EFFECTIVENESS OF AN AMBULANCE RISK AND HAZARD PRESENTATION

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ABSTRACT

Objective: To evaluate effectiveness of a risk and hazard presentation amongst pre-hospital care related providers.

Methods: A multi-site survey at 5 sites of attendees at an ambulance safety presentation. The survey was administered before and after a one hour graphic risk and hazard presentation. The survey assessed past work experience, on the job injury, and attitudes towards ambulance transport safety.

Results: Of approximately 275 participants, 234 completed the survey. A total of 185 pre and 200 post surveys were completed; 151/234 respondents (matched group) completed both pre and post surveys. Respondents were 67% male, median age 41 years (range: 21 to 68), 14% attended this presentation previously. Respondents had a median work experience of 13 years (range: 1 to 51 years) and were Emergency Medical Technicians (EMTs) (52%), paramedics (28%), nurses (18%), and other (2%). Environments were 44% urban, 29% suburban, 20% rural, and 7% mixed rural, suburban and urban. One fifth reported injury in a moving ambulance. Standing in the patient compartment was frequently attributed to: accessing supplies, providing patient care and reaching equipment. Of the matched group, perception of the rear compartment as a high risk for serious injury increased from 43% (pre) to 76% (post) (p<.0001). In a 10 point Likert Scale (10=highest) the concern for safety in the back of the ambulance increased from a median of 8 (pre) to 10 (post) (p<.0001); 36% (pre) and 72% (post) scored it a 10 (p<.0001). Self-report of always wearing a seat belt was low, 14% (pre) to 19% (post). Furthermore, considering wearing a limited motion safety harness increased from 81% (pre) to 97% (post) (p<.0001); and wearing a helmet in the patient compartment from 31% (pre) to 81% (post) (p<.0001).

Conclusion: This presentation increased awareness and positively changed safety attitudes among pre-hospital providers, and significantly increased the consideration for use of a safety harness and helmet use.

BACKGROUND

The ground EMS environment has been identified as a high risk work environment for EMS providers in the recent literature. There has been little evaluation of a change in attitude and safety perception or the effectiveness of risk and hazard presentation. This study explores the attitudes of a spectrum of EMS providers to safety, risk and hazard and the acceptability of safety PPE, helmet use and restraint use in this environment, before and after a brief 1 hour risk and hazard oriented educational intervention.

OBJECTIVE

To evaluate the effectiveness of a brief intervention of a risk and hazard presentation amongst pre-hospital care related providers.

METHODS

A cross-sectional study, with a multi-site survey conducted at 5 sites in 5 States between January -June 2005.

Participants were EMS providers at local and regional EMS Seminars attending a one hour ambulance safety presentation

The presentation included:

- **Data on Safety, Risks and Hazards**
- **Graphic material pertaining to provider fatalities (both environment and victim)**
- **Crash test footage**
- **Strategies for minimizing risk and hazard and preventing crash and injury**

Attitudes and perception data was captured via a self-administered pre and post presentation questionnaire. The questionnaire assessed past work experience, on the job injury, and attitudes towards ambulance transport

Statistical Analyses

The data were summarized by the use of descriptive statistics, using percentages for all categorical variables and using medians with lower and upper ranges for all continuous variables. P-values were calculated, to determine significance of pre and post presentation change in perception.

RESULTS

Of approximately 275 participants, 234 completed the survey, an 85% response rate for completion of a survey form.

A total of 185 pre and 200 post surveys were completed;

151/234 respondents (matched group) completed both pre and post surveys. A matched group response rate of 55% for the total exposed group

14% attended this presentation previously

Demographic Characteristics (N=234)

% Male	67%
Median Age	41 years (range: 21 to 68)
Median EMS work experience	13 years (range: 1 to 51)
Job Title:	52% EMTs
	28% Paramedics
	18% Nurses
	2% Other
Work Environment:	44% Urban
	29% Suburban
	20% Rural
	7% Mixed Rural, Suburban and urban
Injury in a moving ambulance:	20%

Change in Risk Perception Pre and Post Presentation Intervention

	Pre %	Post %	P value
Perception of the rear compartment as a high risk for serious injury	**43**	**76**	<.0001
Likert Score* of 10, (10=highest) for the concern for safety in the rear of the ambulance	**36**	**72**	<.0001
Self-report of routine wearing a seat belt	14	19	NS
Consider wearing a limited motion safety harness	81	97	<.0001
Consider wearing a helmet in the patient compartment	**31**	**81**	<.0001

*** Likert Score for safety concern, increased from a median of 8 pre to 10 post, p<.0001**

DISCUSSION

There was a dramatic change in risk perception In this study, after the brief intervention. The most marked changes in perception were in the concern for safety of the rear compartment and in the consideration for wearing head protection. It was also demonstrated that in a group with high EMS transport related injury exposure that only 14 % self reported seat belt use. Despite this very low seat belt use by self report, there was a highly significant change in the consideration for use of a helmet - from a minority to a majority of providers prepared to wear a helmet. Additionally, an unexpected finding was that twice as many respondents were prepared to wear head protection than reported use of a seat belt in the pre intervention group. Given that there is no approved device for ground EMS head protection currently in the USA, this was a surprising finding.

There was enhanced interest in a limited motion harness post intervention, even though interest in this was already high.

LIMITATIONS

- **This study was conducted in an environment of possibly more safety conscious individuals, as they had attended a safety and risk presentation, and thus may not be representative of the broader mix of the EMS community.**
- **Although the response rate was high, the sample size with respect to the overall EMS community was low.**
- **Self report is well described to be biased toward more accepted/expected practice**
- **There may be some confounding of the findings related to respondents desire to 'please' the presenter, and prior exposure to the presentation.**
- **It is not known of these changes in perception translate to changes in practice**
- **It is not known what is the duration of these perception changes**
- **It is not known which aspects of the presentation resulted in attitude changes**

CONCLUSION

This graphic one hour presentation intervention increased awareness and positively changed safety attitudes among pre-hospital providers, and highly significantly increased the consideration for helmet use.

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