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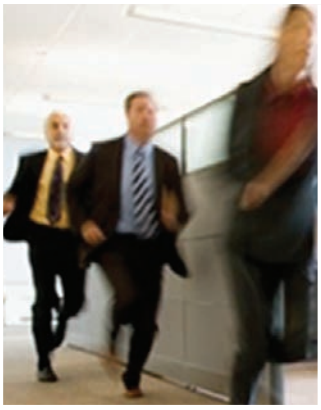

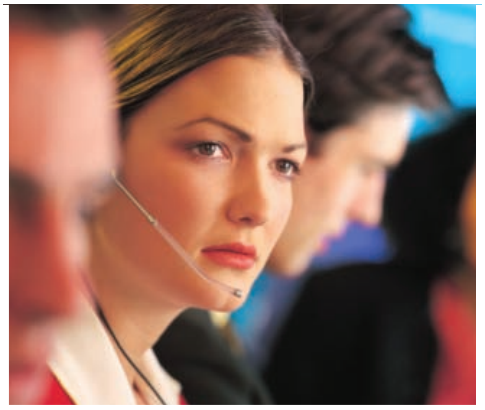

ANTICIPATING THE EMOTIONAL AND BEHAVIORAL CHALLENGES OF PANDEMICS AND OTHER COMPLEX PUBLIC HEALTH EMERGENCIES >

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Abstract

The psychological reaction to public health emergencies is complex and unlike the response to other types of disasters. Public health emergencies do not necessarily produce traumatic stress responses in affected individuals and communities. Typical post-trauma psychosocial interventions are not the appropriate approach to the psychological management of such events. Rather, these emergencies are characterized by a series of specific and predictable emotional and behavioral reactions that require a different level of understanding and management.

How individuals, families and communities behave in such emergencies will either facilitate or obstruct public health and emergency management efforts. Leaders and decision-makers, first responders and first receivers, all must be cognizant of these reactions and adjust organizational strategies for health, safety and business continuity accordingly. This paper introduces evidence-informed assumptions about the emotional and behavioral challenges associated with a pandemic for the purposes of organizational continuity planning and emergency management.

Introduction

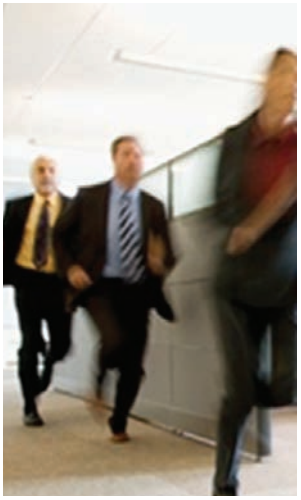
There are foreseeable emotional and behavioral consequences to all disasters and emergencies. Some are more pronounced than others and in some instances the behavioral challenges of a crisis can completely outsize the medical or physical impact of the event. In addition to the medical implications of a pandemic, such a health crisis can result in significant psychological, social and economic disruption further complicating response and recovery efforts.

During the last great pandemic in 1918, very little was documented about the emotional and behavioral response of the public. Much of what is discussed here is extrapolated from other data sets sharing similar threat elements. Having made the appropriate and obligatory disclaimers, there are foreseeable emotional and behavioral responses to pandemic influenza that leaders and decision-makers must factor into their response and recovery strategies. Those foreseeable responses are the focus of this paper.

No Established Predictive Models

A comprehensive review of the literature yields few empirical studies addressing the behavioral or emotional consequences of pandemics. There are no established or accepted models of predicting the exact psychological response to such events. The concepts used today to discuss mental health and human behavior were not in existence during the last great pandemic (1918-19). The concept of a diagnosable

traumatic stress disorder did not fully enter the literature until after the Vietnam war. The bottom-line is that there are no existing models for the emotional and behavioral reactions that may grip the public during a prolonged public health emergency, such as a global disease outbreak occurring in successive waves. What is called for is an entirely new paradigm for anticipating the human response to such threats that may truly inform planners and responders in a way that facilitates the best-possible response to the worst-case scenario.



Emotional and Behavioral Responses

For the sake of clarity, it is important to understand the distinction between emotional responses to disasters and other traumatic events. In this context the emotional response refers to what is typically considered the "mental health" implications of an event. For example, the numbers of those with either diagnosable and sub-diagnosable forms of depression, anxiety, posttraumatic stress, and other mental health problems are likely to skyrocket following a 12 to 16 month long health crisis that results in a tremendous loss of life and substantial disruption of personal, professional, and social functioning.

It is also foreseeable that those in the general population who already have some sort of pre-existing mental health problem may experience an exacerbation of their conditions caused by separation from caregivers and supportive programs, as well as disruption in their psychiatric medications. Such new or pre-existing mental health problems are considered the emotional responses to a pandemic or other health emergency throughout this paper.

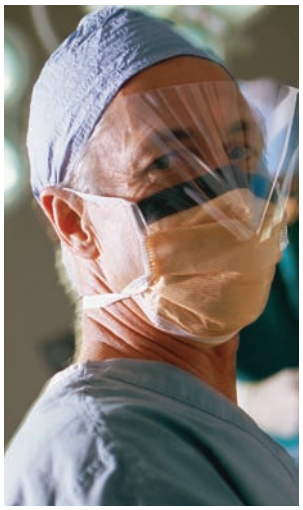
Behavioral responses are those reactions such as panic, hoarding medications or supplies, non-compliance with vaccination or quarantine orders and so on. They are not the signs or symptoms of a mental illness, but rather significant behavioral alterations that may cause further harm to the individual, the community or to the larger society.

One landmark study highlights the fact that emergency management professionals often fail to properly predict human behavior in disasters and emergencies. The "Redefining Readiness: Terrorism Planning through the Eyes of the Public" study, should be required reading for all emergency managers and crisis planners. The study can be found online at: http://www.cacsh.org/pdf/RedefiningReadinessStudy.pdf.

In the study, Dr. Roz Lasker and her colleagues sampled a significant number of U.S. citizens via random phone dialing to inquire how they would behave in two different emergency scenarios. The first was a radiological dirty bomb detonation; the second was a smallpox outbreak.

In the first scenario about one-quarter of all respondents said that regardless of what they were told by public officials about sheltering-in-place or other life safety precautions, they would not comply. These individuals were willing to risk contamination and the problems of trying to travel during movement restrictions to get home to loved ones. In the smallpox scenario, roughly two-fifths of those surveyed said they would not comply if mass vaccinations were ordered.

Non-compliance with public health orders can seriously complicate the emergency management and public health response to the threat at hand. It should not be assumed that people will necessarily follow official directions. The emotional and behavioral responses, while closely linked, are distinct. Emergency management officials, as well as community and business leaders would do well to understand the differences and to factor both into response and recovery plans.



Pandemics are Silent Disasters

Pandemic events share several specific dynamics with chemical, biological, radiological and nuclear (CBRN) hazards. Both pandemic and CBRN scenarios can be characterized as “silent disasters” or “invisible threats.” One cannot necessarily see, hear, feel or taste the presence of germs or many of the known chemical, biological or radiological agents. Likewise, during the asymptomatic phase of some illnesses, one might be a silent carrier of the disease and even once symptomatic may unknowingly spread the disease to others. As a general statement, people are typically more afraid of what they don't know than what they do know. “Uncertainty in illness” is a universal source of anxiety across ages and cultures. Fear of illness can be palpable and when combined with other psychological reactions described in this paper can drive a surge in demand for emergency health care, medications and other critical supplies.

Public Health Emergencies Lack Boundaries

Unlike other disasters, public health emergencies typically do not have clear “bookends.” It would be difficult for an individual to know exactly when the disease event began, when it ended, and exactly who was in or out of the impact zone. Most natural and technological disasters are confined to a limited area, making mutual aid from surrounding communities possible. The possibility that thousands or tens of thousands of communities may experience a pandemic simultaneously, combined with travel restrictions, leads to a potentially overwhelming scenario in which the opportunity for mutual aid and community cohesion are greatly diminished, if not impossible.

Pandemic Events Occur in Waves

The expectation that a pandemic will occur in waves also greatly compounds the emotional and behavioral impact of the event. Stress research has clearly established that we, as humans, are better suited to cope with short-term, acute stress, rather than long-term, chronic stress. The results of prolonged stress exposure on individuals and communities can erode both physical and mental health, as well as the overall social fabric. A prolonged emergency occurring in waves is a worst case scenario from the standpoint of psychological stress.

Psychological Casualties Outnumber Medical Casualties

The psychosocial effects of a pandemic are much greater in number and in complexity than can be fully addressed in this paper. These effects are in many ways like the great mass of an iceberg that remains below the surface, unseen, but perhaps representing a greater threat than what is clearly visible. The emotional consequences of a pandemic may in fact be as great as or greater than the medical consequences of the event and can represent a significant challenge to emergency management and health care professionals, as well as community and business leaders. The cascading financial impact on the economy, specific business sectors and individual households can only further exacerbate the emotional impact of a pandemic. As mentioned, there are myriad factors related to pandemic influenza that may stimulate intense emotional and behavioral reactions that may represent the greatest challenge to the overall response to and recovery from the event.

Managers, leaders and policymakers must consider the following questions:

- What is the range and severity of the expected emotional and behavioral consequences?
- To what extent will these emotional and behavioral consequences affect the public health response and business continuity?
- What strategies and techniques should be used to mitigate the emotional and behavioral consequences of a pandemic influenza?

No pandemic influenza plan can be considered complete until the emotional and behavioral dynamics have been integrated into the fabric of the overall response effort. **The psychosocial impact on the general public, healthcare workers, emergency responders and other groups cannot be ignored. Failure to anticipate the human factor in such a complex emergency is an invitation for disaster.**

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The concepts discussed in this paper are considered evidence-informed assumptions about the pandemic risk and the likely emotional and behavioral responses to such an event. To date, there have been no detailed studies, clinical trials or longitudinal outcome data.

The Worried Well

When confronted by a novel health threat in the 1995 sarin gas attack on the Tokyo subway system, the ratio of psychological to medical casualties was 4:1. In the instance of the radiation incident in Goiânia, Brazil in 1987 involving the accidental release of cesium-137, the ratio was 500:1. In the Goiânia experience, more than 112,000 residents of the surrounding area sought radiation screening after the accidental dispersal of cesium-137 from an abandoned cancer treatment machine. Of the first 60,000 monitored, 5,000 (8%) had signs and symptoms of radiation illness (rash around neck and upper body, vomiting and diarrhea) but none had been exposed or contaminated. Their response was considered psychosomatic in nature.

Hazard scenarios involving invisible and novel threats that lack clear bookends produce substantial numbers of the “worried well,” who can experience psychosomatic or psychogenic medical symptoms. This worried well response can create a medical surge that can quickly overwhelm health care and emergency management capacity.

There are several dynamics that contribute to the worried well response and which can fuel a surge response in the public.

These are:

- Multiple Unexplained Physical Symptoms/Multiple Idiopathic Physical Symptoms (MUPS/MIPS)
- Misattribution of Normal Arousal
- Mass Sociogenic Illness
- Panic
- Mistrust of Public Officials

Multiple Unexplained Physical Symptoms/Multiple Idiopathic Symptoms (MUPS/MIPS)

As discussed in the response to the Goiânia incident, a significant percentage of the population who are exposed to or believe they may have been exposed to a health hazard, are likely to develop actual physical symptoms consistent with the threat. This goes beyond the simple imagining of symptoms to actually presenting with visible evidence that might be confused with the true symptoms of exposure. Such worried well reactions fuel fears in the individual and those around

them since this evidence reinforces beliefs that they may actually be sick or injured. Those experiencing such symptoms are often convinced that they are truly sick and do not necessarily trust medical opinions to the contrary. MUPS and MIPS add to the overall numbers of patients requiring screening and examination and can complicate triage and treatment efforts.

Misattribution of Normal Arousal

Most people are familiar with the basic "fight or flight" response to life-threatening situations. In the face of a real or perceived threat to life or limb, it is not uncommon to experience an elevation in vital signs: increased heart rate, increased blood pressure, faster, shorter breathing, and so on. During a disease outbreak, many of those exposed or who believe they were exposed to an illness, will experience normal elevations in cardiac and respiratory functioning, but will be convinced that their pounding heart or shortness of breath is due to the disease, therefore convincing them that they are ill and require medical attention.

In a pandemic event it may be extremely difficult for medical personnel to sort out which are true and which are pseudo-medical emergencies driven by psychological reactions. Individuals experiencing typical cold or flu symptoms or the symptoms of seasonal allergies may misinterpret their symptoms as evidence of a pandemic disease. As a general rule, medical emergencies always triage higher than psychological emergencies, but when in doubt medical professionals treat medical complaints as medical emergencies until they are otherwise ruled out. This, of course, means treating the individual as if they were truly exposed to the pandemic virus, therefore possibly reinforcing their belief that they are injured or ill, and increasing the strain on the emergency medical system.

Psychological reactions contribute to the overall number of individuals who may require immediate care, and in terms of business continuity, may significantly decrease the number of employees who are willing or able to return to work quickly in the wake of a disease outbreak. In extreme cases, employees may hold onto the idea that the workplace has been contaminated or has become a "sick building," and cannot be sanitized to their satisfaction. The anthrax attacks on both the Brentwood (DC) and Hamilton (NJ) postal facilities left those facilities unusable for years after the initial bioterror events.

> **Medical emergencies usually triage higher than psychological emergencies.**

Mass Sociogenic Illness (MSI)

Mass Sociogenic Illness (MSI) is best described as psychological contagion or epidemic hysteria. It is a social phenomenon of two or more people experiencing a cluster of physical symptoms for which there is no apparent medical cause. This type of reaction can be caused by all types of contaminants when individuals attribute their symptoms to a perceived toxic or hazardous exposure. Despite evidence to the contrary, individuals who believe that they may have been exposed to a pandemic viral strain or are unsure if they were exposed, begin to experience physical symptoms triggered by their psychological response. For individuals having this type of reaction, their symptoms are very "real," and in most cases they will seek medical attention or at least behave as if they are truly injured or ill due to the perceived exposure. The term, "worried well," refers to both individuals and groups experiencing this phenomena, as well as misattribution of normal arousal.

Panic

There are a multitude of potential emotional and behavioral responses that can occur in isolation or in combination with each other. Panic is a complicated and potentially dangerous reaction to threat, real or perceived. It must be stated that panic is uncommon in most disaster scenarios, but that the potential for panic during a pandemic should not be underestimated. Panic can seriously inhibit the public health response to the disease and further complicate an already extremely complex emergency. All leaders should have a working knowledge of the dynamics of panic and its implications.

Panic is not simply intense fear within the individual. Rather, panic more often is a group phenomenon, characterized by intense fear, driven by overwhelming survival impulse. **To understand panic, one must understand economics**. Economics is not confined to financial markets. By definition, economics is the allocation of scarce resources. It is likely that the following economics may apply during pandemic influenza:

- A surge in demand for health care services and emergency care may overwhelm current capacity;
- Critical medical equipment will be in high demand and low supply;
- There is a likelihood of price gouging and the development of a “black market” for essential goods. Vaccines, antiviral medications, hospital beds, and later perhaps basic necessities may be in tremendous demand

Disruption of the supply chain due to a dramatic suppression of the workforce (an estimated 39-40% or more home sick, dying or caring for the sick or dying at any one time) can create havoc to the “just-in-time”

> **Panic is a complicated and potentially dangerous reaction to threat, real or perceived.**

supply management approach that characterizes many industries. Acute absenteeism in the critical infrastructure workforce can affect the delivery of many important goods and services, such as water and power. Law enforcement, EMS and fire, as well as sanitation services, may be interrupted. Many critical medicines like insulin, heart drugs, and other prescription medications may also be in short supply. In addition to medications, access to other medical goods such as masks, gloves, antibacterial soaps, and other protective gear will be limited.

Panic is related to the perception of a limited opportunity for escape and the high-risk of being injured or killed, and/or the perception that assistance and supplies will only be available to the very first people who seek it. Panicked individuals think only of their own needs and survival. In most disasters, there is a strong “neighbor-helping-neighbor” response, whereas, when panic occurs, it is more likely to create a “neighbor-competes-with-neighbor” response, as people scramble to get essential medicines or supplies. Panic also contributes to irrational fighting and fleeing, not the typical fight or flight reaction common in most disaster scenarios. Panic, of course, creates a greater potential for individual and societal harm, as well as complicating first responder and first receiver activities.

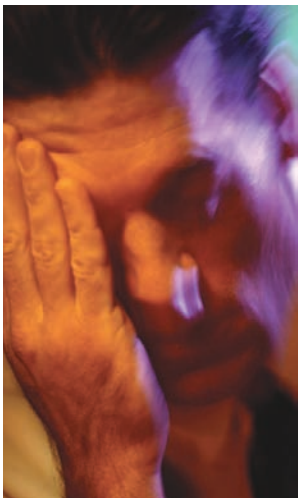
The current limits of antiviral medication stockpiles and the prolonged nature of vaccine production once the novel strain is isolated, will naturally and predictably fuel panic. Panic in turn can trigger all manner of seemingly senseless and counter-productive behaviors. It is not that the panicked individual or group is making a bad decision; rather they are not making a decision at all. Group, crowd and mobs operate on auto-pilot, caught up in a powerful “group-think” that can steer them toward hypercompetitive survival behavior.

Mistrust of Authorities

Even the most sincere government or business leader can be accused of spinning the facts following a tragic event in order to calm fears or to get people back to work. In communities and organizations that have had a history of distrust between management and labor, or senior management and line staff, that dynamic is often exacerbated in times of high stress or fear. In the instance of a pandemic, levels of fear or panic may be so high that there is little one can do to assure employees that they are getting accurate information. Business and community leaders also may struggle with the question of how much information is too much and worry that they might further traumatize or frighten employees and contribute to greater emotional distress.

Foreseeable Emotional Responses

Following most natural disasters the rate of posttraumatic stress disorder (PTSD) in the exposed population is usually in the 11-15% range. This is an elevation above the baseline rate of 8% in the general population. PTSD will be a concern in the pandemic and post-pandemic phases, but rates of depression, anxiety, complicated grief and other mental health conditions will also be greatly elevated. This may occur during a time when access to mental health care and medications may be greatly diminished.



There is a significant number of individuals in any community who struggle day-to-day with serious and persistent mental illnesses, such as schizophrenia and bi-polar disorder (manic depression). Those individuals deprived of their medications and support systems are likely to decompensate and begin to experience a resurgence of psychotic symptoms, such as hallucinations and delusions. The same interruption in medications and treatment for those afflicted with severe depression or anxiety may exacerbate these conditions and result in increases in suicidal and/or homicidal thoughts and acts.

During the SARS outbreak, the inability of families to see their loved ones in the hospital, or to say, “good-bye” if they were dying, greatly complicated the grief and bereavement process. Inability to get bodies back in a timely manner for funerals and other rituals also added to the angst of many surviving family members. The manner in which corpses may be handled en masse during a pandemic may also add insult to injury for many, especially if bodies are warehoused due to shortages in caskets, burial plots or availability of crematory services.

Individual with addictions to various substances, such as alcohol, cocaine or heroin, are likely to see the supply of those commodities dry up as travel becomes limited and goods cannot move as easily from supplier to customer. In the instance of substance abuse dependency, acute withdrawal symptoms will create medical emergencies in many individuals and also contribute to increases in criminal activity and other social problems.

Three Important Planning Scenarios

Pandemics are rare but reoccurring health crises. Not many business leaders or emergency managers have first hand experience of a major pandemic, such as that in 1918, and most will have forgotten the lesser pandemics in 1957 and 1968. It is understandable that well-intentioned leaders will try to superimpose their knowledge and experience of other disaster scenarios onto a pandemic event, but pandemics are different in many significant ways. While the lessons learned in other disasters may have limited application in a pandemic, all leaders, planners and decision-makers should at a minimum have a cursory understanding of the three general types of behavioral reactions to disasters and emergencies.

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Type I Response

The most common and/or foreseeable response to a disaster or crisis is a "neighbor-helps-neighbor" response. People typically look out for each other, help each other, and follow official instructions that they believe will help themselves and those around them. They do not usually panic, loot or impede emergency operations. This, of course, is the best case scenario, and in most instances, this is the response disaster and emergency management planners bank on.

Type II Response

In some instances, particularly those that are perceived to be threats to health or security, a "neighbor-fears-neighbor" response is foreseeable. In most instances neighbors and co-workers gladly run to lend a hand during and after a disaster, but if they believed others might be sick and contagious, or in some other way a threat to them, then all bets are off. Obviously, as individuals perceive that others around them in the workplace or in the community are part of the problem, they become more defensive and less likely to pitch in to the collective response or recovery effort.

A recent study indicated that nearly half of all public healthcare workers would stay out of work during an influenza pandemic. Therefore, it would be important for leaders and planners to reconsider the available “people power” during Type II situations in which not all employees may come in, stay in or be able to execute the critical tasks.

Type III Response

A Type III response represents the worst-case scenario. It is possible but not probable. This response must be understood and considered in general planning efforts. Such a response is characterized by panic. The presence of panic changes all the rules. Panic draws out a survival

reaction and creates a "neighbor-competes-with-neighbor" dynamic that can become more complex and dangerous.

Planners and leaders should no longer count on social or organizational cohesion if such a "tipping point" is reached. Elements of public response to Hurricane Katrina unfortunately illustrated this point too well. The fact that Homeland Security officials commented that they, “did not foresee that lawlessness in New Orleans,” demonstrates a narrowness or "lack of imagination" in the minds of planners to incorporate the essential behavioral considerations into disaster plans.

Recommendations

All disaster plans, for both public and private entities, are extremely behavior-sensitive. Changes in perception about the risk, the response or the motives or leaders before, during and after a disaster can affect every aspect of mitigation and recovery. Understanding these behavioral considerations exclusively from a "mental health" standpoint is too narrow and not useful for disaster planning purposes, although it is essential to plan for emotional consequence management employing qualified internal and external resources.

The disaster behavioral planning assumptions discussed here are offered to help inform pandemic preparedness and response efforts. Certainly they are not all inclusive, but may serve as a starting point for crafting new plans and recalibrating existing plans. It will be important for leaders and managers to factor a realistic range of possible human behaviors into their plans and to work with partners who understand and can help validate these assumptions in their unique environment. It is also wise to leave a flexible margin for variations in this behavior, since so much will be influenced by event-specific factors. While there are limited expert resources in this area, the U.S. Department of Homeland Security has recently established a Human Factors/Behavioral Sciences Division within the Science and Technology Directorate (http://www.dhs.gov/xabout/structure/gc_1224537081868.shtm) to further integrate these important behavioral considerations into homeland security efforts. Highly-specialized consultancies, such as Extreme Behavioral Risk Management (**www.xbrm.com**) can also provide direction and guidance in developing behavioral-based emergency preparedness and response plans for pandemics and other complex emergencies. It is unlikely that general mental health practitioners or Employee Assistance Program (EAP) counselors will have an awareness of or experience in managing the unique psychosocial consequences of exotic risks. Therefore, it is worth taking the time and making the effort to find credible sources of assistance since flawed behavioral assumptions can undermine emergency plans, as well as the health and safety in the workplace and the community.

In Conclusion

Pandemics have historically been long and complex emergencies. Due to climate change, escalating population growth and increased human/animal interaction the next pandemic may be even more dramatic and complicated than those that have come before. There are myriad emotional and behavioral responses to a pandemic that will greatly impact all aspects of emergency management and business continuity. The effects of fear, anxiety and prolonged stress on the community and workforce must be anticipated and integrated into all phases of pandemic planning. While much is not known about the exact psychosocial consequences of pandemic influenza, there is enough known from our global experience with other disasters, terrorism, SARS, HIV/AIDS and other serious threats to extrapolate evidence to inform pandemic plans.

Pandemic plans that do not fully incorporate the emotional and behavioral consequences of the crisis are deficient and risky. Now is the time to reach out to those in your academic, medical and behavioral health care communities to seek input and advice about the unique characteristics of your region's emotional and behavioral risks and resources. This is not a facet of pandemic planning that cannot in any way be ignored or diminished.

About the Author

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