Breathing Life into Your Plan--The importance of creating a practical and sustainable response system

The Emergency Response Plan-- what does it mean? To some, it means an evacuation plan; to others, the plan to use an AED to save the life of a sudden cardiac arrest victim; to some, a plan for all medical emergencies; the disaster plan; and to still others, the plan required to meet local fire regulations in order to pass fire department inspection.

In reality, we need an emergency response plan for all foreseeable emergencies. One pattern of viewing emergency response plans is as a continuum, from the least complex emergency to the most complex. The sudden cardiac arrest (SCA) emergency is the least complex; followed by all medical emergencies; then non-medical emergencies, such as fire, bombs, active shooters; and finally the most complex - disasters.

While SCAs are among the most time-critical emergencies, they are the least complex, because the training has been well defined, it is easily obtained, and the equipment required is minimal. There is only one level of responder within the organization for an SCA response and all responders move toward the emergency- the afflicted victim of SCA. Other medical emergencies can use the same basic emergency response plan developed for an SCA emergency, but the responders require an additional level of training and equipment. There is most commonly only one level of responders, who move toward the emergency- the co-worker experiencing an acute illness or injury. The duration of the required response is generally less than an hour.

Non-medical emergencies are more complex because they require multiple levels of responders, with different types of training. While the general movement during a non-medical emergency is to move the workforce away from the inciting event, other levels of responders will remain near the emergency to assist with workforce evacuation issues, such as disabled co-workers requiring evacuation assistance, or personnel who are unaware of the need to evacuate. After the initial evacuation effort, responders may be required to assist with secondary medical
and non-medical emergencies. For example, a co-worker who cannot evacuate because the bookshelf fell on him requires extrication, splinting of his broken bone, and an assisted evacuation. The duration of response for non-medical emergencies can be significantly greater than an hour. Disasters are categorized when the actual or perceived threat to personnel and property is of significant magnitude or time requiring days of involvement by trained responders.

Most emergency response plans focus on responses that will require minutes to a few hours. In planning for disasters, additional actions must be considered based on the duration of event. For example, after an earthquake, workforce members may not be able to return home. Therefore warmth and food must be provided initially, and later lighting, toilets and ongoing shelter.

Most of the published emergency response literature focuses on coordination of emergency communications and activities between and within public agencies. In addition, coordination and communication between the organization and its public agencies is an extremely important component of the organization’s emergency response plan. In this paper, however, we will focus on the organization’s internal response – what the organization can do to prepare itself and its personnel before public agency assistance becomes available.

The Emergency Preparedness of an Organization Makes a Difference

The value of improving the emergency preparedness of the organization was clearly demonstrated by the two evacuations required of World Trade Center (WTC) tenants. In 1993, with very little organizational preparation, complete evacuation of tenants was not achieved for 6 hours. In 2001, 87% of tenants were fully evacuated within two hours with an average of 40 minutes in World Trade Center 1 and 22 minutes in World Trade Center 2.

The World Trade Center took major steps to improve emergency preparedness between 1993 and 2001, including strengthening emergency response plans, establishing responder teams with advanced training, performing drills to improve resident preparation, and structural changes. Yet, studies conducted after the 2001 tragedy continued to find a concerning lack of knowledge by tenants regarding the location of appropriate exits and stairwells, and other basic measures of emergency preparedness. Researchers concluded that sufficient signage directing evacuation routes were lacking and that tenants’ lack of confidence in their personal emergency preparedness led to a hesitance to evacuate. Instead, tenants engaged in information seeking behaviors, desiring a third party confirmation of the reality of the danger before they evacuated. Delaying behaviors took the form of calling friends and family, looking for other co-workers, waiting for instructions, and gathering personal belongings. Where there was strong leadership directing the evacuation, more rapid evacuation resulted.  

The Emergency Response Plan Status Quo

The Department of Labor, Occupational Safety and Health Administration (OSHA) requires any organization required to have a fire extinguisher to:

• Develop an Emergency Response Plan - OSHA. 29 C.F.R. § 1910.38(a); 29 C.F.R. §1910.38(c)

• Provide Training to on–site emergency response team - 29 C.F.R. § 1910.38(e)

• Orient their general workforce to their facility’s emergency response plan - OSHA. 29 C.F.R. § 1910.38(f)

• Implement an Emergency Specific Alert System to notify the general workforce of emergencies. - OSHA. 29 C.F.R. § 11910.38(d)

Few organizations commit the time and resources to develop practical or effective emergency response plans, policies and procedures. Some organizations download templates from the Internet, while others hire outside contractors to write their plans. Too often these plans are never practically implemented or integrated into the organization’s safety culture. The emergency response plan must be developed with long-term sustainability in mind.

Organizations implement many different emergency response structures and use differing nomenclature to describe them. Some organizations rely on security personnel to perform critical roles in an emergency, others create emergency response teams, and still others provide basic training to workforce personnel or assign floor wardens who are otherwise inexperienced or have minimal training to manage emergencies. An organizational incident commander may be designated, often as a result of title or position, but rarely because of relevant training or experience.

The general workforce may be provided with a copy of the emergency response plan in an orientation packet when they are hired, but rarely do they receive sufficient information to understand their personal role and responsibilities in an emergency. Organizations seldom invest the time and resources necessary to practice their emergency response plans. The sad truth is that most emergency response plans exist as a theoretical document that rarely sees the light of day or perhaps only during third-party audits.

A Systems Approach to Developing Sustainable Emergency Response Plans

In order to develop practical and sustainable emergency response plans, a systems approach is needed. The system should incorporate the same personnel, and use similar response sequences and organizational structures to the extent possible. The systems approach reliably results in a successful and sustainable model. It must include the flexibility to deal with employee turnover and specific needs of the workplace. If each type of emergency response stands alone, without a supportive organizational structure, it is far more likely that the response will fail over time. With personnel turnover, there will be fewer individuals who remember the initial plan, decaying numbers of experienced trained responders and equipment that may no longer be functional, or
even “lost” as to where it is located.

**Developing an Emergency Response Model**

Developing an organizational Emergency Response System requires a clear consensus regarding its goals. The drafting team must define foreseeable risks, and understand the level of the organization’s commitment to addressing those risks. Next, the team must create a response sequence model to address that risk. Modeling the risk requires you to visualize the sequence of anticipated actions and determine the personnel who would be available to perform each of those actions. It allows you to define the training required to enable performance and define the equipment and supplies necessary to perform those actions.

For example, the least complex emergency response plan developed by organizations is the emergency medical response for sudden cardiac arrest victims.

Most organizations train less than 10% of their workforce in CPR/AED. Upon viewing their SCA Response model, they may be surprised to learn that the most likely person to discover the victim of SCA is a member of the general workforce. Yet, rarely is the general workforce included in the SCA response plan. If workforce personnel do not know how to activate their internal emergency response plan, nor how to notify trained responders, there will be significant delays initiating the time-pressured response, significantly weakening the value of the program. The literature suggests that untrained members of the general workforce will often simply stand back, or simply call 911, thereby negating the value of the investment in AEDs and trained responders within the organization. Understanding who is “available” to perform the action, allows you to provide focused training for these individuals, even if the focused training is simply knowledge of the mechanism to activate the emergency response system and notify trained responders.
Once the “emergency event” has been modeled, the next focus is activities and processes that must be performed prior to the event. These processes ensure that properly trained personnel and properly functioning equipment will be available. The enablers of the event, those who fund the training and equipment, and those who schedule the training and maintain the equipment must be recognized as part of the system. Each role must be clearly defined and supported or the system will fail.

**Developing an Organizational Emergency Response Model**

Understanding the actions required in the emergency and the processes required to enable these actions will allow you to build an organizational model to support the emergency event. The organizational model defines the tiers of personnel in the organization needed to ensure an effective emergency response. Each tier plays a contributory role in the emergency, either prior to or during the emergency. Their role must be clearly defined and their responsibilities clearly delineated. Each tier of personnel must be provided with training, focused on preparing them for their specific role, and the equipment and tools that allow them to effectively and efficiently accomplish their duties to meet their specific responsibilities.

Medical emergencies can be modeled after the organization’s SCA Response Model, but responders will require additional training and equipment, funding and support services. As with the SCA Response, trained responders move toward the medical emergency. The medical emergency response often provides only one level of responder to provide initial care to the ill or injured victim. Organizations whose personnel or facilities are remote (e.g., engineers working on train tracks) or isolated from public agency services (e.g., oil rigs), have large or complex campuses, or do business in industries whose personnel engage in higher risk job activities may
provide several levels of trained responders. Medical responders with advanced knowledge and equipment may be available to assist basic first responders within the organization. There are usually fewer of these more highly trained individuals, and therefore, their response to the victim often follows the initial responder who has initiated care. The medical emergency model and organizational structure would include an additional tier to ensure that the advanced responder is systematically incorporated into the emergency plan, and to ensure their training and equipment needs were addressed.

Non-medical emergency response plans are more complex. For example, the role of one tier of responders, often designated as “floor wardens,” is to direct the general workforce away from the emergency – to assist their evacuation. The role of other tiers of responders, such as the “search and rescue team” or “security team,” is to seek out individuals requiring assisted evacuations. These responders remain near the emergency. Non-medical emergency response plans typically include multiple levels of responders with varying roles and responsibilities, and require different training.

Since non-medical emergencies are more complex, they require a clear command structure, usually under the control of a single individual. The incident commander’s primary role is to lead the organizational response and liaison with outside emergency response public agencies. Additional responsibilities may include: 1) internal notifications, 2) external notifications, 3) implementation of initial emergency procedures, 4) management of ongoing internal and external communications, 5) internal and external reporting, 6) dispatching requests for assistance, and 7) directing ongoing emergency activities.

The incident commander should reside within the organization itself, and not rely on public agencies until they become available. The incident commander requires significant training and benefits from having considerable experience in this role. Organizations with large populations of residents, large or complex facilities, or potentially hazardous worksites may require that the incident commander have a support team. A key role such as the incident commander requires redundancy of assignment. This role should be proactively assigned to a

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second and even a third individual as back up. Determination of the level of redundancy required would depend on the size and complexity of the facility, its resident and transient population, and the likelihood that the incident commander will be in residence at the facility. Any time residents or visitors are within the facility, an incident commander should be present.

Importantly, the roles, responsibilities, training and tools of the general workforce must be aggressively addressed. First, the general workforce will be the vast majority of people present in the facility. Therefore, targeting behaviorally focused training and tools to facilitate evacuation must be provided to ensure that the general workforce clearly understand their role and their actions in a non-medical emergency.

A systems approach with a well-defined organization structure creates clarity and sustainability. By clearly establishing the roles and responsibilities of each tier in the organizational support structure, you can delineate the appropriate training, equipment and tools required by each tier.

**Emergency Preparedness Training**

Emergency preparedness training differs from all other types of training, as follows:

1. The learner will use the information infrequently.
2. The typically high emotional state of the victim, the bystanders, and the responder.
3. The critical impact of the actions that need to be performed.
4. The often difficult decision making process required.
5. The high variability and requirements of emergencies.
6. The requirement to perform is usually abrupt and unexpected.
7. The response required is often **time pressured**.

8. The information necessary to evaluate the situation may be **inconsistent and conflicting**.

Therefore, educational considerations important in all training programs are even more important during emergency preparedness training. Standardization across the organization is imperative. Individuals transitioning from facility to facility within the organization must be able to rely on their previous preparedness training. Emergency response plans and processes must be standardized.

Addressing behavioral issues are essential, because nearly all studies that evaluate the barriers to rapid evacuation conclude that the failure to properly execute evacuation plans depends the most on the individual’s belief that he is prepared and is confident with the actions he is to perform. This includes a clear understanding of how the individual will be notified of an emergency, and from whom he will take direction.

Appropriately, emergency personnel experienced in the proper procedures and techniques often teach emergency preparedness training. This often results in an assumption that the workforce has the same behavioral risk mindsets as the instructors; this is a fatal error.

While emergency responders typically have the personality, experience and training to run into burning buildings, or run toward injured individuals, most people do not. The assumption of “presumed willingness” to act, results in training programs that do not address the fear, chaos, emotional and behavioral barriers that are predominant in the workforce population. Effective emergency preparedness training incorporates behavioral based principles into both its methodology and content. In other words, it’s not only “what you teach” it is also “how you teach it.”

Most people are, in fact, significantly risk averse, particularly when confronted with an emergency situation. If the emergency responder is a 9 or 10 on a risk-taking scale, then most of the workforce will score below 5. For most individuals, confronting an emergency invokes first a sense of denial, followed by a desire to acquire more information, and a need to confirm that the circumstances they are witnessing are, in fact, either dangerous to them or to others. Only after this confirmation will they have the confidence to do what they need to do. These behavioral instincts are very strong. During an emergency, your general workforce really just wants to be told exactly what to do, and when and how to do it.

During an emergency, their decision-making processes are severely hindered, due to a lack of experience, fear and the sense of chaos. For example, evacuation training that relies on providing members of the general workforce with a binder to read the evacuation plan will have almost no value. Providing the workforce with online training that includes videos of their peers walking through the evacuation route from beginning to end are much more valuable. Online training with clear and simple evacuation procedures and evacuation routes are excellent initial training procedures, and provide a convenient and inexpensive source for the workforce to periodically review. However, the exercise of guiding the individual from where he works through the exit door of his office down the hallway, through the external exit doors, down the stairs and all the way to his assembly point will achieve the greatest retention. The closer emergency preparedness training simulates the actions required, the more effective it will be. Combining initial online
training and required periodic review with mandatory participation in “end to end” evacuation drills is the most cost efficient method to ensure competence and confidence.

Structural support that guides the workforce during an evacuation is imperative. Structural support clearly marking the evacuation route has a dramatic impact on ease and speed of egress. These include well-marked internal exit doors, hallways, building exits and stairwells. Strong leadership by knowledgeable and well-practiced floor wardens or security teams that escort the workforce is the most effective. The general workforce requires support both prior to the emergency (training), and during the emergency (structural). Emergency response considerations must focus on both aspects of the required support.

The frequency of providing specific training for the assigned tiers of the emergency response organizational structure will vary, depending on the complexity of their role. However “end to end” evacuation drills- from notification to arrival at the assembly point-- should be conducted at least of annually.

Once you believe you have developed a solid emergency response plan, it is essential to conduct drills. What sounds good on paper often reveals major flaws when executed. The only way to learn the gaps in your emergency response plan prior to an actual emergency is to conduct realistic simulations, debrief participants, ascertain flaws in your system, and continually modify your plan to address lessons learned.

Your emergency response plan must consider personnel turnover. Though your organization may have trained 100 first responders during the initial year of the program, anticipate a minimum of 25% turnover in trained personnel/year. Even if the individual is still with the organization, they may have re-located or changed their position within the company. Your emergency response plan should include policies that require recruitment of new personnel at least annually. It is important to monitor that you have sufficient trained personnel at each tier of your organizational structure.

**Technology Can Provide Timely Structural Support During an Emergency**

Newly developed technologies can provide an organization with structural support during an emergency by providing real-time instructions to incident commanders, emergency responders and the general workforce exactly when they need it.

Smartphone or other mobile devices equipped with Wi-Fi or cellular transmission capabilities can transfer the role-based responsibilities and specific tasks usually recorded electronically or on the paper directly into the hands of the responsible individuals at the time of the emergency. It can inform the responders of the exact location of key equipment and determine whether it is operational.

Technology can also provide the general workforce with timely evacuation instructions, directions to the nearest evacuation exits, and their pre-assigned assembly area. It can direct them step by step through the evacuation.

Emergency notification systems can be customized to require the workforce to confirm
receipt of notification to evacuate, successful egress from the building, and arrival at the pre-
designed assembly point. This allows the incident commander to receive up-to-the minute
reports on the location of personnel.

The general workforce can also initiate an “alert” to inform the incident commander that they are
in “distress.” For example, a member of the workforce can send a “distress” notification that they
are unable evacuate due to injury, barricade or disability. The incident commander can dispatch
appropriately trained personnel to assist them.
The next-generation emergency response system allows organizations to implement standardized emergency response plans across facilities, direct the workforce through evacuation procedures, immediately locate emergency equipment, provide immediate notification and instructions to emergency response team members and provide continually updated reports of evacuation and distress to the incident commander.

Technology alleviates many of the behavioral barriers that prohibit an effective emergency response. If the individual doesn’t remember what to do, the technology automatically texts them with pre-defined instructions developed in the emergency response plan. During an emergency, members of the general workforce will overcome behavioral barriers by receiving clear direction. Individuals experiencing fear, uncertainty, and anxiety receive the information and confirmation they seek, resulting in the confidence to do as instructed. Clear direction creates confidence, and eliminates the “delay behaviors” described in nearly all post evacuation studies. Individuals who might otherwise question what you tell them will do exactly as directed during an emergency. Concise directions produce a different state of mind.

Technology allows you to pre-program all established role-based actions and disburse them as soon as the emergency response plan is initiated. Instructions can be static or dynamic in response to changing circumstances.

Technology is not a substitute for proper planning or training. The initial hard work of developing a practical emergency response plan system remains unchanged. The team must still define the organization’s risks, create a sequence based model for each risk, establish an organizational emergency response structure, with tier based roles and responsibilities. The
organization must still assign individuals to those roles and ensure that they are provided with role-focused training. They must continually ensure that adequate numbers of trained personnel remain available within each tier, by periodically recruiting to replace departing personnel. They must define crucial emergency equipment required to support each tier of responder, and clearly establish a consistent location for the equipment, and ensure its continued operational status. However, once this important groundwork has been laid, technology can then provide the timely structural support to ensure that the right people receive the right instructions at the right time.

Incorporating Behavioral Science into the Design and Implementation of an Emergency Response Program

As highlighted above, emergency response situations impose formidable behavioral challenges. In designing emergency response programs, it is vital to incorporate the insights from behavioral science in order to achieve optimal performance. As an example, in designing the FAA sudden cardiac arrest response program, we used the Influencer™ Model\(^2\), which is based on decades of behavioral science research. "Using this approach, we have maintained a 100% response rate to sudden cardiac arrest incidents at covered facilities. ("Response" is defined as bystander cardiopulmonary resuscitation and application of an automated external defibrillator before EMS arrives.) By contrast, the national average response rate is less than 4%."\(^3\)\(^4\)

Briefly, the model begins with systematically identifying clear and measurable, time-bound results that reflect the desired outcome. Next, identify a few vital behaviors that lead to those results, and the crucial moments when those behaviors will have the greatest beneficial impact. Then diagnose the six sources of influence behind existing behaviors (which lead to the current results that we don’t want), and select and implement strategies aimed at each source of influence to get the vital behaviors that will lead to the results we do want. The model recognizes how complex human behavior is by considering six sources that influence behavior. The six sources are motivation and ability at three different levels – personal, social and structural:

- **Personal Motivation** – does the individual want to perform the vital behavior?
- **Personal Ability** – is the individual able to perform the vital behavior?
- **Social Motivation** – do other people encourage the person to perform the vital behavior or do they discourage him/her?
- **Social Ability** – do other people make it easy or difficult to perform the vital behavior?
- **Structural Motivation** – do the physical surroundings and the system of rewards, rules, work processes, etc., encourage the person to perform the vital behavior or do they discourage him/her?
- **Structural Ability** – does the physical surroundings and the system of rewards, rules, work processes, etc. make it easy or difficult for the person to perform the vital behavior?

A related 2008 research study\(^5\) was selected by MIT Sloan Management Review as the best organization change article of 2008. That research found that those who use at least four of the six sources of influence increased their success in implementing organizational change by a factor of ten. A training course based on the book and the research won the HR Executive Magazine Training Product of the Year Award for 2009.

As an example, the following description shows how we applied the model to the Emergency Response Team. The first three steps are to identify the Desired Results, the Crucial Moments and the Vital Behaviors:

- Desired Results - Someone responds with ability (bystander CPR and application of an AED before EMS arrives) to every sudden cardiac arrest (SCA) victim (100% response rate);
- Crucial Moments – When a responder becomes aware of a potential SCA, either by witnessing the person collapse, finding someone who has collapsed, hearing a co-worker yell “Medical Emergency! We need an AED Responder!” or receiving a text or email notification of a medical emergency; and
- Vital Behaviors: Respond to notification of medical emergency; Immediately retrieve an AED; Serve as leader or team member as required; Perform CPR; Apply and operate AED; and Facilitate EMS arrival.

Then we identify strategies using each of the six sources of influence to motivate and enable the Vital Behaviors:

- Personal Motivation – Reinforce the person’s self-image as caring and capable; Establish realistic goals –“responding with ability” rather than “saving lives”; Emphasize the benefit to loved ones as well as co-workers;
- Personal Ability - Provide CPR/AED blended skills training; Provide SCA Responder Training, which focuses on developing non-technical skills of leadership and teamwork; Focus on building confidence by coaching, not lecturing and providing opportunity for deliberate practice;
- Social Motivation – Emphasize the opportunity to serve as part of a community with a vital common goal; Recruit organizational leadership to promote and participate; Encourage widespread participation- (15-20% staff trained at each facility); Have trained responders identify themselves as qualified responders and help inform untrained co-workers about SCAs and what to do in an emergency;
- Social Ability - Management encourages staff participation; Managers adjust employee schedules to ensure interested volunteers are able to attend training and drills; Overcome cultural norms together by ensuring that instructors address emotional and behavioral issues, such as the potential discomfort of touching others and the need to apply AED pads to bare skin;
- Structural Motivation – Provide Awards and Recognition; Establish different roles so that the entire workforce can participate; Write articles and distribute newsletters and flyers about the progress and success of the program; Provide status reports to facility and organizational leadership; and
- Structural Ability – Conduct facility-specific evaluations and customize emergency response

plans for each location; Provide enough AEDs for a maximum 3-4 minute “drop-to-shock” response time at each facility; Provide CPR/AED Training Kits for periodic ongoing learning drills and scenarios; Install AED Signage to help responders quickly find an AED in an emergency; Provide training chests that fit over clothing to allow trainees to practice applying AED pads to bare skin on a real person, without undressing the person; Provide technology that alerts trained responders of an emergency, its location, and the nearest, operational AED.

**Conclusion**

A combination of systematic planning, training, practice drills and technology, all incorporating practical insights from behavioral and organizational science, can prepare organizations and their personnel to respond effectively to emergencies.