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Emergency Response: First Considerations

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Introduction

Emergencies happen and by their very nature, demand a response. While this sounds like a straight-forward situation, it is far from such. Complexities and unpredictably are the potential, if not the actuality, of every emergency and corresponding response.

The authors have a combined 40 years of experience in emergency response (combination of fire, haz-mat, medical and law enforcement) from which to discuss the surrounding issues which arise while responding to an emergency. This experience (in both time and discipline) has provided them an in-depth perspective regarding response efforts which have been efficient and effective and those which have been ineffective (if not outright dangerous). It is from this experience the authors have developed key factors to be considered as first steps to take in an emergency in order to achieve an effective and safe response and outcome. By utilizing these first steps the safety of all can be made much more probable.

First Considerations

Webster's Dictionary describes panic as an
"intense, contagious fear affecting a body of people/an instance of this fear; intense irrational fear felt by an individual; to lose rational control of one's behavior out of sudden intense fear." [1]

When faced with an emergency situation, the human body can quickly prepare itself to do battle or run from danger. This "fight" or "flight" phenomenon takes only seconds and occurs when an emergency situation threatens the individual's safety or comfort. It is a positive response and the body's own physiological reaction to stress. During this response to stress, hormones (ACTH – adrenocorticotropic) are released into the blood stream. These stress hormones stimulate glucose production and increase the blood's concentration of energy, providing nutrients necessary for the response to stress. "ACTH also activates the adrenal glands for an intense sympathetic discharge of adrenalin and noradrenaline, which cause heart rate to increase, blood pressure to rise, and the pupils of the eyes to dilate, thereby improving vision. This combination of hormones relaxes the bronchial tree for deeper breathing, increases blood

sugar for maximal energy, slows the digestive process, and shifts blood supply to accommodate the clotting mechanism in case the body is wounded."[2] This physiological preparation of the human body prepares for the fight or flight response, enabling the body to perform feats of strength and endurance far beyond its normal capacity.

From a psychological standpoint, "early accounts of crowd behaviour suggested crowds are prone to irrational panic when faced with danger. However, later research argued that crowd behaviour in emergencies is socially structured, that mutual help is common, and that people stay with their friends and family where possible." [3] The individual's psychological reactions and the influence of the rapidity of response to an emergency situation varies and is influenced by the seriousness of the threat and the urgency of the situation. For example, an individual's reaction/response time is affected by the mechanism of warning and their interpretation of the event and decision to move. In other words, they may ask themselves, "is this a real alarm or is the system broken or being tested?"

Emergencies are unpredictable, and it is our goal to bring predictability to a crisis situation. Let's take fire, for instance. If we cleared out a room and started a small trash-can fire in the middle of it, we believe we know what would happen--the fire would burn itself out. It is proper to state this is a belief because to state it as knowledge would be a fallacy. There are so many variables which can affect the course of this fire and its eventual outcome that we cannot factor all of them into our analysis and determine how exactly this fire will play out. There is a multitude of possibilities of what might happen with this fire. Embers can float from the burning trash can and transfer to the ventilation system; movement can knock the trash can over, or embers may die down only to reignite when poured to another canister. These examples are used to highlight the fact that while the principles of flame and oxidation are very well understood, how a simple trash-can fire will play out can only be estimated. If we carry this concept through to an actual fire in a building, our estimations will be even further from the actual outcome due to the additional complexity. The same case can be made for most situations we would consider "an emergency." In effect, we have to treat an emergency such as a fire as an unpredictable situation. This is just considering the physical, chemical and biological effects of the emergency itself. A factor we have not considered up to this point is the human response where the emergency is occurring. This leads to further complexity and even further unpredictability.

The outcome of an emergency draws upon its preparedness resources. No one expects an emergency situation to happen on any given day. However, in preparation for the possibilities, company leaders should identify site-specific threats and then prepare and train for the worst case scenarios. In doing so, it is imperative to have an effective means with which to communicate the emergency, enabling evacuation and/or activation of the in-house emergency response team to the scene. Emergency response directives should be readily available, clear/concise and practiced, utilizing actual skill drills on a regular basis.

Providing the guidance necessary to enable the people in the area of the emergency to navigate through the emergency safely decreases the likelihood of panic occurring. So this begs the question, what is the most basic information people need to know in an emergency? This can be broken down by answering two simple questions. What is my role? Where should I go? The answers to these questions are site -specific to the company and their emergency planning.

The interlacing of employees' positions, their reactions, and the use of resources to confront the emergency can be just as complex as the emergency itself. Responding to Emergencies: First Considerations focuses on industry's in-house planning in response to on-site emergencies. In doing so, we draw your attention to the use of the Incident Command System (ICS) as a structural model when responding to any emergency.

ICS was originally developed in the 1970s during massive wildfire suppression efforts in California. Damage ran into the millions, and many people died or were injured. Studies determined that response problems often related to communication and management deficiencies rather than lack of resources or failure of tactics. "Weaknesses in incident management were often due to:

- Lack of accountability, including unclear chains of command and supervision.
- Poor communication due to both inefficient uses of available communications systems and conflicting codes and terminology.
- Lack of an orderly, systematic planning process.
- No predefined methods to integrate inter-agency requirements into the management structure and planning process effectively.
- Freelancing by individuals with specialized skills during an incident without coordination with other first responders
- Lack of knowledge with common terminology during an incident."[4]

ICS is an innovative response to a specific situation. In the public sector, emergency response, multiple resource agencies and jurisdictions work together with a cohesive management structure. Viewing emergency response from the private sector, however, is a different situation. Here, the management system of a company will be well-defined and without further refinement to manage emergencies, predictability can be lost and the chance of a good outcome from an incident reduced. This refinement comes in the most basic form of understanding designating and enabling a position we will refer to as the incident commander.

In-house emergency response is predicated on the fact that a methodical review of hazards, accidents and medical emergencies have been reviewed and an appropriate trained response planned and evaluated. As the emergency unfolds, leadership and systems should already be in place to incorporate responding resources in an efficient and effective "predictable" manner. The chain of command must be clear and the person or persons most trained to handle the emergency should be the responding "incident commander". This person must also be able to make decisions and activate appropriate resources to the scene without approval from a second party.

To fully discuss the role of the Incident Commander, it is worthwhile to define their responsibilities. While it is easy to state they are responsible for all aspects of the emergency response, more detail is helpful. Due to the nature of emergencies, the Incident Commander may very well face situations where priorities must be set due to the fact there are not enough resources to address all issues at once. An analogy can be used to help describe the priority scheme an Incident Commander may face.

In 1943, Abraham Harold Maslow (April 1, 1908 – June 8, 1970) a professor of psychology at Brandeis University, founded humanistic psychology and created Maslow's Hierarchy of Needs.[5] In his theory, Maslow discusses how the psychology of a person has a hierarchy of needs. A person functions at his/her

need level until it is met, at which point they will move to the next level. If a previous level becomes threatened, the person will move back to that level until the threat is gone. The same concepts can be applied to the Incident Commanders priorities, thereby creating an Incident Commander's Hierarchy of Needs (construct of the authors). The hierarchy can be visually represented in Diagram No.1.

Diagram No. 1.

Each level of the hierarchy will be explained:

The first level of the hierarchy is personal safety. By personal safety, the actual physical safety and well-being of the incident commander is being discussed. The Incident Commander cannot make decisions or direct resources to the emergency if their personal well-being is in question. Mental and physical energy of the Incident Commander will focus on his/her own well-being first and not the situation at large.

Following personal well-being of the Incident Commander is that of the other responders. Responder safety is the second responsibility of the Incident Commander. These first two priorities are not based on personal preference but rather logistic considerations. Consider, from a logistic standpoint, what occurs when responders are injured / killed in the course of responding to an emergency. Three events have occurred logistically:

1) The casualty load has just increased. The remaining responders have at least one additional casualty for whom they have to treat and provide care.
2) A resource is lost. Whatever function the responder was performing is now vacant. The task will either not be performed or resources must be reassigned from other areas to perform the task.

3) Less experienced responders may fill the gap. To assure the task is performed, less experienced/skilled responders may have to be utilized to perform the functions of the lost resources.

Once the Incident Commander and responders are assured of their safety, everyone else's safety is evaluated. By-standers, the walking wounded, and casualties are triaged, protected, and emergency care made available.

When the employees are made safe, the Incident Commander should give consideration to protection of the environment. This is a consideration as it is a form of long-term community protection (chemical contamination can have an effect on the community) as well as protecting a company from possible regulatory citation (which is a liability and can affect longevity of the company).

Once the other levels of the hierarchy are safe, the Incident Commander should give thought to protecting property. It should be noted that while property is not the primary consideration, it is a consideration. From a private sector standpoint the emergency is devastating if of employees lose their jobs due to the extent of damage produced by the emergency. It is appropriate for the Incident Commander to dictate action to protect property when there is a minimal risk for responders.

As in Maslow's theory for psychology, the Incident Commander will move to the level of the hierarchy which is threatened. If during the course of actions to protect the environment, responder safety becomes jeopardized, the environmentally orientated actions will be dropped and actions to safeguard responders become the priority.

Conclusion

Emergencies can become complex situations. The ability of an emergency to transform from a simple event to a complex one is one of the sources of unpredictability of emergency response. By considering the points made during this paper's discussions, predictability can be linked to the situation and therefore some amount of control can be exerted. Another element of complexity, however, not addressed in this discussion, is the setting and logistics where the emergency occurred at the company or site. While we discuss first considerations in a general format, it is not in the purview of the authors to give detailed specific recommendations as each company or site will be different. It is the responsibility of the company or site to apply these principles to their own specific setting when developing a plan. While general considerations for emergency response may provide insight and guidance, they will only be a partial answer. Each company is unique. The product produced, employee skill levels, building designs, materials on hand, hazards, trafficking, shifts, etc. all need to be factored into emergency preparation. The conclusion we draw from the above is that our first considerations point us to the need for more planning and not an alternative to planning.

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