MANAGING THE HUMAN ELEMENT IN CRITICAL EVENTS

5 KEY CONCEPTS FOR LEADERS & PLANNERS
“Critical events” are those events that would cause a business disruption, whether an employee safety and security incident (like an active shooter) or operational problems (like an IT system outage or a severe storm that’s causing massive supply chain disruptions). These are dynamic events that can create potentially overwhelming demands on systems and personnel. To achieve the necessary effectiveness in response to a critical event, an organization may rely on an intricate choreography between human and technological assets. Both must be operating at peak performance under the stress of potentially multiple and simultaneous crisis events. This paper offers insight, explanation and advice to help leaders manage the human element more effectively to ensure mission success in response to critical events.

For many years, business continuity, security and emergency management professionals worked under a simple assumption: In critical events, people will follow established plans and procedures. But work by psychologists and other behavioral scientists has found that this idea fails to consider the often-surprising behavior of people during emergencies. Policies, plans, procedures, and exercises must be based on what people are most likely to do across a range of critical event types. An incomplete or inaccurate understanding of human behavior in critical events can lead to responses that can be ineffective, inappropriate, and even dangerous.
The ability to form accurate behavioral assumptions can give an organization’s leaders an important strategic and tactical advantage in managing a variety of disruptive events. An understanding of crisis-related behavior can inform actions that organizations can take in order to more effectively achieve desired outcomes. Failure to adequately address the human element can compromise the mission. Understanding and anticipating human behavior in crisis conditions, therefore, is an essential task for everyone involved in critical event management. While volumes have been written about the psychology and physiology of humans under stress, there are several key concepts that can be immediately applied to an organization’s approach to critical event management.

1 LEWIN’S EQUATION

Dr. Kurt Lewin, a German-American psychologist, is known as one of the modern pioneers of social, organizational, and applied psychology. Central to his work was his psychological equation, $B = f(P, E)$, representing his theory that human behavior ($B$) is a function ($f$) of a person ($P$) in their environment ($E$). What this means to those concerned with critical events, is that the behavior and performance an organization’s employees, residents in the surrounding community, and members of the critical event response team will vary greatly with different types of events, levels of stress in the critical event management operation, and across the event time line. Lewin’s equation can serve as a foundation for developing accurate behavioral assumptions to guide all aspects of critical event management and a reminder that a “one-size-fits-all” approach cannot be applied to the human element in crisis conditions. It also highlights the importance of leaders maintaining an awareness of changes in the operating environment that can affect both performance and the well-being of individual critical event management team members and the team as a whole.
One notable feature of the critical event operating environment is stress. In addition to the routine stresses associated with a role in security, emergency management and business continuity, the tempo and pressures associated with responding to an actual event can have a pronounced affect on personnel. During times of peak activation, personnel must be capable of:

+ Handling the pressure of working with a high volume of information
+ Remaining flexible in an ever changing environment
+ Adapting well to different situations
+ Multi-tasking and prioritizing tasks well effectively
+ Tolerating ambiguity
+ Quickly analyzing problems, identifying causes, and implementing solutions
+ Staying calm, handling high-pressure situations, and making sound decisions
+ Working independently while also being a team player
+ Identifying critical issues quickly and accurately
+ Paying attention to details

Stress is an elevation in a person's state of arousal or readiness caused by some stimulus or demand, real or perceived. In general, as stress arousal increases, health and performance actually improve. Within manageable levels, stress can help sharpen our attention and mobilize our bodies to cope with threatening or demanding situations. An optimum level of stress can act as a creative, motivational force that drives a person to achieve incredible feats. At some point though, stress arousal reaches maximum effect. Once it does, all that was gained by stress arousal is then lost and deterioration of health and performance begins.

Meta-analysis of research addressing the relationship between stress and performance provides solid empirical evidence that should inform all aspects of critical event response. "Elevated stress levels can impede performance on tasks that require divided attention, working memory, retrieval of information from memory, and decision making." All of the identified areas impacted by stress are essential to effective performance during the response to critical events. Unlike the technological element, the human element is susceptible to the effects of stress.
In response to demanding and threatening events, we tend to experience greater activation of our limbic system, also known as the “emotional brain.” This can influence:

+ Problem solving
+ Decision making
+ Judgment
+ Logic
+ Reasoning
+ Impulse control
+ Verbal processing

...all critical functions in navigating critical events. Central to the physiological response to stress are the neurotransmitter and hormones epinephrine and cortisol. Epinephrine is what is more commonly referred to as “adrenaline.” It triggers increased lung and heart activity. The increased blood flow to our brains can make us feel more awake and aware. Cortisol changes the way we metabolize glucose and regulate blood pressure. During stressful situations, cortisol gives the body the burst of energy characteristic in a fight or flight response.
Some individuals innately have a greater stress tolerance. For example, elite warfighter's brains respond differently to the surge of hormones when they occur. Along with high levels of a chemical called DHEA that seems to mute the more negative aspects of stress, Navy SEALs, for example, have elevated concentrations of a neurotransmitter called Neuropeptide Y, which binds to synapses in the frontal cortex of the brain and modifies the way it responds to stress hormones. This allows those individuals with this trait to maximize the positive effects of stress, while suppressing the negative effects.

MENTAL NOISE AND TASK SATURATION

Under stress we receive, process and act upon information differently. An important element of the operating environment in critical events is “mental noise.” Research indicates that when people are in a state of high pressure or demand caused by perceptions of a significant threat, their ability to process information effectively and efficiently is severely impacted. Mental noise can reduce the ability to process information by up to 80%.

“Task Saturation” is too much to do with not enough time, not enough tools, and not enough resources. It can be real or imagined, but in the end it can have the same effect. When the sum of tasks exceeds the responder’s capability to deal with them effectively, he or she becomes task saturated and unable to perform any one of the tasks proficiently. As task saturation increases, performance decreases, and as task saturation increases, executional errors increase. A concept borrowed from the military describing this effect is “helmet fire;” a mental state characterized by unnaturally high stress, task-saturation and loss of situational awareness.

Leaders must ask themselves, what is the potential cost of key personnel experiencing a reduced ability to process information, an increase in executional errors, and decrease in situational awareness during a critical event response? Each of these experiences can be the byproduct of unchecked operational stress. During critical events, overworking and ignoring functional needs (e.g., sleep, meals, contact with family, etc.) can sometimes be promoted as a badge of honor. Unfortunately, some leaders, and some organizational cultures may actually encourage or reward those individuals who push themselves past the point productivity, compromising the mission and possibly their well-being. Team members should not take pride in overworking. Overworked, task saturated people are not heroes; they are dangerous.
Instead of pushing personnel past the red line, effective leaders and supervisors should be knowledgeable and aware of the concept of operational stress and warning signs of task saturation. These include:

+ **Shutting Down**, when an individual simply stops performing.
+ **Cognitive Lock-In**, characterized by someone sticking with their first decision, no matter what, even though new information or circumstances would suggest changing course.
+ **Compartmentalizing/Target Fixation**, an intense focus on one thing to the exclusion of all else. This is like cognitive lock-in, but not necessarily focused on the first thought or action.
+ **Channelizing**, which is acting busy, but doing little more than organizing and reorganizing lists and doing things sequentially, while not actually producing effective results.

All of these behaviors can be seen as the signs task saturation. They are the behavioral equivalent of red lights flashing on the dashboard, and leaders should recognize and respond to these indicators before things get worse.

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### OPERATIONAL STRESS CONTROL

Operational Stress Control is the management of stress as an element of the critical event operations environment to meet strategic and tactical goals. It is not simply generic stress management for wellness purposes. It seeks to identify the unique stressors anticipated in various crisis conditions and develop effective counter-measures. Operational Stress Control requires a range of interventions at multiple levels in the pre-event, event, and post-event phases. Good planning should foresee the psychological consequences in order to minimize disruptions to operations, and should address both the employee and the organization.

Supervisors and managers have a responsibility for promoting a positive and healthy work environment, and not rely exclusively on team members initiating their own self-care practices. Adopting a proactive perspective allows both employee and organization to anticipate stressors and shape responses, rather than simply reacting to a critical event when it occurs. In line with Lewin’s Equation, an operational stress management plan for critical event response focuses both on the person and the environment. A clear organizational structure with well-defined roles and responsibilities for team members, leads, supervisors, and managers reduces the potential for stress. An effective manager is familiar with the many facets of operational stress and takes a wide range of steps to integrate stress control strategies into critical event response plans.
OTHER EMERGENCY STRESS RESPONSE CONSIDERATIONS

Several other concepts borrowed from the behavioral sciences can also help leaders and planners better anticipate the challenges of working through a critical event. One such concept is that the human response to disasters, emergencies, violence and other disruptive events is both “phase-specific” and “hazard-specific.” That is to say, how people react in hour one may be radically different than day one, week one, month one, and so on, and that the behavioral response to critical events varies greatly across event type. How people react to fires, floods and earthquakes is completely different than how they react to a disease outbreak or an active shooter. The central message to leaders again, is that there is no universal behavioral response to crises, and therefore, no single approach to managing the behavioral response. Leaders and planners benefit from an understanding of these unique stress reactions to better map out critical event response strategies.

General Behavioral Response Types

TYPE I BEHAVIORAL RESPONSE
While the most common collective behavioral response to critical events can be summarized as “neighbor-helps-neighbor”, there are other event factors that can prevent this common response (i.e., high levels of fear) and in some situations create a competitive survival response that pits neighbor-against-neighbor, thereby eroding the community cohesion that is so important to recovery. In the context of the workplace, co-workers may be considered “neighbors” and the “community” can be the organization and/or workgroups and teams.

Community and organizational cohesion play an important role in both response and recovery. In the wake of a disaster or crisis people typically look for and find ways to assist each other. This “neighbor-helps-neighbor” impulse is referred to as a “Type I” behavioral response.

TYPE II BEHAVIORAL RESPONSE
As fear escalates, it shapes behavior in several important ways. For example, in a disaster or emergency involving the risk or perceived risk of contagion or contamination, people who would otherwise reach out to help others may be prevented from doing so due to the possibility of becoming ill or injured through contact with others. A “Type II” behavioral response characterized by this fear or concern can be understood as a “neighbor-fears-neighbor” reaction.
TYPE III BEHAVIORAL RESPONSE
If fear increases to the level of panic, in which each individual is concerned with their own or their family's survival, they may disregard the needs or safety of others, as well as laws and social conventions. While panic is uncommon in most disasters, a condition in which “neighbor-competes-with-neighbor” for a chance to escape or to obtain critical supplies can result in a “Neighbor-competes-with-neighbor” reaction referred to as a “Type III” behavioral response.

In the early hours and days of a crisis, leaders and decision makers are encouraged to anticipate the community or workforce response based on this model. Doing so can help them better prepare for operational challenges associated with individual, group, crowd and mob behavior that may require adjustments in strategy and tactics.

Anticipating the Behavioral Footprint
Research into human behavior in different event types supports the idea that people’s reactions are largely influenced by what sort of disaster or emergency situation they are confronted with. This has been described earlier in this paper as a “hazard-specific” response. Follow up research in the March 1995 sarin gas attack on the Tokyo subway system documenting a 4:1 ratio between psychological casualties (i.e.-acute anxiety, psychosomatic symptoms, etc.) and medical casualties. This means that for every one person truly experiencing gas exposure symptoms, four people sought emergency medical care for the exact same symptoms although they had not been exposed to the gas at all.

The accidental release of cesium-137 in Goiânia, Brazil in September of 1987 resulted in a 500:1 ratio of psychological casualties to medical casualties, completely overwhelming the capabilities of authorities to manage the event. In response, the state government was forced to open Goiânia’s Olympic soccer stadium as a staging and screening site for those fearful of radiation poisoning. In the first two weeks of the response more than 112,000 people turned out to be screened. Most striking is the report that of the first 60,000 people examined, nearly 5,000 had the signs and symptoms of radiation illness although not one had actually been contaminated.
The “Bookends” Effect
There are several factors that affect the behavioral response to critical events involving life safety, such as acts of unconventional terrorism involving chemical, biological or radiological hazards, as well as public health emergencies like as disease outbreaks. One of those factors can be thought of as “bookends”, or the lack thereof. Many of these hazards are colorless, odorless, tasteless and silent. Unlike conventional terrorism employing bombing, kidnapping or shooting, the dispersal of chemical, biological or radiological materials may be undetected until people become ill or injured.

In critical events in which the hazard cannot be seen, smelled, heard or tasted, when the threat is invisible, it is likely those exposed or who believe that they were exposed may develop a range of physical and psychological symptoms that can confuse and compound the emergency management and emergency medical system. Planners and leaders should be aware of and anticipate these complex reactions.

Panic in Emergencies
While research and field observation suggest that panic is unlikely in most crises, the roots of panic are well known. Panic is related to the perception that there may be a limited opportunity for escape, a high-risk of being injured or killed, or that help will only be available to the very first people who seek it. Panic is competitive and can even be considered a primal instinct. People in a panic are typically not thinking through alternatives or concerning themselves with the consequences of their behavior, but more often acting on “auto-pilot” and simply reacting to the threat confronting them. As such, they are not usually willing or able to understand or follow instructions well, and in fact, may disregard orders or direction, even defying common sense.

THE HUMAN ELEMENT CANNOT BE IGNORED
Operational and emergency stresses are real and important variables in critical event management; they cannot be ignored. They can affect the very best of us and can potentially derail critical event response operations at very inopportune times. We’re all human, and by acknowledging and addressing the human element in critical events, we can minimize the risks of adverse behavioral reactions that may impact event response and recovery. It is important that leaders and planners acknowledge that these forces exist, and that they can cause problems. Leaders and others tasked with critical event management must understand and be able to recognize the key warning signs of emergency and operational stress, such as task saturation, and know how to get help.
It is recommended that leaders align good stress control practices with company values, and ensure that everyone who touches a critical event is afforded attention to help them effectively cope with the psychological challenges associated with the situation. Attention to wellness and stress management should be encouraged throughout the entire event lifecycle, beginning with pre-event, daily self-care activities. It is also important to provide frequent and realistic training to help team members improve stress tolerance and to the check that policies, plans and procedures are based upon accurate behavioral assumptions.

It is also important to recognize that the human element must be aligned with critical event management technologies to fully realize their potential. The human element is neither peripheral nor optional in critical event management, but rather must play an equal and parallel role. The capabilities and vulnerabilities of human beings are – and always will be – at the center of the enterprise.

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ABOUT THE AUTHOR

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Mr. Crimando has been recognized for his outstanding contributions to the field of psycho-traumatology by the International Critical Incident Stress Foundation and by the U.S. Department of Justice-Federal Bureau of Investigations (FBI) for Outstanding Service to the Victims of Crime. With nearly three decades of front line crisis response experience, Mr. Crimando was deployed to the 1993 and 9/11 World Trade Center attacks, as well as New Jersey’s Anthrax Screening Center, and other major disasters and acts of international terrorism. He serves as a consultant and instructor for multinational corporations, government agencies, major city police departments, and military programs, as well as an expert to the media and the courts in the area of crisis prevention and intervention.
ABOUT EVERBRIDGE

Everbridge, Inc. (NASDAQ: EVBG) is a global software company that provides enterprise software applications that automate and accelerate organizations' operational response to critical events in order to keep people safe and businesses running. During public safety threats such as active shooter situations, terrorist attacks or severe weather conditions, as well as critical business events including IT outages, cyber-attacks or other incidents such as product recalls or supply-chain interruptions, over 4,000 global customers rely on the company's Critical Event Management Platform to quickly and reliably aggregate and assess threat data, locate people at risk and responders able to assist, automate the execution of pre-defined communications processes through the secure delivery to over 100 different communication devices, and track progress on executing response plans. The company's platform sent over 2 billion messages in 2017 and offers the ability to reach over 500 million people in more than 200 countries and territories, including the entire mobile populations on a country-wide scale in Sweden, the Netherlands, the Bahamas, Singapore, Greece, Cambodia, and a number of the largest states in India. The company's critical communications and enterprise safety applications include Mass Notification, Incident Management, Safety Connection™, IT Alerting, Visual Command Center®, Crisis Commander®, Community Engagement™ and Secure Messaging. Everbridge serves 9 of the 10 largest U.S. cities, 8 of the 10 largest U.S.-based investment banks, all 25 of the 25 busiest North American airports, six of the 10 largest global consulting firms, six of the 10 largest global auto makers, all four of the largest global accounting firms, four of the 10 largest U.S.-based health care providers and four of the 10 largest U.S.-based health insurers. Everbridge is based in Boston and Los Angeles with additional offices in Lansing, San Francisco, Beijing, Kolkata, London, Oslo and Stockholm. For more information, visit www.everbridge.com, read the company blog, and follow on Twitter and Facebook.