

Ranking the Attributes of Effective Disaster Responders and Leaders

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ABSTRACT

Objective: To investigate the relative importance of 10 attributes identified in prior studies as essential for effective disaster medical responders and leaders.

Methods: Emergency and disaster medical response personnel (N=220) ranked 10 categories of disaster worker attributes in order of their importance in contributing to the effectiveness of disaster responders and leaders.

Results: Attributes of disaster medical leaders and responders were rank ordered, and the rankings differed for leaders and responders. For leaders, problem-solving/decision-making and communication skills were the highest ranked, whereas teamwork/interpersonal skills and calm/cool were the highest ranked for responders.

Conclusions: The 10 previously identified attributes of effective disaster medical responders and leaders include personal characteristics and general skills in addition to knowledge of incident command and disaster medicine. The differences in rank orders of attributes for leaders and responders suggest that when applying these attributes in personnel recruitment, selection, and training, the proper emphasis and priority given to each attribute may vary by role. (*Disaster Med Public Health Preparedness*. 2019;13:700–703)

Key Words: competency-based education, disaster medicine, public health/emergency preparedness, health personnel education/training, consensus

An effective disaster medical workforce must possess appropriate competencies, which include the specific knowledge, skills, attitudes, behaviors, and personal characteristics that contribute to individual and team performance.¹ In earlier research involving focus groups of emergency medical response leaders,² the authors identified and categorized attributes of effective disaster responders and leaders, resulting in 10 categories of attributes. A follow-up study surveyed a broader group of emergency medical leaders and responders³ and yielded the same 10 categories that resulted from the focus group study. In contrast to existing competency frameworks,^{4–6} which focus on knowledge and skills, these categories also include innate worker attributes and characteristics identified as important to disaster responder and leader effectiveness.

The 10 categories are the following: *adaptable/flexible* (willing and able to modify one's approach to achieve desired results), *calm/cool* (able to remain calm, logical, and level-headed in adverse conditions), *character* (exhibits useful traits consistently, such as determination, reliability, courage, and humility), *cognition* (clear mental, cognitive, and perceptual processing on

the job), *communication* (willing and able to communicate with diverse people from varied backgrounds and organizations), *general knowledge* (overall knowledge and skills; education, training, and experience not specific to disasters but useful in a disaster response setting, including medical knowledge and skills; and professional knowledge and skills from nonmedical fields relevant to disaster settings), *ICS knowledge and skills* (knowledge of Incident Command System and one's role, understanding the disaster environment and the job to be done), *performs role* (carries out one's assigned role and related functions properly in response to a disaster), *problem-solving/decision-making* (decisive, weighs options, makes timely and effective decisions), and *teamwork/interpersonal skills* (able to work effectively with others at all levels). A full description of these attributes can be found in an earlier article.²

In the aforementioned research that identified the 10 categories,^{2,3} the relative importance of the attributes was not addressed. Knowing the relative importance would be helpful in setting priorities for personnel recruitment, selection, and training. In the present study, experienced emergency medical response

personnel were asked to rank order the attributes of disaster medical responders and leaders according to their relative contribution to effective performance. The separate rankings would allow the leader and responder attribute priorities to be compared.

METHODS

The University of Texas Southwestern Medical Center Institutional Review Board determined that this survey research was exempt from full institutional review board review. Practicing emergency medical response personnel (N = 220) voluntarily participated in an anonymous survey to rank order 10 previously identified categories of attributes of effective disaster response leaders and responders.^{2,3} The ranking activity was completed by 145 participants attending the February 2009 EMS State of the Science: A Gathering of Eagles,⁷ an annual meeting of international emergency response leaders and responders. An additional 75 emergency and disaster medical response personnel completed the ranking survey during several other events in 2009 also attended by 1 of the authors: meetings of the World Congress on Disaster and Emergency Medicine in Victoria, British Columbia, Canada⁸; the Caribbean Emergency Medicine Congress, Barbados⁹; and the Integrated Medical, Public Health, Preparedness and Response Training Summit in Dallas, Texas.¹⁰ Additionally, several emergency medical response personnel were surveyed at an Urban Search and Rescue drill in California and at the Presidential Inauguration of Barack Obama in Washington, DC. The specific numbers of participants recruited at each of these events are not available.

Participants were given a brief description of each of the 10 previously defined attributes and asked to rank order their importance in contributing to the effectiveness of disaster personnel. Participants were instructed to assign numbers 1 to 10 to the categories (1 = most important, 10 = least important) while using each number only once. Separate rankings were completed for attributes of "leaders" and "responders." Additional data collected included gender, professional discipline, and the number and type of disasters they had directly participated in. SAS 9.4 (Cary, NC) for Windows was used for data analysis. Paired *t* tests were used to compare participant rankings of attributes of responders vs. leaders. The α level of significance was set at .05, and Bonferroni adjustments were made for multiple comparisons.

RESULTS

A total of 220 surveys were completed, 79 (36%) by physicians, 108 (49%) by medics (paramedics or emergency medical technicians), 18 (8%) by nurses, and 12 (5%) by various other professionals. The sample was 70% male. Two-thirds (67%) of the participants reported having participated in at least 1 disaster response within the last 4 years. The types of events in which participants had responded included

hurricanes, tornadoes, floods, ice and snow storms, fires, chemical plant explosions and other hazmat events, train wrecks, bus crashes, and mass attacks.

Table 1 lists the ranked attributes of effective disaster leaders and responders. For leaders, the highest-ranked attribute was *problem-solving/decision-making*, and for responders it was *teamwork/interpersonal skills*. Two personal characteristics, *calm/cool* and *adaptable/flexible*, were ranked among the top 5 in both lists. Skills in *communication* and *teamwork/interpersonal* also were ranked in the top 5 in both lists. *Performs role* appears in the top 5 for responders only, whereas *problem-solving/decision-making* is ranked in the top 5 for leaders only.

Figure 1 compares means of the 10 categories of attributes that participants ranked for leaders and for responders. The following differences in rankings were statistically significant: 4 categories, *communication skills*, *general knowledge*, *ICS knowledge and skills*, and *problem solving/decision making*, were ranked higher for leaders than for responders. Two categories, *performs role* and *teamwork/interpersonal skills*, were ranked higher for responders than for leaders.

DISCUSSION

The purpose of this study was to determine the relative importance of 10 attribute categories considered essential to the effective performance of disaster medical responders and leaders. The 10 attributes were originally identified in our earlier studies using focus groups² and a survey³ of emergency medical responders and leaders.

In the present study, the participants who volunteered to complete the ranking task were primarily emergency medical responders or leaders attending conferences or training events; thus, sampling bias is a limitation of this study. Further, the primary data in this study are ratings reflecting the opinions of the participants, and we did not study the

TABLE 1

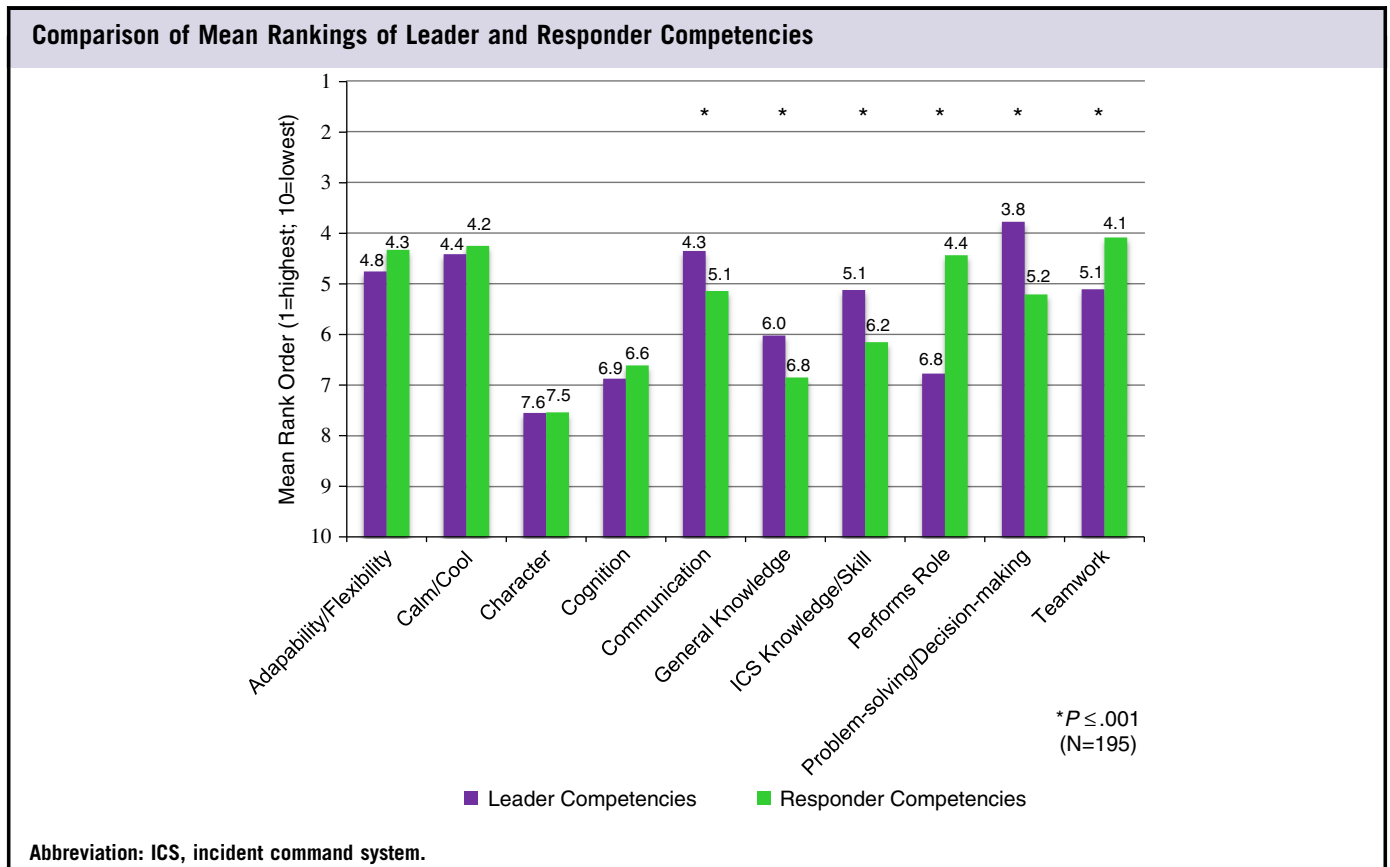
Essential Attributes of Effective Disaster Leaders and Responders Ranked in Order of Importance^a

Leader Attributes	Responder Attributes
1. Problem solving/decision-making	1. Teamwork/interpersonal
2. Communication	2. Calm/cool
3. Calm/cool	3. Adaptable/flexible
4. Adaptable/flexible	4. Performs role
5. Teamwork/interpersonal	5. Communication
6. ICS knowledge/skills	6. Problem solving
7. General knowledge	7. ICS knowledge/skills
8. Performs role	8. Cognition
9. Cognition	9. General knowledge
10. Character	10. Character

Abbreviation: ICS, Incident Command System.

^a1 = most important.

FIGURE 1



relationship between the attributes and actual performance of disaster medical responders; consequently, criterion validity should also be considered a limitation. Readers should keep these limitations in mind when generalizing the findings of this study.

The findings suggest different orders of importance of these attributes for leaders versus responders. *Problem-solving/decision-making* was highest ranked for leaders, and *teamwork/interpersonal skills* was highest ranked for responders. Three other categories of attributes were ranked in the top 5 for both leaders and responders: *calm/cool*, *adaptable/flexible*, and *communication skills*. *Performs role* was also ranked in the top 5, but for responders only. These top-ranked categories represent general skills, personal characteristics, and performance.

Considering that much of disaster medical training emphasizes elements of Incident Command System knowledge and specific disaster medical response concepts and procedures, such as triage, personal protective equipment, and decontamination,^{4,6} it is notable that *ICS knowledge/skills* was not ranked among the top 5 attributes for either leaders or responders in this study. Although there is no doubt that ICS and disaster medical knowledge and skills are essential in a competent disaster medical workforce, a number of general skills and personal characteristics were deemed more

important by the experienced emergency medical practitioners surveyed. Yet in competency frameworks and training programs for disaster response, general skills and personal characteristics are often not included or not emphasized.^{2-4,6} ICS and disaster medical concepts, principles, procedures, and skills are rightly regarded as essential core topics to address through training. Other competencies, however, such as adaptability, calm response to stress, strong interpersonal and communication skills, self-directedness, and ethical behavior^{1,11} are also essential; it is important to assess workers on these attributes and to develop their competency in these areas through training and guided experiential learning.¹ A more robust competency framework that includes such attributes can better guide personnel recruitment, selection, and development. For example, an Army recruitment advertisement for firefighters¹² lists “helpful skills,” including ability to remain calm under stress, willingness to risk injury to help others, and ability to think and act decisively. Potential candidates who read this advertisement may take these attributes into account in deciding for themselves whether they are a fit for that role. Additionally, these helpful skills can be assessed in interviews with applicants. For those who may already have been selected for the role but lack certain helpful skills, targeted training may be appropriate. For example, a willingness to take risks to help others could be developed through experiential training that builds

confidence in one's ability to succeed despite known risks or through awareness training that helps trainees better understand and appreciate the positive difference they can make in people's lives through their service.

Our understanding of the characteristics of effective disaster medical practitioners continues to grow. The attributes of effective leaders and responders presented here, ranked in order of perceived importance, reflect the insights and opinions of emergency medical practitioners based on their experience.

Competency frameworks should reflect a full range of responder and leader attributes, including personal skills, characteristics, and behaviors, that contribute to an effective disaster medical response. The rankings of attributes presented in this study may be helpful in prioritizing the development and use of limited training resources for disaster medical responders and leaders. It may be useful to repeat the rankings exercise with a sample of leaders and responders limited to those with extensive disaster medical experience, as opposed to our sample of emergency medical personnel. Criterion validity should be investigated through further research designed to measure the extent to which possession of these attributes relates to, or predicts, the actual performance of medical responders in disasters.

In conclusion, a more robust competency framework is needed to guide effective disaster medical response workforce development processes, including recruitment, selection, training, and management. Conferences should be organized to facilitate focused discussions on how these processes can be adapted to take into account the full range of attributes determined to be helpful or essential to effective performance, including the abilities to solve problems, work cooperatively with others, remain calm under stress, communicate effectively, adapt, and carry out assigned roles.

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