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Bioterrorism

Psychological and Public Health Interventions

CAMBRIDGE

Part V

Conclusion

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Behavioral and mental health responses to bioterrorism: needs for the public's health

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Biological agents are the New Millennium atomic concern. These agents – bacteria, viruses, prions – can create chaos and national disruption. The management of bioterrorism requires a multidisciplinary approach to understanding the effects of these agents on nations, communities, families, and individuals. In preparing for bioterrorism and other weapons of mass destruction there is an understandable disparity between priorities of nations and those of individual communities. While experts believe that it is highly likely that there will be an attack using weapons of mass destruction somewhere, the risk of such an event in a given community is quite low. A swift and effective response by public officials to a bioterrorist attack can minimize negative consequences (e.g., fear, stigma, scapegoating) and promote responsible behaviors by citizens.

Central to planning for the mental health needs after a bioterrorist attack is the recognition that the goal of terrorism is to stir terror. In many ways, the deaths that occur are a side element of the primary goal – to send fear, anxiety, and loss of hope throughout communities, nations, and the world. Terrorism has been endemic in some parts of the world and has been seen throughout history. Bioterrorism also has a history. However, bioterrorism in the modern age is a new, more threatening, and potentially devastating risk. A new combination of factors has increased the risk of biological terrorist attacks. These factors include the known vulnerabilities and the capabilities of certain groups as well as their intentions.

The psychological consequences of bioterrorism, similar to other terrorist events, include behavior change, distress symptoms and, for some, psychiatric illness. Previous epidemics have taught us the importance of response systems and protecting critical personnel to the survivability of communities and to their mental health and function. Psychological function and psychiatric disease as well as the distress of individuals and communities is dependent upon the rapid, effective, and sustained mobilization of health care resources to appropriately deal with medical concerns.

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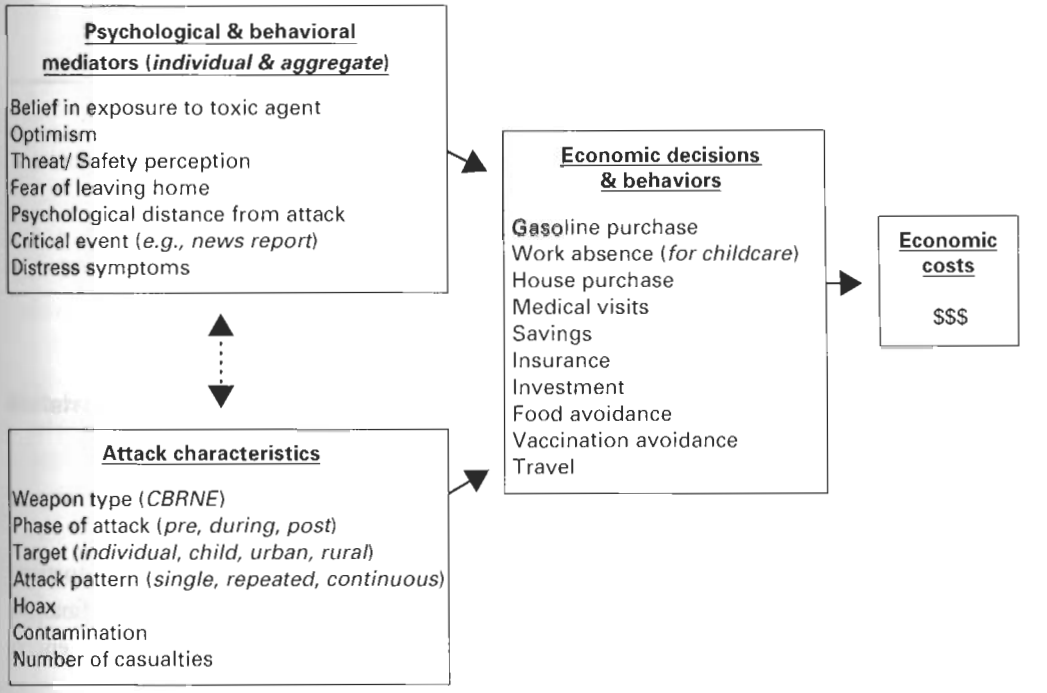

Figure 18.1. Model of economic decisions and behaviors.

Perhaps more than any other terrorist event, bioterrorism requires the mobilization and effective cooperation of the health care system, the emergency response system, and the public health system.

The economic impact and consequences of terrorist attacks in general and bioterrorism in particular are substantial. For example, was there a dip in consumer confidence during or after the Washington DC sniper attacks? If so, how large and what was its duration? Did the decrease get worse as the crisis continued? Was it only in DC or the entire Atlantic states or the Northeast or major metropolitan areas? Was it seen in middle class people or among people of all ages. Certain economic behaviors and decisions are both affected directly by various characteristics of a terrorist attack and by the psychological and behavioral responses to the terrorist attack itself. For example, after a terrorist attack, decisions and behaviors related to travel, home purchase, food consumption, and medical care visits are altered not only directly by changes in availability but also by changes in perceived safety, optimism about the future, and belief in exposure to toxic agents. The fact that threats and hoaxes carry with them economic costs and consequences perhaps best illustrates the importance of psychological and behavioral effects on economic decisions and behaviors and their associated economic costs (see Figure 18.1). The impact on the local or national economy ranges from altered food consumption,

Table 18.1. Intervention matrix: interventions to prevent, mitigate and manage psychological and behavioral consequences of a bioterrorist attack

	Agent: terror/injury	Vector: terrorist	Population: person
Pre	• Modify building ventilation system • Mail screening • Detection systems	• Screening high risk positions • Management of dangerous agents	Preparedness behaviors: • Risk assessment • Information/plan • Evacuation planning
During	• Turn off ventilation system	• Law enforcement training • Security alert systems	Disaster behaviors: • Active coping • Evacuation
Post	• Emergency response system	• Justice system	Response/recovery behaviors: • Psychotherapy • Medication

savings, insurance and investment, to changes in work attendance and productivity and broader national or industry specific consequences such as altered financial and insurance markets or disrupted transportation, communication and energy networks.

The mental health and behavioral consequences of bioterrorism will be the most significant, long-term, and most costly effects of a bioterrorist attack. The development of specific recommendations for the integration of mental health and public health in responding to a bioterrorist event is critical (Ursano *et al.*, 2001, 2002; Institute of Medicine [IOM], 2003; Joint Commission on Accreditation of Healthcare Organizations [JCAHO], 2003). Response to a bioterrorist event requires a multidisciplinary approach. Scientists, health care responders, and national leaders must work together to assure health, order, and continuity of government and societal function.

Planning for mental health and behavioral consequence management after a bioterrorist attack requires consideration of an array of factors (IOM, 2003; Ursano and Fullerton, 2003) (see Table 18.1). Prevention, mitigation, and consequence management can be considered by completing the matrix of factors for the pre, during and post event interventions associated with the destructive agent, the vector, and the population affected. The resulting matrix of interventions for psychological and behavioral consequences of a bioterrorist attack highlights the importance of preparedness behaviors, disaster behaviors, and response/recovery behaviors. In addition non-traditional mental health interventions such as the rapid diagnosis of an agent that will speed treatment, detection, and prevent spread are appropriately seen as decreasing the terror and injury and therefore preventing negative psychological outcomes. This broad perspective better integrates mental health and public

health. This view also emphasizes that the interventions for the psychological and behavioral consequences of bioterrorism must include local, regional, and national health care and community needs. Consequence management for mental health must also consider the needs of the various population groups: distressed individuals, those directly exposed and those who may have been vulnerable before a bioterrorist attack and now bear the additional burdens of lost supports and increased demands. All will experience an altered sense of safety, increased fear and arousal, and concern for their future while some will develop psychiatric illness and disease.

Bioterrorism, health care and communities

First responders following a bioterrorist attack include the traditional fire-fighters, police, and the military, but also, health care providers. Because the medical community are "first responders" in a bioterrorist attack, a broad-based educational plan for health care providers and organizations is essential. Hospital response plans must incorporate mental health and behavioral interventions at all levels. Medical care for infected/injured people as well as for those people who fear they were infected must be based on proven psychological and behavioral principles (JCAHO, 2003).

The response of individuals and communities to a covert bioterrorist exposure or a pre-announced exposure may be substantially different. Anthrax, smallpox, and other biological agents have known courses of disease. Within the hospital and subsequently, classic psychiatric illnesses of delirium, depression, acute stress disorder, post-traumatic stress disorder, and other anxiety symptoms will be present. In addition, somatic preoccupation may be the primary presentation to health care systems and influence families and communities throughout months and years. Effective psychiatric treatments are available for these disorders.

Infection caused by invisible agents is particularly frightening. It touches a deep human concern about the risk of being destroyed by a powerful, imperceptible force. These beliefs activate emotions that can be extremely difficult to direct with the tools of reason. The response of specialists in medicine, epidemiology, infectious disease, molecular biology, nursing, and emergency medical services can bring some discipline and rationality to this situation. To be effective the response must be well organized and communication must be relevant to the public's understanding. Multiple organizations with conflicting and overlapping goals and responsibilities (e.g., health care, law enforcement, school systems, social welfare) will increase the confusion and anxiety for the individual and community. Communities and our health care systems require the capacity to care for substantial numbers of sick and potentially dying individuals. Similarly, social services must plan for the potential

acute and longer-term health burden in communities that face a bioterrorist attack.

Constructive reactions of communities can be aided by planning, which can minimize the scapegoating of groups and individuals who may be seen as either responsible for the bioterrorist attack, or for the all too expectable, ill-distributed scarce medical resources. The management of death and dying as well as monitoring and tracking systems to assure good communications and media relations are important to community function. Often the most important long-term effects of toxic exposures are the economic effects as well as the migration out of contaminated areas.

Communities facing a bioterrorist attack will inevitably experience fear, dread, and confusion. However, data also supports that such communities can be expected to mobilize coping resources, show increased levels of cohesion, commitment, and identification with their families and groups. The mobilization of these positive responses of altruism and commitment can provide important resources for community response. Appropriate communication of risk following a bioterrorist attack is an ongoing and important function for community leaders and health care providers in order to foster positive health behaviors and protective action. The legal system must also address the needs of communities and nations facing a bioterrorist attack.

Planning for the psychological consequences of bioterrorism

Since terrorism's primary goal is to destabilize trust in public institutions, planning is critical. Biological terrorism in particular can strike at the public's faith in its institutions. In the case of contagious agents, neighbors may be perceived as in desperate need and at the same time as a potential source of infection. Although experience with other disasters indicates that most individuals will act with altruism, some will maximize their personal safety. While some individuals may desert the infected, others will expose themselves needlessly to carry out acts of kindness. All of these responses may result in disappointed expectations and unnecessary injury and community disruption. Carefully constructed plans for community guidance and information can organize post-disaster behavior; the absence of such plans invites chaos.

Local and federal leaders will shape individual and community expectations, beliefs, and behaviors through their comments and actions. The management of the acute situation will set the tone for societal responses. The accurate portrayal of ongoing efforts and successful forecasting of predictable events will enhance the credibility of authorities and diminish negative outcomes. In contrast, lies and secrets will likely have disastrous consequences. A well-developed and well-executed communication strategy is the cornerstone of this effort.

Bioterrorism preparation is best framed as one hazard in an "all hazards" program. This underscores its relevance and assures continuity of preparation and training. The benefits of preparation are multiple. The infrastructure necessary to respond to a bioterrorist attack is the same as that needed to respond to naturally occurring epidemics, such as the 1917 influenza pandemic. Preparation minimizes the psychological and societal consequences of weapons of mass destruction (WMD) and fosters rapid recovery. It also increases the likelihood of the continuity of government and community and may serve as a deterrent because it diminishes the effectiveness of WMD attacks. Because the overriding goal of terrorism is to change people's beliefs, sense of safety, and behaviors, mental health experts are an essential part of planning and responding.

Institutions that must respond to the sudden surge of need following a bioterrorist event are particularly vulnerable to disorganization and breakdown. Although in general panic is rare in disasters, these groups and institutions, which may be overwhelmed by mass casualties and massive demands, are at some risk of panic. An untrained, uneducated, and unprepared staff may also be at risk to panic. Planning and pre-disaster exercises are critical to the prevention of these responses.

Psychological and behavioral interventions need to be broad-based and targeted to mental and physical health as well as the continuity of society, community, and government. Education and training are important interventions before and after a bioterrorist attack. They shape realistic expectations of what will occur and maximize the likelihood of a successful response. Interventions are needed for special populations and across diverse cultural groups. For example, technological disasters show that mothers are especially worried after toxic exposures about damage to their children and future offspring. Those receiving congregate care and immunizations also represent special populations for intervention. Critical questions arise – what circumstances, if any, would warrant quarantine and how would it be carried out? The decision to quarantine creates two special populations, those included and those excluded from the quarantine. Difficult decisions must be made, such as a policy to address whether unexposed parents can join their infected children in quarantine.

Early detection, successful management of casualties, and effective treatments bolster the public's sense of safety and increase confidence in our institutions. Mental health interventions after a bioterrorist attack require evaluation for effectiveness and to assess whether they harm or help. There is no "one size fits all" approach for all persons. Medications will play a limited role in the management of psychological casualties. In the acute phase, anxiolytics may help acutely anxious individuals who do not respond to reassurance and education. In the chronic phase, medications will be used for the treatment of severe psychiatric symptoms that do not resolve.

After an attack both mental health surveillance in real time and case finding are a high priority. Mechanisms and tools are needed for both of these. Interventions must be effective and targeted to the needs of multiple populations at different points in time following an attack. As new mental health and behavioral interventions and mechanisms of mental health are identified new models of assessing the mental health impact and providing care can be integrated into mental health surveillance.

While education on bioterrorism has begun it is still needed for multiple groups including political leaders, the health care community, and the public. Taking some of the mystery and novelty out of the world of microorganisms can prepare people to respond appropriately rather than irrationally. Community leaders must become aware that all communities are potential targets for terrorism and that complacency ensures an inadequate response.

The novelty of biological weapons in combination with the activation of deeply rooted fears predict that strong psychological, behavioral, and social responses will occur. In order to develop primary interventions and treatment we must gain a better understanding of the behavioral and social implications of such agents for individuals, communities, and nations.

Future directions

To address the mental health and behavioral needs of communities exposed to a bioterrorist event new public health capacity, planning, education, training and research are needed (for details see Appendix 18.1). These include:

- The public health infrastructure requires funding and support as a first step in any successful mental health and behavioral plan.
- Mental health and behavioral experts should participate in planning at all levels – organizational, community, state, and national.
- Schools and workplaces are of particular concern and offer avenues for education and communication to the community. The workplace as a potential target, requires special consideration for planning and possible intervention needs.
- Education of mental health care providers in the psychological effects of terrorism and evidence-based interventions is needed.
- Education and training is needed for primary health care practitioners. These health care providers need to be able to respond to the distress, anxiety, somatic symptoms that may be prevalent after a bioterrorist event as well as to communicate information on risk, contagion and prevention.
- Research is needed on psychological and behavioral responses to past infectious outbreaks, the effects of "belief" in exposure, mental health and behavioral surveillance tools, and individual and community interventions following mass casualties and epidemic populations.

These core elements, as illustrated by the work in this volume, can result in a better prepared health care and community response. The mental health and public health partnership can direct further knowledge development and interventions to protect and care for individuals and communities exposed to a bioterrorist event.

Appendix 18.1. Specific recommendations for behavioral planning for a bioterrorist attack

The specific recommendations that follow were the result of two expert consultation meetings (see Ursano *et al.*, 2001, 2002) that are grouped under six headings: Mental health and behavioral planning; Education and training; Public health policy for the psychological consequences of bioterrorism; Communication; Decision support: Data acquisition for health surveillance and program development; and Research. Due to the intrinsic relatedness of these areas, there is overlap. Resources must be allocated to all six areas to ensure that mental health and behavioral preparation and response to bioterrorism is effective and coordinated.

Mental health and behavioral planning

- Rapid and accurate tests to diagnose illness are significant ways to diminish the anxiety that ripples through a nation after a bioterrorist attack. To the degree there are clinical symptoms that distinguish bioterrorism and the usual organisms that create illness, the public can be educated so they can assess the need to seek medical assistance. In the absence of such discriminators, reassurance will be much more difficult and may prove to be false.
- If bioterrorist events create significant damage to the economy, there will be a second surge of mental health consequences affecting a much broader spectrum of people. Studies of severe economic downturns have demonstrated that they generate substantial mental health morbidity.
- The number of conditions under which quarantine is effective is small. In view of the profound behavioral and social difficulties that may result from such actions, guidelines should be developed that delineate under what circumstances it will be used and how it will be instituted as part of bioterrorism preparation. These deliberations will be more effective if public constituencies are included to help develop the plans and articulate the multiple behavioral responses that will occur.
- Mental health acute surge capacity and ongoing service resources must be evaluated. Disasters also produce a surge of health care need from those suffering from psychiatric disease as support systems are lost and stressors increase. Resources must be available when endemic psychiatric illnesses present for care in surge form. Such high-risk groups require specific preplanned community

interventions. Children and the elderly are also at high risk. Counseling resources from schools, employee assistant program personnel, and retired mental health professionals should be included in state and local response plans as supplemental professional caregivers.

- Strategies are needed to mobilize positive community action as in past civil defense programs in order to promote resiliency and recovery and decrease helplessness.
- The mental health skill sets for interventions following bioterrorist attacks need to be specified across the various mental health provider disciplines. Training and education programs must be developed. Where possible, these should be based on evidence-based practices and should span the continuum from early crisis counseling interventions to longer term care for those who develop psychiatric disorders.
- The mental health community should determine how existing hotline models can be adapted and used for effective interventions with an anxious public.
- Interventions should target promoting group cohesion and solidarity. Frightened people can frequently be reassured if provided the opportunity to help others. People who are terrified worry only about themselves and are isolated. Viewing one's self as part of a high functioning group facilitates effective responses that are balanced between one's own good and the good of others. Local institutions and help groups can be vehicles for this program to foster social cohesion and decrease fear.
- Methods of delivering mental health care that minimize requirements for logistical support must be developed. The use of video teleconferencing for consultation, telephone therapy, telepsychiatry and other means of providing care from a distance should be examined. These methods of providing support may be particularly useful in the case of an attack with a contagious organism.
- All plans should include contingencies for providing care in circumstances in which electrical power and complex technology is not available or not functioning.
- Mental health interventions should include broadly conceived individual and group interventions and policies for improving function, fostering resilience and providing hope. The design of memorial services and when and how to return workers to the workplace are examples of this broader context.
- Public officials should anticipate community beliefs in conspiratorial theories after a bioterrorist attack. These will extend beyond the objective evidence provided by the investigation of the attack and intelligence agencies. Scapegoating, paranoia, and stigmatization are expected reactions to a terrorist attack.
- Prior planning, education, and realistic training drills are needed to reduce the risk of panic among professional groups. While panic is rarely seen following a disaster, small professional groups managing the bioterrorism response may

confront overwhelming demands and be at high risk for group breakdown and panic.

- The mental health community should work closely with the clergy. Members of the clergy are an integral part of the medical and mental health disaster response teams.

Education and training

- Develop education programs for primary care providers on anxiety, depression, and somatic symptoms as responses to extremely stressful events and the chronic effects of stress on medical problems (e.g., diabetes, heart disease). Somatic symptoms are often misdiagnosed or over treated, and anxiety and depression missed and under treated.
- Education and training programs are needed for community and national leaders on how to communicate effectively with the public in the aftermath of a bioterrorist attack. In particular, educate leaders on the factors that increase and decrease credibility.
- Educational programs for state, local, and national leaders and responders are needed to increase knowledge of the factors that contribute to people's sense of safety and foster altruism. Incorporating these into plans and community programs is a critical translation of knowledge into policy. Education of local leaders must also address the widely held belief, "It may happen in major cities, but it won't happen here" and the expected problems produced by stigmatization and conspiratorial theories in the wake of catastrophic events.
- Education and training of ancillary personnel both in hospitals and in workplaces is important to diminishing organization-wide fear and to reduce absenteeism.
- Small, laminated summary information cards for physicians, nurses, and physician assistants that lists the differential diagnosis of weaponized biological agents, to include routine pathogens, anxiety symptoms, etc. can be a helpful aid.
- Create education and training programs in basic bioterrorism first aid, to include providing psychological first aid as support and fear management. A successful model is Basic Life Support training; training could be provided by medical and community welfare agencies (e.g., Red Cross).
- For mental health providers, education and training programs must include the identification and diagnosis of medical illness in psychologically affected individuals. Observe individuals for physical signs and symptoms, as well as psychological findings.
- Develop and widely disseminate model acute mental health intervention programs for mass casualties. Mental health interventions are broader than the popular debriefing, which may have little or no role after a bioterrorist event.

- Planning must include outpatient clinics and office-based medical practices because most care is outpatient based.
- Review medical protocols to ensure they include monitoring of behavioral, as well as the medical responses, to a biological agent.
- As part of educating the public and diminishing fear, routinely drive HAZMAT trucks – with personnel attired in protective clothing – through neighborhoods to desensitize the community.
- Leadership at local, state and regional levels as well as in the private sector requires education about the psychological and behavioral implications of crisis management. For example, they need to explicitly recognize the long-term consequences of manning decisions and the negative consequences of overdedication to work in a disaster (e.g., exhaustion leading to errors of decisions and behaviors that put people at risk).

Public health policy for the psychological consequences of bioterrorism

- The public health infrastructure for mental health intervention requires funding and ongoing support to be able to respond to a bioterrorist attack. Historically, it is difficult to sustain sufficient funding in the absence of catastrophic events. Since the war against terrorism is expected to last decades, it is imperative that adequate funding be a high priority.
- Epidemiological investigation services should be augmented to include behavioral scientists (e.g., psychiatrists, psychologists, social workers) to provide observational data and, where possible, mental health surveillance instruments for those most affected or at risk.
- Mental health surveillance must be a standard part of post-bioterrorism responses. It is essential to provide "real time" assessments of community perceptions, fears and symptoms in order to monitor changing mental health needs and to adjust resources accordingly. Often media surveys have provided this with varying accuracy and utility. Telephone and preplanned internet sampling offer new and rapid information for local decision makers and planners. Traditional information resources such as school absences and work sick days can be collected in a central source.
- Hospitals require an epidemic disaster plan that addresses mental health and behavioral issues. These plans must address the use of supplemental assessment and treatment protocols for mass populations, as well as alternative facilities for overflow.
- Disaster planning should take into account the emotional impact of a bioterrorist attack on leaders. During extreme crises, public officials tend to come to decisions prematurely (e.g., as in the terrorist attacks on the Atlanta Olympic Games and

the Murrah Federal Building in Oklahoma City). Policies must guard against premature decisions that could have catastrophic consequences.

- Prearrange for real-time consultation with experts during a bioterrorist event. Because the expert pool is small and already committed during a bioterrorist event, redundancy in the experts pool is essential.
- Establish a Research Advisory Committee to receive, review, and recommend studies necessary to fill in the gaps in our understanding of the behavioral and psychological responses to bioterrorism. This committee should evaluate studies for scientific merit, as well as agreement with established research priorities.
- Develop policies on the distribution of limited resources, such as vaccines and antibiotics. Research and ethical review should inform such policies. If policies are perceived as inequitable, the government will lose credibility.
- Develop dedicated private communication lines to hospitals, public health officials, government officials and other essential data sources, and decision makers in the event of crises. Regular phone lines will likely be unavailable due to heavy usage during a crisis.
- Establish a central repository for information on chemical and biological agents to provide rapid, updated, and accurate information on bioterrorist agents to health care providers and be available 24 hours/day.
- Develop an assessment tool that rapidly and rationally evaluates the impact of a bioterrorist event on a community, e.g., the loss of life, contaminated facilities, loss of first responders, available resources and other useful indicators. This will serve both to organize thinking in a high-pressure setting and act as a guide for resource allocation.
- Develop policies for monitoring evacuation and immigration into and out of contaminated buildings, communities, or cities.
- Review laws related to quarantine and vaccination; revise laws, when appropriate.
- New policies are needed to address the long-lasting physical and psychological effects of bioterrorism and to clarify financing for the treatment of chronic conditions, disabilities, unemployment, and indigent health care that result from such events.
- Roles and responsibilities for mental health, mental illness, and behavioral response consequence management need to be delineated at the state, local, and national level. National resources can be used for the development of models and templates of new mental health care and interventions for the expected new patient populations and distressed communities. In order to conserve resources, it may be most efficient for the general education, training, preparation, and response templates to be developed at the federal level and modified to meet requirements at the state and local levels.

- There is a need for a national information policy and local implementation plan that is developed in coordination with local areas including rural representatives.
- The role of workplace employee assistance programs should be developed to provide additional resources to assist with public health and mental health interventions. In the case of bioterrorism, buildings remain intact but employees may fear returning to them resulting in increased rates of absenteeism and sick leave. Public and private business policies should be developed to facilitate a rapid recovery in the workplace following a biological attack.
- Policies must reflect the medical infrastructure, logistical capacities and personnel availability. These matters will determine the medical community's ability to respond. These include: a critical shortage of nurses worldwide; accreditation requirements for disaster response; mandatory overtime; the capacity to expand beds and to distribute medication in and out of hospital; and maintenance of records in mass casualty situations.
- Mental health and behavioral expertise and planning are needed in preparation for potential agricultural bioterrorist attacks. The effects of foot and mouth disease in the UK demonstrate the important role of mental health programs for veterinarians, farmers, and ranchers where economic and emotional losses result from bioterrorist attacks.
- Coordination between health care resources, political offices, and public affairs is needed in an ongoing and sustained program. After a bioterrorist attack tensions will be high between the scientific world and the political world, e.g., in the scientific community, good science is a goal whereas for politicians, good will is the goal. Effective collaboration will require a history of cooperation.

Communication

- Risk communication and public education experts, public officials, and infectious disease specialists must develop communication and information programs for each of the expected major biological threats. Risk communication after an attack is key in promoting healthy and constructive behaviors by the public and in reducing panic. Risk communication and public education programs must include strategies about evacuation, quarantine, and immunization.
- Schools should be included in community disaster planning programs. School systems offer an avenue to educate parents, as well as students. Develop educational pamphlets for parents, in addition to age-appropriate materials for children. Particular programs that address parental concerns for children are needed.
- Teach health care practitioners how to better communicate with patients about infectious risk, contagion, and prognosis. Physicians play an important role in shaping the long-term reactions to a bioterrorist attack. As was seen in Chernobyl,

the attribution of physical complaints to an event may increase disability and somatic complaints.

- Develop specific communication programs for different groups. For example, following the Chernobyl accident, research in Norway revealed that urban and rural populations relied on different information sources and experts. Public education materials and scripts must be culturally appropriate and translated into all languages found in the community.
- Physicians require education on working with the media in order to establish comfort and credibility in advance of a bioterrorist attack. This expertise must be developed in small communities as well as at the regional and national levels. To this end, it is incumbent on those who will serve in these roles to limit their comments to topics in which they possess professional expertise. Relationships with the media must be in place in advance of an attack so that trust and familiarity are ensured.
- Communications with the public must be bi-directional. "Bottom–up" grassroots solutions, as well as top–down solutions are always needed. Experts need to engage the public in dialogue.
- The mental health community must work to ensure that journalists have ready access to recognized experts in order to help them discriminate among the outpouring of "experts" that inevitably occur after a disaster. The media play a prominent role in disseminating information. For journalists there will always be a tension between accuracy and speed. Similarly, for public health officials there is a tension between the need to be in control and the chaos that is inherent in a terrorist attack. These groups must work together to ensure that accurate information is released to the public.
- The influenza and chickenpox seasons and other periodic infectious outbreaks offer an opportunity for the medical community to assist the public in self-triage and to establish workable messages that are effective for various populations with fears of infection and contagion.
- Efforts must be made to develop health-related slogans that can be useful to the public in preparation for natural and deliberate infectious disease outbreaks, e.g. "Wash your hands and stay healthy." Specifically there is an urgent need to develop a proactive ad campaign against terrorism. Historically, slogans have captured the public's imagination with simple advice (e.g., "Loose lips sink ships," "Only you can prevent forest fires").
- Journalists are at high risk for psychological trauma through their coverage of violent events or as targets of terrorism, themselves, as in the recent anthrax attacks in the United States. Efforts should be made to work with the media in ways to promote resiliency and facilitate their ability to report objectively and accurately.

- Multiple and often not considered information vehicles are important for information distribution before and after a bioterrorist attack. The media is more than primetime news, mainstream newspapers, and radio. Additional audiences obtain their information by watching shows targeted to adolescents reading tabloids, and accessing the Internet.
- There is a pressing need for repeated retreats and ongoing dialogues with journalists in order to facilitate candid exchanges where concerns about bioterrorism can be examined. These opportunities can provide physicians and public health care providers with useful insights about communicating with the public. The goals of such a meeting should include developing a common strategy for controlling false rumors, and developing educational messages for the public.
- Educational experiences should be offered for journalists on the issues of biological, chemical, and radiological/nuclear threats. Ideally, these experiences should include "hands on" training. For example, wearing protective gear worn by first responders or working in a laboratory to see how anthrax testing works.
- Local and national public information strategies should be built around the journalistic formula, "Who, what, when, where, why, and how?" (i.e., what's the message?; to whom?; what do we want the public to do?; what do the people want to know?; and how can people be empowered to contribute and overcome their own sense of helplessness?).
- Local, state, and regional authorities need to identify local authorities/experts who are seen as highly credible in their communities and link them with local media, talk shows/call-in programs.

Decision support: data acquisition for health surveillance and program development

- There is an urgent need for epidemiological studies of mental health responses to terrorism and the effect of ongoing terrorist threats on mental health and behavioral service needs.
- Services evaluation should be required of all mental health interventions following bioterrorist events in order to plan for subsequent attacks.
- Research should identify unrecognized high-risk populations (such as the bereaved parents of adult children) in order to develop specialized intervention programs.
- Research should delineate valid community-wide measures of mental health (such as the rates of prescriptions for psychotropic medications, alcohol use, school and work absences) that can be incorporated into surveillance programs.
- Surveillance and reporting systems currently in place should be examined for expansion to include information on infectious disease and mental health surveillance in hospitals, schools, and outpatient health care settings.

- A detailed taxonomy of disasters including bioterrorism should be developed. Common and discriminating elements associated with various events can be identified. Contextual issues such as the type of attack, magnitude of destruction, and characteristics of the perpetrators and victims are also important information from which to anticipate behavioral and mental health responses. Other contextual issues such as the social, political, and economic conditions pre- and post-event as well as a description of the extant mental health infrastructure are important.

Research

- Research on mental health and behavioral interventions for individuals and populations after mass violence and infectious outbreaks is needed.
- The relationship between "beliefs" about exposure and the subsequent development of multiple idiopathic physical symptoms (MIPS) requires study.
- Study of past public awareness campaigns that had unintended consequences and identification of factors that precipitated and maintained unwanted consequences can assist in forming public policy. For example, a recent education program on crime prevention had negative effects. Elderly living in low-risk crime situations developed unrealistic fears of crime and kept windows closed during extreme heat; this resulted in deaths from hyperthermia. Further research is needed to identify factors that motivate people to appropriate action with minimal fear and helplessness.
- Research on mass behaviors such as hysteria, evacuation, rioting, and panic is needed to identify the factors that alter these behaviors.
- Study the behavioral and mental health effects of past infectious disease outbreaks to identify the effects and course on community, small group, hospital personnel, family, and individual responses. These should include outbreaks of anthrax and plague, legionnaires disease, West Nile virus, Ebola, AIDS, and the 1917 flu pandemic.
- Study previous bioterrorist hoaxes to identify the behavioral and psychological consequences on decision-making, communication, and interventions.
- Test the behavioral impact of present and newly developed policies empirically using simulation exercises. For example, study decision makers and first responders to see whether or not they would report to duty if they were given antibiotics and immunizations but their families were not. Similarly, study the effects that worry about family has on performance and decision-making. This work should also identify the level of training needed for various interventions, i.e., whom should paraprofessionals evaluate versus professionals; what skills are needed for various responsibilities?

- Research addressing the special needs of children is needed. The role of parents, such as the effect of mothers' anxiety on perceptions of child health (as was seen following Chernobyl) should be examined. Include the positive and negative effects of establishing special programs for children, families, and communities in such studies.
- Comprehensively review past terrorism events using weapons of mass destruction (e.g. Tokyo sarin attack) and technological accidents (e.g., Chernobyl, Guiana) to learn more about the psychological and behavioral responses of individuals, families, and communities. Pay special attention to actions that promote versus diminish scapegoating and stigma.

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