

Implementation of an Internet fire response form to improve the drill response process

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ABSTRACT

Fire response drills are mandatory for healthcare organizations as a part of the accreditation process, as well as other companies. However, measuring the effectiveness of these exercises can be a challenge. An Internet fire response form was developed to improve fire response education for nurses and other health-care staff, facilitate the process of measuring fire drill results, and promote the efficiency of fire drill documentation through a paperless work environment. The results indicate that leveraging the Internet with an electronic response instrument can improve fire preparedness as well as the documentation processes.

INTRODUCTION

Ten years ago, in September 1993, an electrical fault caused a respirator at a Brooklyn medical center to ignite and explode, killing three patients and injuring 15 others. A newspaper article¹ said, "The fire, fed by pure oxygen, created a blast so fierce that witnesses said it sent a fireball through a seventh-floor hospital window. The blast set off a fearful evacuation, as nurses and other hospital workers, using sheets as stretchers, frantically dragged patients through the smoky corridors and then carried them down six flights of stairs. More than 120 patients were taken from the hospital." Not all areas of the building were built or equipped to prevent fire; several fire exits were obstructed by stretcher beds and other equipment. In addition, many employees were unfamiliar with the appropriate fire response procedure.

Though situations of this severity will hopefully never occur in your facility, since fire hazards do exist in the patient care environment, it is prudent to prepare for

such emergency scenarios. Accreditation and compliance organizations such as the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)² promote preparedness for such emergencies through rigorous performance standards and evaluation processes. These standards provide guidelines for organizations in the areas of facility preparation, staff training, and documentation.

FIRE DRILL PROCEDURES AND CRITERIA

Accreditation surveys include an audit of all fire drills an organization has conducted since the previous survey. The surveyors critique those fire drills based on criteria set in the guidelines. The fire drill response requirements should include:

- Identifying performance deficiencies and opportunities for improvement.
- Ensuring that any staff identified by the organization's fire response plan participate and are observed and evaluated.
- Requiring training on general facility protocols as well as aspects of fire response unique to staff duties, functions, and the hazards unique to a work site.
- Evaluating training effectiveness at least annually.
- Ensuring that 50 percent of the drills are unannounced.

- Having staff participate to the extent called for in the organization's fire plan.

The techniques for evaluating staff effectiveness include:

- Observing the performance of staff during an actual fire drill.
- Evaluating scores on post-tests given during new employee orientation or as part of annual update training.
- Questioning staff during hazard surveillance surveys.

While JCAHO recognizes that all employees in a healthcare facility will not necessarily have a role in every fire scenario, it is essential that every nurse be able to hear the overhead page or a coded signal to ensure the fire is not in their zone. Every work unit, whether the fire is in their area or not, should complete a fire preparedness form. The critique of the drill should include all elements of the fire plan. If an organization's fire plan requires activities outside the smoke compartment of the origin of the fire, those areas should be evaluated as part of an organization's critique.³ The rationale for involving staff in fire drills in areas beyond the area of incidence is that, in larger facilities and organizations, employees might only be directly involved in a fire drill once every 10 years. The National Fire Protection Association (NFPA) also emphasizes the importance of regular drills because "even well-drilled people are likely to be anxious and behave impulsively in times of real emergency, unless guided and directed. In institutions such as hospitals, regular employees can be trained to perform the proper procedure in case of fire; such training is advisable in all occupancies whether or not regular fire exit drills can be held."⁴

EMPLOYEE AND EMPLOYER RESPONSIBILITIES

Employees should be trained to properly respond to an emergent fire event. They should be able to:

- Describe the appropriate actions to take if

there is a fire at a given location, including pulling the fire alarm and notifying the telephone operator.

- Indicate which doors should be closed to prevent the fire from spreading beyond the initial location.
- If the fire is small enough, state how to use a fire extinguisher.
- Identify the appropriate escape routes and the location for rendezvousing with other staff members.⁵
- Show the locations of alternative exits from all work areas.
- State the location of the nearest fire alarm and how to use it.

Employers also need to meet certain requirements. They must:

- Post building evacuation plans and discuss them during new employee orientation.
- Conduct regular fire drills.
- Include disabled employees in the fire emergency planning process.
- Where appropriate, train designated employees in the use of portable fire extinguishers.
- Post emergency phone numbers on or near all telephones.

Organizations that have implemented fire response drills within their facility have observed that, during an emergency, staff are significantly better prepared to react in a way that protects patients from injury.^{6,7} A study compared the behavior patterns of building occupants in fire situations with behavior patterns during the previous training and

Table 1. Fire drill procedure

Responsible area or team	Tasks
Fire response drill team	<ul style="list-style-type: none"> ■ Conduct fire drills at prescribed intervals. ■ Select location for the drill. ■ Alert Facilities Operations, the telephone office, Security, and the fire department of the drill. ■ Conduct drills and observe response actions. ■ When the drill is concluded, notify the telephone office, Security, and the fire department. Instruct Facilities Operations to reset the building fire alarm system. ■ Complete fire drill response team evaluation form and review effectiveness of drill with staff. ■ Send the completed form to the Life Safety Coordinator.
Staff at fire location	<ul style="list-style-type: none"> ■ Implement response according to RACE (Relocate, Activate, Contain, Extinguish). ■ Call "911" and say "This is (building and room location). We are conducting a fire drill." ■ Activate the nearest fire alarm pull station if one is present. ■ Close all doors in area. ■ Bring fire extinguisher to the mock fire. Recall PASS procedure (Pull, Aim, Squeeze, Sweep).
Staff at other locations	<ul style="list-style-type: none"> ■ Review RACE actions that would be necessary if a fire were to occur in the immediate area. ■ Complete fire drill checklist. ■ Send completed form to the Life Safety Coordinator.
Telephone office	<ul style="list-style-type: none"> ■ Upon receiving "911" call, announce, "May I have your attention please? May I have your attention please? Code Red drill, (building & room location). Code Red drill at (building & room location)." ■ When notified by the fire response drill team, announce, "May I have your attention please? May I have your attention please? Code Red drill all clear. Code Red drill all clear."

the degree of exhibited stress. The results of the study indicated that "the adaptive behavior response of the nursing staff personnel during a temporal sequence of relatively short duration resulted in a significantly reduced physical and life loss" and that "the adaptive behavior response appeared to have been influenced by the type and frequency of the drills and training with the attitude generated by the administration and staff."⁷

USE OF THE INTERNET FOR FIRE RESPONSES

Online Internet references to organizational fire response procedures^{8,9} and fire drill response forms^{10,11} reflect the work currently being done to use the Internet as a means to improve the effectiveness of the training process and support practice. The process regarding fire response thus moves beyond solely offering information as a reference and creates an interactive scenario.

The first step most organizations take is to place policies and procedures on their Intranet for employees to reference. This eliminates the need to distribute paper copies and facilitates sending updates to areas. In the author's facility, policies and fire response procedures were placed online that noted the specific activities for nurses and other staff involved in the fire response exercise (Table 1). Specific tasks were itemized for the following response areas or teams: the fire response drill team, staff at the fire location, staff at other locations, and telephone office personnel. The following two acronyms were used in the procedures to facilitate the learning process and serve as reminders during a drill or actual fire emergency:

- Fire response acronym: R-A-C-E, which stands for Relocate patients, visitors, and staff; Activate the alarm; Contain smoke and fire; and Extinguish the fire (if safe).

- Extinguisher use acronym: P-A-S-S, which stands for Pull pin, Aim nozzle at base of flames, Squeeze handle, and Sweep extinguisher back and forth at base of flames.

The next step was to develop an Intranet response form that staff could use to review the fire response drill and electronically send their comments or questions directly to the Safety Department. A copy of the Work Unit Fire Drill/Alarm Review Checklist form has been reproduced on the following page. To reinforce the learning process, the RACE and PASS acronyms are used on the form.

A benefit of the new form has been a 53 percent increase in the number of patient care units participating in the fire response exercises. The electronic form facilitates the process of documenting, charting, and evaluating the drills and allows immediate response to requests for help associated with fire issues.

CONCLUSION

Although an organization can do only so much to prevent a fire in its facility, certain actions can ensure the survival of the people in the building during a fire emergency. A speedy and organized evacuation from a burning building is crucial, and the key to executing that evacuation is an effective plan and consistent training. In addition to building evacuation techniques, staff should be competent in relocating persons away from immediate danger. Overall, the strategic concept is preparation. "In the event of a fire, a safe and speedy response depends on how well employees and managers are prepared for emergencies."¹²

The initial results of our work to implement an Intranet response form have been favorable. During the first two quarters, there was an increase in the number of units participating in the fire response exercises. The online system facilitated both the evaluation and documentation of the results of the fire preparedness drill. In

addition, comments and questions from work units related to training received a more expeditious response. Facility issues such as the fire announcement system, evacuation charts placement, and emergency phone number labels were also addressed in a more expeditious manner.

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Work Unit Fire Drill/Alarm Review Checklist

Complete and send to the Life Safety Coordinator.

Date of drill/alarm _____ Fire drill Actual alarm
Drill/alarm location _____ Time of drill/alarm _____
Work unit (name) _____ Room and floor number _____
Number of staff present _____ Form completed by _____

Ask staff to explain fire response for your area.

(R) Did they explain that they would Relocate patients, visitors, and staff away from area of fire or smoke? Yes No

Did they explain that they would Activate the alarm by: Yes No

- (A)**
1. Pulling manual alarm stations.
 2. Calling 911 and giving their name, building, and room number.
 3. Alerting staff in area who did not hear the alarm.

Did they explain that they would Contain smoke and fire by closing all doors? Yes No

- (C)**
1. Close door on room of origin of fire.
 2. Close all other doors in area.
 3. Close dumbwaiter/boxlift/trayveyor door, if applicable.
 4. Direct lead respiratory therapist to oxygen shutoff valve location upon their arrival.

(E) Did they Extinguish fire using the appropriate extinguisher, if safe to do so? Yes No
Did staff identify extinguisher location and explain operation?

- P** — Pull pin.
- A** — Aim nozzle at base of flames.
- S** — Squeeze handle.
- S** — Sweep extinguisher agent back and forth at base of flames.

Comments/corrective actions for improvement: (All "No" answers above require corrective action.)
