coordinate volunteers, relief groups, and civic organizations in humanitarian response, with extra focus on assisting the most vulnerable, such as children, the frail elderly, and disabled people of all ages.

ties should thus make response plans known in advance of crisis. The public should not learn about intimidating life-and-death threats or drastic public health remedies for the first time when their children are in danger or when quarantine appears imminent. If leaders expect community residents to take specific actions when an event occurs, then the public must have a general understanding of the systems in place to address a bioterrorist threat, and they must have a clear understanding in advance of what their roles and responsibilities are. Officials may believe that they are protecting the public by withholding information regarding response plans on the theory that revealing these plans will show potential attackers where they can strike most effectively.[46] That assessment ignores evidence from the attacks of 2001 that determined terrorists will identify vulnerabilities that are unknown to the public. More important, it ignores the role that citizens can and should play in helping set state and local priorities.

Authorities should approach members of the public as peers, as decision-makers who are interested in determining the nature of the danger and acting to reduce the chance of illness for themselves and loved ones.[47–49] Based on experience in contemporary and historic outbreaks, emphasizing the public's autonomy when implementing epidemic controls can actually help minimize the number of cases and deaths.[16,50] Leaders would be well-advised to avoid investing scarce public health resources in altering the actions of a few through force, at the expense of disregarding the majority of people who are willing to cooperate, especially if given compelling reasons to do so.[51] Questions of utmost importance to the public include, "Am I safe? If not, what do I do about it? Have I lost someone I care about?" Government executives should note that, in the context of bioterrorism, the public places more trust in updates coming from public health officials and physicians than from appointees who do not have health backgrounds.[52] Officials should refrain from giving directives ("do this" or "don't do this") without giving the reasons for those directives, and they should spell out concretely how personal actions can affect the safety of others.

Well-intended disease controls that compromise democratic ideals of self-determination and equality of persons can inadvertently spread an epidemic further. Health authorities recognized early in the AIDS epidemic that mandatory screening for the human immunodeficiency virus and draconian quarantine policies were likely to have the counterproductive effects of driving people *away* from health care, thus cutting off opportunities for early prevention and treatment.[16] Facing a citywide smallpox outbreak in 1894, Milwaukee health authorities forcibly removed impoverished immigrants to isolation hospitals perceived as substandard, while permitting well-off families to care for infected members at home.[50] Seen by many segments of the city's population as authoritarian and discriminatory, these measures fomented resistance, including month-long riots that only contributed to the spread of smallpox. In contrast, New York City officials in 1947 effectively quelled a smallpox outbreak by implementing a voluntary mass vaccination campaign that was universally applied. This effort was aided by local volunteers and community groups and promoted through robust public communications.[50]

Regarding public compliance with health orders, authorities should take care not to mistake the inability to comply for unwillingness to do so. Disease controls should not inadvertently penalize disenfranchised segments of a community. Solving "noncompliance" issues may have less to do with handling willful or obstinate people than with improving life circumstances—material and social—that prohibit people from following recommendations.[51] Homelessness, drug addiction, and mental illness, for instance, impeded many disadvantaged tuberculosis patients in the 1990s from fully completing the rigorous treatment schedule the disease requires; this posed the risk of developing drug-resistant strains of the disease. Lower income people often must choose between health care and basic needs, such as rent, food, and clothing. In the 1918 influenza pandemic, some Baltimore residents berated health officials for cutting retail business hours to control the spread of disease: hourly workers lost wages including money to buy extra heating fuel, which they judged as more essential to their well-being and that of their families.[53]

If serious, unforeseen conditions warrant temporary restriction of civil liberties for communal welfare, health authorities should implement controls *only* in a transparent and equitable way. Based on past epidemics in the U.S. and elsewhere, quarantine of a large area or involuntary removal to isolation facilities by authorities can be seen as a worse threat than the disease, leading to public resistance that ultimately undermines disease containment.[54–56] This has been especially true when officials have selectively used force. If disease controls appear arbitrary, the public may judge health leaders as lacking moral authority and undeserving of their cooperation during the crisis.

2. Stabilizing the economy when using controls that disrupt commerce

The potential for economic loss has long served as a powerful incentive for government and business leaders to deny a disease threat exists and to delay containment.[29,57] If leaders subordinate economic concerns, however, in the interest of other strategic goals like reducing morbidity and mortality and preserving public

confidence, their actions may well help revive financial conditions more quickly.[58] In the fall of 1982, Johnson & Johnson executives faced a terrifying scenario: seven people in the Chicago area had died after taking Extra-Strength Tylenol capsules that an extortionist had laced with cyanide. Setting consumer safety as the company's priority, managers promptly halted Tylenol manufacture, withdrew the product from shelves worldwide, and invited customers to return their product for refund or replacement. The company destroyed $100 million in inventory, saw an 87% drop in market share of painkillers, and faced expert predictions of the brand's demise. After a brief period and with an advertising and media blitz, Johnson & Johnson reintroduced Tylenol products with tamper-resistant packaging. In response to the company's civic-minded behavior, consumer confidence rebounded, quickly returning market share to pre-crisis levels.

Focusing exclusively on avoiding short-term financial loss is an enormously attractive mistake that can compromise other strategic goals *and* have a boomerang effect, leading to larger losses and slowing economic recovery. Epidemic control decisions thus should aim at fostering long-term stability as well as containing short-term economic loss. Driving the British government's handling of the "mad cow" (bovine spongiform encephalopathy, or BSE) outbreak that emerged in 1986 was the desire to limit immediate costs and protect the beef industry.[58] Operating on this principle, and the belief that BSE posed little risk to humans despite uncertain science, government leaders did not intervene early, allowing BSE to remain in the cattle population and contributing to greater human exposure. To avert undue public concern about food safety and its economic impact, British leaders repeatedly dismissed BSE as a human threat. Safeguarding the cattle industry while underplaying human health risk, the government created conditions for enhanced spread of disease, diminished public trust in government management of the problem, and, paradoxically, a shrinking domestic demand for beef (down 37% from 1987 to 1995).

Some financial losses of an epidemic are dramatic and glaring. To control the 2001 foot-and-mouth disease outbreak in the United Kingdom, 1/8 of all farm animals—8 million across 9,677 farms—were slaughtered.[59] By June 2001, 7,800 farmers and farm workers had lost their jobs, and revenues for feed producers, rural businesses, and tourist enterprises plummeted.

Leaders should similarly be cognizant of less prominent and dispersed economic impacts when crafting their epidemic control strategies. Costs to victims may include treatment of acute disease as well as chronic care for the long-term effects of infectious disease, complications secondary to treatment, and/or posttraumatic stress. Shunning of people and places because of contagion also exacts a toll. Hong Kong psychiatrists attribute high rates of anxiety, depression, and posttraumatic stress among recovering SARS patients (one of three) largely to the experience of stigma.[60] In April 2003, New York City had only 15 SARS cases and no deaths in a city of 8 million,[61] yet 84% of Chinatown business owners surveyed that same month reported that business had dropped by a third as a result of SARS.[62]

3. Restoring social bonds when people feel at the mercy of a mysterious disease or attacker

Confronted with a mysterious disease, people often blame others or make arbitrary distinctions between who does and who does not pose a threat—a result of their understandable desire to protect themselves and to avoid feeling powerless.[41] Leaders can encourage people not to isolate themselves or make outcasts of the exposed and/or the ill. They can acknowledge that self-protective behavior is normal and then clearly describe the epidemiological basis of risk, suggesting practical protective measures and calling for compassion toward those affected. If such preventive measures fail, it will be necessary to institute protections against discrimination in housing, employment, and the like. Managing the potential for stigma can help reduce illness, death, and the spread of disease. Fear of being ostracized is a strong incentive for people to hide disease, possibly injuring themselves or, in the case of a contagious illness, those with whom they come in contact.[1]

Backlash following a terrorist attack is similarly related in part to individual and group feelings of vulnerability and lack of control and to preexisting social prejudices. Frequent briefings on the criminal investigation may prevent people from filling an information void with harmful speculation about who has perpetrated the crime. Social division and instability are, in effect, the goals of terrorism: investigation updates should counsel about the importance of not lashing out against others who "look like" suspected perpetrators. Law enforcement officials should promote a professional ethic whereby stereotypes and social prejudices do not enter into the investigation,[63] and they should dedicate sufficient resources to handle backlash-related hate crime. Advocating solidarity and respect for difference, leaders should make themselves visible and available to victimized communities and spotlight community activities aimed at bringing people together across sensitive divisions. Alongside harassment and discrimination, the September 11th attacks also created a surge of public interest in Islam and Muslims.[44] Interfaith and community outreach projects, as well as educational efforts by the press, helped foster greater fellowship and understanding across ethnic and religious divides.[64]

Apart from enhancing people's personal sense of awareness and control over the health crisis and protecting against stigmatization, officials should facilitate opportunities for people to assist in the humanitarian response.[65] Pub-

FIGURE 3. PRINCIPLES AND ACTIONS FOR ADDRESSING WELL-CHRONICLED PREDICAMENTS THAT CONCERN "SOCIAL TRUST"

Alerting people to the crisis without causing incapacitating fear, denial, or skepticism

- Share what you know. Do not withhold information because you think people will panic. Creative coping is the norm; panic is the exception.
- Hold press briefings early and often to reach the public. Answering questions is not a distraction from managing the crisis; it *is* managing the crisis.
- Confirm that local health agencies and medical facilities are prepared to handle an onslaught of questions from concerned individuals, in person and by phone.
- Convey basic health facts clearly and quickly so that people have peace of mind that they are safe or so that they seek out care, if need be. Similarly, brief healthcare and emergency workers so they have a realistic understanding about job safety.
- View rumors as a normal sign of people's need to make sense of vague or disturbing events. Refine your outreach efforts; the current ones may not be working.

Earning confidence in the use of scarce resources despite existing social and economic gaps

- Account for income disparities in response plans; anticipate the need for free or low-cost prevention and treatment.
- Make planning transparent so that the public sees that access to life-saving resources is based on medical need and not on money or favored status.
- Be open about eligibility criteria for goods and services, especially when tough choices arise unexpectedly—for example, which botulism attack victims will receive the limited antitoxin that exists.
- Show thorough preparations to protect vulnerable populations like children and the frail elderly, thus bolstering *everyone's* sense of security.

Maintaining credibility when decisions must be made before all the facts are in

- Advise the community at the outset if crisis conditions are evolving or could be prolonged.
- Offer more detail rather than less, even when the unknowns outnumber what is known; resist the urge to reassure for reassurance sake alone.
- Be frank about any uncertainty regarding "facts"; describe plans to fill in knowledge gaps.
- Vary your means of reaching the public. Mix high-tech outreach (Internet, cable, network, print, radio, cell phone, automated hotlines) with contact through grassroots leaders.

Delivering effective public health protection when multiple jurisdictions are involved

- Conduct pre-event drills and discussions that test, exercise, and energize collaboration; co-sponsor post-event debriefing sessions to improve future performance.

lic health and safety organizations should develop internal protocols for integrating volunteers and/or establish partnerships with relief groups or community-based organizations for mobilizing volunteers. Active engagement of the public in relief may counter the terrorizing effects of an attack and have other important material benefits. By incorporating volunteer labor into professional response systems, authorities can have sufficient personnel or "backfill" to carry out critical functions, if need be. Conscientious plans for an organized relief effort may also help minimize the negative effects of spontaneous volunteerism (e.g., volunteers who unknowingly put themselves in danger; well-intentioned donations that prove unnecessary or become a logistical burden).

4. Alerting people to a crisis without causing incapacitating fear, denial, or skepticism

Decision-makers need to anticipate and modulate their own emotional responses to crisis, taking care not to project their stress, fears, and feelings of inadequacy onto the public.[66] Leaders are often inclined to make reassuring statements prematurely in order to avoid unnecessary alarm or a secondary "disaster" (e.g., people fleeing an area and clogging highways).[67] But downplaying danger when its extent is not yet known tends to make a leader's or an agency's subsequent statements suspect, especially when the peril is real and even greater than anticipated.[68] Though it is a fallacy to assume that all people always act

sensibly, detailed study of population responses to actual disasters over the past five decades suggest that panic rarely occurs. Hollywood images to the contrary, hysterical mobs consumed with the desire for self-preservation at the expense of others are exceedingly uncommon in crisis situations.[67,69–71] Fatal epidemics of a previously unknown disease can unnerve people and lead to unwarranted fear of exposure and scapegoating. These effects have proven to diminish as communities develop routines and strategies for coping.[72,73]

Decision-makers should avoid thinking that members of the public are panicking when they are merely engaging in entirely understandable behaviors, such as seeking more information, questioning authorities, and undertaking precautionary measures (even if officials believe these are unwarranted). Rather than dismissing expressions of fear, dread, or misery, leaders should acknowledge people's sense of vulnerability and ask them to bear the risk and work together toward solutions.[11] Fear of exposure is a legitimate behavioral health concern: officials should eschew the phrase "worried well" to depict individuals seeking professional advice on health-related concerns. Instead, local health agencies and medical facilities should have plans to handle an onslaught of public information requests, whether in the form of calls or drop-in visits. Hospital personnel, private practitioners, and emergency medical workers are understandably going to be interested in their well-being and that of their families during a health emergency. Health officials and their organizational collaborators should ensure that these critical personnel have the information they need to reduce any unwarranted reluctance to do their jobs.

Through early and frequent media briefings, a leader can demonstrate a commitment to keeping the public up-to-date. This practice can also help avert an official information void that may be filled by harmful speculation or less dependable sources.[68] Steps toward effective interactions with the media include setting aside any predisposition to see the press as intruders or provocateurs, establishing positive working relationships with them prior to a crisis, developing a pragmatic communications strategy to deal with the reality of 24/7/60/60 reporting, and picking and training appropriate spokespersons.[68] Incorporating the press in training exercises improves understanding between officials and the media of their roles and challenges in a bioterrorism response. When an event occurs, leaders often believe that they are too busy managing the response to spend time with the press and, by extension, the public. Although there is some truth in this, decision-makers should appreciate that responding to the public's concerns is not a distraction from managing the crisis, but rather is *part and parcel of* managing the crisis.

Worried about the prospect of further disruption, authorities often interpret rumors on the part of the public as an indicator of panic or a conscious attempt to perpetuate falsehoods. Rumors, however, are a normal sign of people's urgent need to find and confirm useful information to explain ambiguous events. Rumors and exchanges of information within informal networks become intensified during crises when people are seeking out information to explain what is happening and to protect themselves, when other clarification is missing.[74] Indeed, the spread of rumor can signal that public risk communication strategies are not having their intended results.[75]

5. Earning public confidence in how scarce resources are used despite existing social and economic gaps

Not everyone experiences the same material security or faith in the health care system, nor do they feel equally entitled to make demands on authorities. Leaders should stay alert to the fact that some people are (or see themselves as being) disenfranchised and that some segments of the population are more vulnerable to the effects of disease outbreaks. Socioeconomic disparities are likely to influence attitudes and behavior following a bioterrorist attack.[76] One of every seven Americans lacks health insurance,[77] with minorities overrepresented.[78] Based on past events, such as experimentation on slaves and the Tuskegee syphilis study, and on current findings that race/ethnicity can adversely affect the standard of care received, many African-Americans distrust medical and public health institutions.[78,79] Many immigrant groups regard the medical system with suspicion because of language barriers, cultural misunderstandings, and fear of deportation among the undocumented.[80] Mistrust and lack of insurance are powerful arguments for people *not* to seek medical care or follow health recommendations, even when warranted. By contrast, economic means and a sense of entitlement may lead some people to make extraordinary or inappropriate health demands.

Given routine differentials in access to health care and the prevalent belief that inequity *will* prevail during a bioterrorism response, leaders are in the unfortunate position of having to prove otherwise. They should plan for and provide evidence that access is based on need, not money or favored status. Of respondents to a national poll, 72% said they believed that if it were not possible to vaccinate everyone quickly during a smallpox outbreak in their community, wealthy and influential people would get the vaccine first.[81] Nearly half (43%) thought that the elderly would experience discrimination, and one-fourth (22%) thought that African-Americans would experience discrimination. Decision-makers can account for income disparities in contingency plans by setting up vaccination clinics in locations accessible for people without transportation and by informing the public about plans to make free or low-cost emergency treatment or prophy-

laxis available. To ensure that marginalized constituents understand that their interests will be protected in a health emergency, officials should engage with them in noncrisis times, ideally through health programs that address specific needs of these populations.

When tragic choices like distributing scarce life-saving medical resources arise, such public health decisions require full disclosure, with clearly stated facts and rationales for decisions, giving due diligence to distributing benefits and burdens justly. Members of the public are less likely to feel that eligibility criteria have been arbitrarily imposed on them if they are given a chance to comment on policy options under consideration.[82] Leaders should engage members of the public in frank discussions about who may be the priority recipients of potentially scarce resources (e.g., antibiotics in the case of pneumonic plague, vaccine in the case of smallpox) before an actual bioterrorist crisis occurs. Government and hospital response planning can benefit from the use of participatory decision-making bodies for public health interventions that require a community's ethical judgment.[13]

6. Maintaining credibility when decisions must be made before all the facts are in

At the very outset of a biological attack, leaders should prepare the community for conditions of uncertainty and a potentially prolonged crisis. Realistic descriptions of the tentative and evolving nature of authorities' understanding can offset public perceptions regarding an omniscient, omnipotent government on the one hand, or an utterly incompetent one on the other.[83] Following the 9/11 attacks, Mayor Giuiliani exemplified what leaders should do when faced with uncertainty. Able to offer only a rough estimate of 9/11 casualties early on, he indicated that the final number would be "more than any of us can bear, ultimately."[84] A question of utmost importance to the public, but one that cannot be easily answered in the initial stages of a biological attack, will be: "How many sick and dying are there?" As noted earlier, leaders will face a host of other questions to which there are no quick and sure answers, such as whether an outbreak is a precursor to other attacks.

When biological events occur that cannot be anticipated, officials need to be as open as possible with the public about the challenges these crises pose. Even when unknowns outstrip what is known, erring on the side of sharing more information rather than less helps maintain credibility. The dangers of frightening people unnecessarily or having them not comprehend the complexity of the matter are far less than leaders often imagine, and the danger of propagating suspicion toward authorities far greater when communications are limited.

The absence of frank and frequent updates from Chinese officials about the SARS crisis, coupled with surreptitious disease containment, for instance, fomented public resistance and stigmatization of affected populations. As the epidemic spread across China, provincial leaders withheld information from peasants on the theory that, as one bureaucrat told a news correspondent, "They just won't understand."[85] But when peasants learned their villages might be used to quarantine outsiders who had possibly been exposed to SARS, they rioted against government preparation of quarantine centers and set up makeshift roadblocks to keep out nonresidents.

Officials should be candid about the level of certainty (and uncertainty) with which they are speaking about public health and safety, discussing frankly the limits of their knowledge and describing plans to fill in gaps.[14] Every official action primes conditions for future public expectations and reactions. In the fall of 2001, the Secretary of Health's definitive reassurances that Bob Stevens's inhalational anthrax was "an isolated case" and that "there is no terrorism" came before all the facts were in. The results created the impression that the government was not being forthcoming about the extent of the problem, especially when more cases of infection and anthrax-laden letters arose.[86] At the urging of the White House, the Environmental Protection Agency deleted cautionary statements and added reassuring ones in early press reports about the air quality in lower Manhattan following the collapse of the World Trade Center towers.[87] By declaring the air outside Ground Zero "safe," based on inadequate data and analysis and in the face of New Yorkers' own experiences of difficult breathing, the EPA undermined its own credibility, not only on this sensitive issue but perhaps on future ones as well.

To reach the largest number of people as rapidly as possible, authorities must work closely with large media outlets to transmit critical health and safety information and provide factual updates. At the same time, grassroots civic leaders and smaller media outlets serving ethnic minority and immigrant communities may provide a better route for reaching populations that either do not routinely use or do not trust mainstream media, or who are suspicious of official government pronouncements.[88] Decades of research on natural and technological hazards indicates that members of the public are capable of understanding risks if information about those risks is communicated in ways that they find meaningful and through institutional and media channels they trust.[89–94]

7. Delivering effective public health protection when multiple jurisdictions are involved

An overarching leadership dilemma relates to interactions among decision-makers, agencies, and levels of government. The involvement of multiple jurisdictions and authorities in a crisis is an operationally and politically complex situation that requires more treatment than

space allows here. Health officers may implement divergent approaches to disease containment and/or place varying emphasis on the need to protect civil liberties.[95] Perceived discrepancies among the practices of neighboring health agencies may undermine public confidence in epidemic controls throughout an affected region—particularly if authorities do not disclose meaningful reasons for the differences. Given their respective missions and work cultures, law enforcement and public health agencies may place different priorities on the need to disclose investigation details or to protect victims' privacy. Elected officials responding to constituent concerns may advocate more liberal use of medicines or more restrictive disease controls than health experts recommend. A public health officer may be struggling to get information from other officials while trying to develop and deliver clear guidance to the public. Pre-event drills and discussions that test, exercise, and vitalize joint endeavors among government entities and post-event debriefing sessions that evaluate collective performance may improve collaboration in crisis.

CONCLUSION

Leadership during both natural and intentionally caused epidemics entails consciously pursuing and institutionalizing a sense of shared responsibility for the public's health—among leaders, between leaders and the public, and among community members themselves. Principles for achieving this sense of shared responsibility include approaching the public as a capable ally, not a problem that needs managing; keeping response transparent through open channels with the media and a community's other trusted sources; prioritizing voluntary compliance among the many over coercion of the few; advancing equity in access to emergency resources; sharing difficult decisions when they arise; and calling for solidarity and compassion, while shielding and aiding the ostracized. Successful control of an intentional outbreak begins by working for fixes in normal times, before anything terrible occurs. Both public cooperation with and enhancement of emergency policies and the community's ability to rebound from tragedy will be enhanced if people have been forewarned and involved. Promoting the health of cities and working to overcome trends of disenfranchisement also provide a solid societal foundation for biodefense.

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