Poster Showcase
#IAEM 22

Responder Safety in Austere Environments

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Poster Participation Category – Non-Competitive Division - Student Undergraduate

Abstract

Austere conditions can be naturally occurring due to remote locations and/or harsh environments such as seen in places like the Arctic or can occur anywhere due to disaster situations. Austere conditions present additional and unique hazards to the population as well as emergency responders that help others in times of need. While observationally there is an increased risk to emergency responders in austere conditions, there is little data available to totally understand the scope of the risk or to determine the most efficient mitigation practices to protect this valuable resource in time of need. Elizabeth City State University (ECSU) has worked to conduct a mixed method Delphi study to examine the safety issue of both traditional and non-traditional emergency responders in austere conditions with the intent to better understand the risks as well as the potential mitigation aspects of the problem

First Responders during 9/11 WTC. 73% of Responders in the WTC Health Program had a reported illness.

Responder Safety in Austere Conditions History

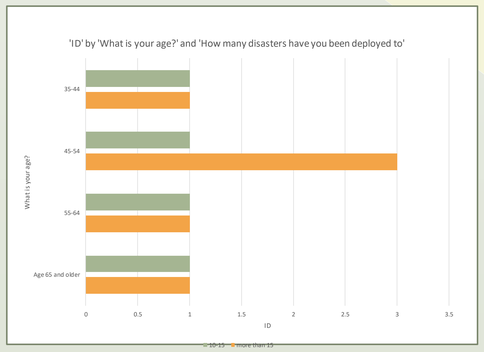
- The 9/11 Terrorist attack is a prominent case where responders developed chronic mental and physical health conditions directly related to their involvement with the incident.
- Hurricane Katrina left first responders primarily with mental health effects. A survey of 1382 responders revealed that many of them suffered long term mental health effects
- National Park Service workers have been killed on Mount Rainier whilst trying to rescue a climber (McClary, 2022).

Methods

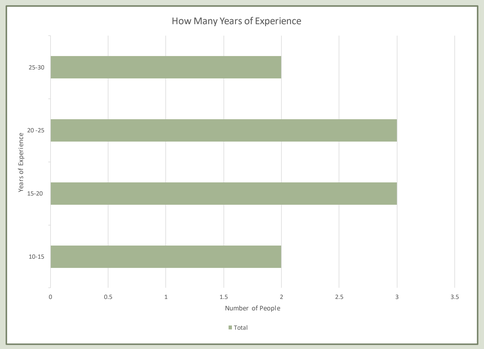
Methodology – Mixed method Delphi

The Delphi method has been found to produce reliable results to research questions. Currently there are no data sets available concerning responder injuries in austere conditions either during day-to-day operations or following a disaster. Individual case study methodology was utilized by this group in their past project to give snap shots of the problem and incidents. While looking at individual cases helped to provide some insight into the problem the cases tended to be narrow and not an efficient way to examine the problem. The next logical step in the progression was to hear from the subject matter experts in a scientific manner.

Subject Matter Experts (SME) Demographics



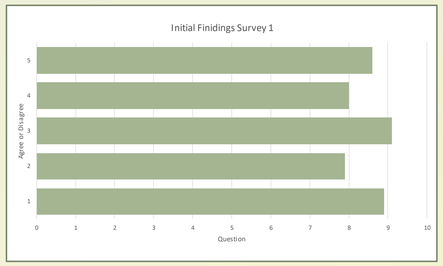
The following chart depicts the degree of expertise of the SMEs participating in this survey. Over 90% of the SMEs have responded to 15 disasters.



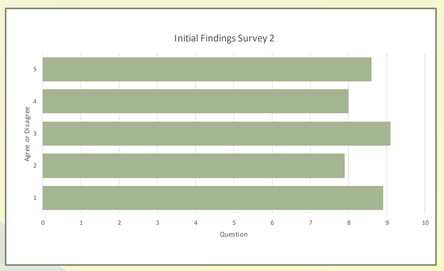
This chart depicts the years of experience that the SMEs have in their field of work.

Initial Findings

In the study we asked the SMEs on a scale of 1-10 1 being disagree and 10 being agree with different statements and questions dealing with and working in austere conditions.



First half of the study



Second half of our study

Initial Finding Legend

Graph 1:

1. Greater risk of injuries in disaster than normal emergencies
2. Greater risk of illnesses in disaster than normal emergencies
3. Risk of chronic conditions from austere environment responses is greater than normal responses
4. Career responders operate safer in austere environments than normal emergencies
5. Trained volunteers tend to take more risk in disasters than normal

Graph 2:

1. Untrained volunteers tend to take more risk in disasters than normal
2. There are more real hazards in a disaster than normal
3. There are more perceived hazards by responders in disasters
4. Sense of urgency causes responders to take on more risk in a disasters
5. Limited resources cause responders to take on more risk in disasters

Identified Risks

9/11: There were reports of

- Respiratory disorders
- Eye issues
- Asthma
- Cancer

Oklahoma Bombing: There were reports of

- Insomnia
- PTSD
- Depression
- Anxiety

Recommendations

This foundational research has found gaps in the field of responder safety in austere environments. There is further research needed in this field to better understand the problems and the corrective actions. The researchers from this project recommend the following:

- Centralized data base be maintained for reporting and analyzing data specific to injuries and illnesses to responders in austere environments.
- Education to responders on the hazards and the need to collect data from disaster and austere environment injury and illness rates.
- Further research to answer questions of ways in which to reduce risk to responders in austere conditions.
- Further research involving data collection from individuals involved in responder injury and illnesses to better understand the root causes.

References

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Project is ECSU IRB approved

For more information concerning this project or other information concerning preparedness for disasters contact the ECSU Emergency Management Program

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