



You Must Call Mayday for RIT to Work Will You

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You have probably participated in some type of rapid intervention team (RIT) or "Saving Our Own" training, and your SOPs may have some directions on a Mayday. The odds are, however, that you have not been given specific rules on when to call a Mayday. You are taught to be the rescuer, not the victim, and your Recognition-Primed Decision-Making process (defined below) may interfere with your calling a Mayday when you should.

What does this mean for firefighters? First, it means that we've put the cart before the horse. It doesn't matter how well trained or well equipped your RIT is. Unless the incident is witnessed, RIT teams won't be activated unless you or your partner calls a Mayday. The training emphasis has been on saving our own, not on our own calling for help. We would hate to speculate, but firefighters might have survived had they recognized early enough that they needed help or that something was out of the norm and they had called a Mayday. Deputy Assistant Chief Curt Varone, of Providence, Rhode Island, has verified our thoughts by identifying 11 structure fires between 1978 and 2002 in which failing to call or delaying a call of a Mayday contributed to 24 line-of-duty deaths (LODDs).¹

Firefighters do not like to admit that they might need to be rescued. The delay in calling a Mayday may be caused by many factors, but three need to be addressed immediately: (1) the stigma associated with admitting to yourself and letting others know you need help, (2) not having been given clear rules for calling a Mayday, and (3) the manner in which the fire service makes decisions.

Last year, the Seattle (WA) Fire Department had three near-miss incidents involving firefighters in interior firefighting operations. Each of these incidents easily could have led to LODDs, had help taken a few more seconds to arrive. The particulars of these incidents were detailed in "Train in 'the Rule of Air Management'" (Fire Engineering, April 2003). All three firefighters—a captain, a lieutenant, and a firefighter—are seasoned veterans and well-respected members of the department.

There were some disturbing similarities in the three incidents:

- None of the firefighters in distress called for a Mayday.
- None of their partners called for a Mayday.
- No one activated the emergency button on the radio.
- No one activated his PASS device.
- None of the partners activated a PASS device.
- Each firefighter became separated from his partner.
- Each firefighter ran out of air.
- Each firefighter suffered debilitating effects of carbon monoxide.

When interviewed, one firefighter said, "I knew I was in trouble. I thought about using the radio, but I thought, 'I found my way in; I can find my way out.'"

Peer pressure and the "stigma" surrounding the idea that help is needed played a part in each incident. These firefighters realized that events were not unfolding correctly. They were all trying to find their way out of the building, but they couldn't. They all ran out of air. They all tried alternative filter-breathing techniques. But in the end, exposure to carbon monoxide impaired their judgment and motor skills.

ESTABLISH MAYDAY DECISION-MAKING PARAMETERS

To ensure that firefighters will call for help as soon as they recognize that they may be in trouble, fire departments need to develop clear Mayday decision-making parameters (rules that specify when a Mayday must be called) and institute Mayday training programs firefighters must take and continue to pass

throughout their fire service experience. The parameters/recommendations are based on logic similar to that used to establish training programs that teach military fighter pilots when they should eject from their planes in an emergency.²

Fighter pilots are given clear, specific ejection parameters (rules governing when to eject), and they are trained and retrained on making the ejection decision and drilled on actually pulling the ejection cord several times a year. The comparison of firefighters' calling a Mayday to pilots' ejecting from their planes makes good sense, according to Kelly M. Woods, a former Navy fighter pilot who had to eject over North Vietnam when his jet plane was shot out from under him. After military service, he became a career firefighter. He and his partner were advancing a line down a basement stairway when the stairway collapsed, pinning him under the stairs. His partner called a Mayday. Today, Woods is an instructor with the West Virginia State Fire Academy. It may seem strange that we have to create rules to tell firefighters to call a Mayday. But, remember that we teach firefighters to be aggressive and expect them to act aggressively.

Chief Alan

Brunacini of the Phoenix (AZ) Fire Department noted at the 2002 Maryland Fire Chiefs Conference: "The hardest thing to do is to put a firefighter in reverse." Think of how we train firefighters. Do they ever fail to put out the fires in rookie school, or do they ever have to make the decision to retreat? Are firefighters ever put into training or drill situations in which they have to make the decision to call a Mayday for themselves? If the answer to these questions is no, how can we expect our firefighters to make these decisions under real-world life and death conditions?

THE DECISION-MAKING METHOD

The manner in which we make decisions may be part of the problem also. Klein Associates researchers analyzed how U.S. Army battlefield commanders make decisions. We are using the military-fire service comparison because firefighters, like the military, must make decisions "while confronting time pressure, [under] changing conditions, [for] high stakes, and [with] unclear immediate goals and incomplete information."³

The Klein study describes the cognitive process used to make decisions on the fireground, referred to as "Recognition-Primed Decision-Making (RPD)." As an example, officers arriving on the scene look at the picture (visual cues: fire, smoke, construction, time of day, occupancy, and so on) in front of them and then compare that picture with the pictures in their memory bank. When a match is found, they choose what worked at a similar situation in the past and use that experience to drive their strategy and tactics for the present situation.

This is a very rapid decision-making process. The first option chosen and followed is also most likely the only option considered. RPD is effective most of the time but not all of the time. Kline states: "Unfortunately, the first option may not be the best decision." (3, 43) This memory bank of pictures and actions we have to choose from has been developed over years of experience and training. It has been referred to as a "photographic slide tray." Using this analogy, we might say that "we may be missing some slides." RPD isn't limited to command-level officers; we all use it.⁴

RPD AND MAYDAY

What does RPD have to do with Mayday? Remember that all three Seattle firefighters, two officers and one firefighter, were experienced. They had gotten themselves out of tight spots before; all said they had experienced running out of air and using the filter breathing method (disconnecting the low-pressure hose from the regulator and putting the end in the turnout coat to breathe) to get out at previous fires. None had ever had a Mayday called for them. They were using RPD to respond to the situation at hand, but it did not work this time. It is safe to assume that the Mayday-calling slide was not in their RPD slide tray.

Do you train firefighters in the simple act of using the radio to practice calling a Mayday? If not, maybe you should. For example, at a working fire, an officer fell through the floor into the basement. His radio transmission was, "14's in the basement."⁵ He never called a Mayday. Other factors also contributed to this LODD. We do not know if he had the Mayday-calling slide in his RPD slide tray.

Our firefighters may not be prepared to call a Mayday for themselves. Following is a summary of research conducted for previous articles. The tests covered making decisions pertaining to calling a Mayday.

- The New Iberia (LA) Fire Department conducted a drill to determine if the firefighters would call a Mayday for themselves. An open space 60- 2 100-foot building was used; 400 feet of hose was stretched through the building, and 18 teams of two members and one team of three members

were sent in one team at a time. They were told to follow the hose and assist another team at the end of the hoseline. The conditions were immediately dangerous to life and death (IDLH), cold smoke, and zero visibility (masks were blacked out). Their SCBAs had only 800 psi in them (only three firefighters noted the low air). Thirty-nine members participated—17 captains, 14 drivers, and eight firefighters. All personnel had a portable radio assigned to them on the apparatus; only 18 of the 39 firefighters took their radio in with them. The situation made it impossible to fulfill the assignment of joining the other team at the end of the hose.

Training Officer Martin Delaune reported the following:

- Four kept going until their air was depleted.
 - After the low-air alarm activated, 22 kept going forward for four minutes.
 - After the low-air alarm activated, eight kept going forward for three minutes.
 - Two discussed the situation for 2.5 minutes before beginning the retreat after alarm activation.
 - Three began the retreat when the low-air alarm activated.
 - Three activated their PASS alarm.
 - Two radioed a Mayday.
 - None survived. They all ran out of air before they got out.⁶
- The Fort Worth (TX) Fire Department tested about 500 firefighters (four companies at a time) in a RIT/Mayday drill. A large open-floor plan building was used. A charged 145-foot 1³/₄-inch attack line went from the entrance door into the building. One loop had been placed in the line. The conditions were IDLH and zero visibility (masks blacked out). The line ended at a doorway that led into a suite of three offices. A manikin was placed in one of the rooms. The teams were told to rescue the downed firefighter near the nozzle. About one quarter (about 130) of the firefighters were unsuccessful in exiting the building before they ran out of air. Most did not call a Mayday; all were declared nonsurvivors. The few that called a Mayday for themselves made the call outside the window of survivability.
 - The Indianapolis (IN) Fire Department used a 2¹/₂-story wood-frame residence charged with live smoke for departmentwide RIT training. Four-member RIT teams were activated to locate a trapped firefighter who had declared a Mayday. Department Training Chief Doug Abernathy estimates there were 15 to 20 failures of the low-air warning system on the SCBAs worn by the rescuers. Many of the failures resulted in out-of-air situations. Other firefighters became separated from their partners. None of the rescuers called a Mayday for themselves. "We found that we have a long way to go with our RIT and Mayday training," Abernathy reported.
 - Washington Township, a department adjacent to Indianapolis, recently tested 120 firefighters in a Mayday situation. Using a large, recently abandoned restaurant and blacked-out facepieces on the SCBAs, the firefighters were taken in one at a time. All, with the low-air warning already sounding, were told that they were members of the attack crew. It was further explained that they had become separated from the others. Individually, the firefighters were spun around, to disorient them, and positioned five feet from the charged handline. Training Officer Dale Strain explained that he hoped the firefighters would then declare a Mayday over the radio and activate the alarm on their PASS device. Strain reports that all but a few did one or both procedures; he attributed this success to the Mayday training the firefighters had recently received.

MAYDAY RULES

Firefighters start developing their RPD slide tray in rookie school. Hesitation, retreat, and call for help are not learned. With this in mind, how do we learn when to call a Mayday? Throughout your career you will most likely never need to call a Mayday. We cannot rely on experience to teach us this competency—the first time may be the last time. If there is a very important skill that you very rarely need to use and you have to do it right the first time, you must drill, drill, drill—drill your entire career. Jetfighter pilots review ejection doctrine before each takeoff, and they drill on it every two months.

We developed nine "Mayday Decision Parameters" to guide firefighters in deciding when to call a Mayday in a single-family dwelling fire.⁷ Individuals and small groups brainstormed to identify the specific parameters. The parameters were then submitted to sample populations of firefighters (339), to determine if they agreed or disagreed that they must call a Mayday under those conditions. These parameters are not conclusive and have not been field-tested. The nine conditions receiving the highest number of "agreements" among those surveyed that these conditions warrant calling a Mayday are presented to foster further discussion and study.

The parameters are as follows: (1) if you become tangled, pinned, or stuck and the low-air alarm activates;

(2) if you fall through the roof; (3) if you become tangled, pinned, or stuck and do not extricate yourself in 60 seconds; (4) if you are caught in a flashover; (5) if you fall through the floor; (6) if there is zero visibility and no contact with the hose or lifeline and you do not know in which direction the exit is; (7) if your primary exit is blocked by fire or collapse and you are not at the secondary exit in 30 seconds; (8) if your low-air alarm is activated and you are not at an exit door or window in 30 seconds; and (9) if you cannot find the exit door or window in 60 seconds.

It would seem that firefighters intuitively would call a Mayday if they fell through the floor. However, when we asked 339 firefighters from many different fire departments if they would call a Mayday if they fell through the floor at a single-family dwelling fire under IDLH conditions, only 88 percent said they would. What are the other 12 percent going to do? Whatever it is, it is not the correct first decision. Ninety-eight percent said they would call a Mayday if they were tangled, pinned, or stuck and their low-air alarm activated. That still leaves 2 percent who would not call a Mayday.

The Mayday condition with the lowest "yes" response was "Cannot find exit (door or window) in 60 seconds." Fifty-eight percent said they would call a Mayday; 42 percent said they would not. Remember, this fire example was in a single-family dwelling—front door, back door, and window in most rooms. We did not choose this dwelling or the exit Mayday condition by accident. When you review the National Institute of Occupational Safety and Health firefighter fatality reports for one- and two-family dwellings, the firefighter victims were very close to a window or exit door but still failed to get out in time. One minute (60 seconds) can be an eternity. Managing air and time in IDLH conditions are critical factors in Mayday decision making.

RECOMMENDATIONS

We encourage you to be creative and to address these issues by yourself, with your crew, with your department, and with your trainees and to implement training programs that incorporate these conditions and procedures for overcoming them.

Practice calling a Mayday over the radio. Blindfold the firefighters. Have them wear gloves; hand them the radio; and see if they can turn it on, get the correct channel, push the emergency identifier button, push the talk button, and verbally call a Mayday. Have someone on another portable radio serve as communications and receive the information: Who is calling? What is the problem? Where do you think you are?

Repeat the same drill in full turnout gear with SCBA in use. Put some mattresses on top of the firefighters. See if they can get the radio out of their pocket.

As the company officer, tell your crew when you expect them to call Mayday for themselves. Give specific examples. Tell them when you will call a Mayday for them, giving specific examples such as under IDLH conditions or "if your leg falls through the floor and I cannot pull you out on the first try, I will call a Mayday" or "if the ceiling falls on us and we get tangled in wire, we will call a Mayday and then start cutting our way out."

At the training academy, every time you have live-fire training, place crew members in a situation in which they must make the Mayday decision for themselves. The instructor can drop a cargo net over a member or block the exit. Build a prop that drops the firefighter through a trap door into a ball pit. This will also create a drill in two in/two out and RIT. It will also desensitize the others on the operational team to the Mayday call so they continue fighting the fire instead of abandoning their assignment to go to the aid of the downed firefighter.

If we want RIT and Saving Our Own to work, we need to put the Mayday calling slide into every firefighter's RPD slide tray. Then, we need to drill on it often. Because RPD "... is predicated on people choosing a course of action based on pattern matching, a comparison of the current problem to similar problems encountered before." (4,74) We cannot rely on fireground experience to teach us when to call a Mayday; therefore, we must simulate this lifesaving skill often.

A sobering thought related to the issue of RIT and Mayday comes from Battalion Chief Kenny Freeman of the Fort Worth (TX) Fire Department: "Personally, perhaps the most important issue brought to light through the RIT training involves the realization that my expectations and assumptions concerning the deployment of a RIT team were both inaccurate and unrealistic. While my previous as-sumptions were totally born out of a commonly held perspective, they would have been nonetheless ineffective and possibly tragic in the final analysis."⁸

Rapid intervention teams and Saving Our Own training are wonderful firefighter survival tools. But, like all safety equipment or SOPs, the most important component is the firefighters themselves. Just as you have to

put on your seatbelt to have it protect you in an accident, you have to call a Mayday for the RIT to come to get you out. Will you?

Endnotes

1. Varone, C., "Firefighter safety and radio communications," *Fire Engineering*, March 2003, 141-164.
2. Clark, B. "Mayday, mayday, mayday: Do firefighters know when to call it?" *Firehouse.com*, October 2001.
3. Burkell, C. and H. Wood, "Make the right call," *Fire Chief*, March 1999, 42.
4. Varone, C., "Not your father's command post," *Fire Chief*, August 2001, 72.
5. "Report from the reconstruction committee fire at 400 Kennedy Street, NW," District of Columbia Fire Department, Washington, DC, October 24, 1997.
6. Personal communication, March 9, 2003.
7. Clark, B., S. Auch, and R. Angulo, "When would you call mayday-mayday-mayday?" *Firehouse.com*, July 2002.
8. Kenny Freeman, personal communication, March 26, 2003.

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