Communication Under Pressure:
Hyper-Stress, Cognitive Impairment, and Emergency Notification Effectiveness
Executive Summary

Physical and psychological pressures during crises can make employees more attentive, energized, and focused. However, beyond certain optimal threshold levels, too much stress (high or hyper-stress) can disrupt the decision-making and behaviors essential for emergency communication success. Among the more significant repercussions of hyper-stress is the negative impact on select cognitive abilities (e.g. thinking, reasoning, and decision-making) as well as behavioral performance, both of which are essential for emergency notification effectiveness. Understanding and adapting to these tendencies is crucial for emergency communication effectiveness throughout the lifecycle of a crisis.

The Impact of Stress on Emergency Communication

The physical effects of stress, high stress, and hyper-stress are well documented. During these peak periods, the human body is flooded with adrenaline, cortisol, and other stress-related hormones, resulting in elevated heart rate, a rise in blood pressure, tensing of the muscles, and fast, shallow breathing. These changes put a huge amount of pressure on our bodies, and affect our physiological readiness to respond to demands or dangers in our environment.

These physical changes can negatively impact our vision, hearing, movement, and strength as well. Decreases in reaction time, difficulties in coordination and manipulation, physical immobility, and loss of control of certain bodily functions can present challenges to a professional who is trying to perform their duties and functions, and even simple, well-rehearsed tasks can be challenging.
But it is what happens to the human mind that is typically ignored or misunderstood yet might be even more disruptive to performance at peak periods. Key psychometric changes during high stress or hyper-stress situations include: (a) changes in perception; (b) diminished cognitive capacity; (c) short- and long-term memory loss; (d) recall ability erosion; (e) diminished self-monitoring capacity; (f) delayed reaction time; (g) decreased concentration; (h) diminished logical reasoning; and (i) loss of time perception.

Non-routine and stimulating sights, sounds, smells, and concerns for personal safety are evident in most emergencies. For many people, such distractions negatively affect our ability to hear, see, listen, think, process, decide, and act. The net result is that during these peak periods, it can be increasingly difficult to perform even simple tasks quickly and accurately. The more complex or the longer the sequence of tasks or decisions becomes, the more inefficient or even impossible it becomes for some individuals to effectively perform.

In addition to the physical and psychological changes that an emergency creates, there are other cognitive changes people experience due to stressful situations. These include:

- Changes in situational awareness (being aware of what is happening in the vicinity)
- Changes in perceived risk
- Information–loading reductions (lower cognitive limits on how much or how many things we can think about)
- Changes in attitude/behavioral consistency
- Selective attention (including attention blindness/deafness)
- Changes in reaction time (in most cases, these changes result in slower reactions)
- Memory loss
- Diminished reading/listening abilities
- First language reversion tendencies in second language speakers
In most people, there is an inverse relationship between cognitive abilities and stress levels during a crisis – cognitive abilities often decrease as stress levels increase. However, unless there is a lingering traumatic stress syndrome, these abilities usually return to normal levels relatively quickly.

It is important to remember that people possess different cognitive abilities and limitations, which in turn affects an individual’s decision-making capabilities in a crisis in different ways and to different degrees. Such diminished capacities can impede the crisis responder from constructing and sending successful warnings and emergency instructions.

In addition, it is important to ensure that tasks and procedures for emergency notification personnel are as direct and simple as possible to minimize the problems that arise in hyper-stress contexts. The more complicated the task actions and checklists, the greater the likelihood of problems or even failure.

**Streamlining Emergency Notification Communication Tasks**

Automating or streamlining emergency notification functions can help ensure emergency notification effectiveness despite the physical and cognitive challenges of the situation. Benefits include:

- **The ability to prepare key messages in advance** – Utilize message maps, thereby eliminating the inaccuracies of constructing messages under stress
- **The capacity to store pre-written messages** – Craft message templates in advance for different contexts and different audiences
- **Few steps and fewer clicks** – Understand that the simpler the communication tools, the better the results
- **Fast, accurate, effective communication** – Communicate quickly, easily, and efficiently with large numbers of people in minutes, not hours
- **Multi-modal communication** – Deliver messages via multiple platforms such as telephone networks, mobile devices, and broadcast systems to minimize or prevent communication delays, even when regional or local communication infrastructures are not working
Key Recommendations

1. Keep it simple: The body and brain are scrambled during high and hyper-stress events – streamline emergency notification procedures and tasks.

2. Plan in advance (when things are calmer): Maintain updated contact databases; utilize message maps, templates, etc.


4. Use tools that are optimized for hyper-stress situations: Automated notification systems can eliminate many of the inaccuracies of constructing messages under stress.
Dr. Robert C. Chandler, (Ph.D., University of Kansas; M.A., Wake Forest University; B.A., Harding College) is Professor of Communication and Director of the Nicholson School of Communication (NSC) at the University of Central Florida (UCF).

Dr. Chandler’s research spans the range of crisis communication, leadership, teamwork, decision making, psychometric variables during crises, and emergency communication, including specific areas of crisis and incident notification, warning messages, cognitive processing, and message comprehension. He also investigates organizational communication, communication and conflict, risk communication, multicultural and intercultural communication issues, and business ethics. He is the creator of several widely-used planning models for crisis and emergency communication preparedness, including: (1) Communication Planning for the Six Stages of Crisis, (2) the 3-3-30© principle for incident notification, and (3) Message Mapping: The Chandler Model.

Dr. Chandler is an internationally recognized social scientific researcher with more than 150 academic and professional papers, including widely-circulated “white papers” on emergency and crisis communication. He has authored more than 75 academic and professional publications, and is the author or co-author of eight books including: Emergency Notification (2010); Surviving the Pandemic: A Communication Management Guide for Business (2009); Media Relations (2008); Disaster Recovery and the News Media (2007); Managing the Risks for Corporate Integrity: How to Survive an Ethical Misconduct Disaster (2006); Pandemic: Business Continuity Planning Priorities for the Coming Outbreak (2005); and Crisis and Emergency Communication (2006).
About Everbridge

Everbridge provides a critical communication suite that helps clients be better prepared, make better decisions, and respond quickly and confidently during disruptive events. When an incident happens, whether it’s a natural disaster or an IT service outage, we automate communications to ensure that the right messages get to the right people at the right time.

Analysts such as Gartner recognize Everbridge as the market leader, and our clients, including Microsoft, Boston Children’s Hospital, Turin Airport, the City of New Orleans, and Virginia Tech, rely on us to connect with 40 million people around the world.

Everbridge helps you:

- **Plan**: Easy to set up, maintain, and organize, Everbridge helps you ensure that the right messages get to the right people. With the most advanced opt-in portal on the market, streamlined integration with internal and external data sources, and simple group and contact management, you are prepared to launch a quick, coordinated response.

- **Assess**: Everbridge provides an interactive, visual environment that helps identify threats and incidents, assess their potential impact and take decisive action to avoid loss. Smart data feeds, including social media and weather, images and feedback from onsite contacts, and precise geolocation capabilities combine to create a complete picture of an event as it happens.

- **Respond**: Everbridge is simple to use, even under pressure. Initiate messages from anywhere – from your desk or from your mobile device. The most efficient user interface in the industry accelerates time-to-message, while built in rules and templates reduce errors.

- **Resolve**: The resiliency and scalability of Everbridge’s Elastic Infrastructure means that your system stays up, even during large-scale events. And with global coverage and capabilities, including globally local calling infrastructure and data storage, we’re ready to support you wherever your contacts are in the world. Know that your message is received with real-time visibility, including instant access to dashboards and reporting.

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