

# Development of a New Tool for Paramedics and Their Supervisors After a Critical Incident

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## Introduction

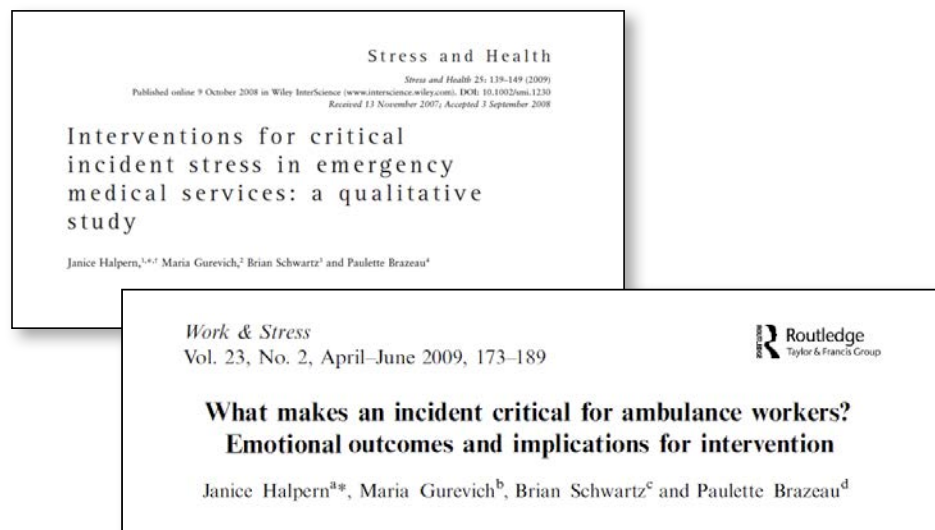
First responders are an occupational group at high risk for experiencing potentially traumatic events (PTEs) also known as critical incidents (CIs) in the course of their work.

This study began in response to findings that Critical Incident Stress Debriefing (CISD), the main method of "combatting" PTSD in the wake of critical incidents, was ineffective. This left first responder agencies at a loss for effective methods of primary and secondary early intervention to prevent long-term emotional sequelae in their employees. Given that critical incidents are a major concern in first responders and other high risk occupations, such as the military, it is surprising that so little research has been done in this area.

Our research team set out to answer some of the questions that might help in developing an empirically-based response to critical incidents, using paramedics as our study subjects. The research programme, which consisted of focus groups followed by a fairly comprehensive survey package, has resulted in the publication of 8 research papers and a book chapter. Importantly, when we first approached the Toronto EMS to be the subjects of our study, they asked us to make sure that the study would contribute to their wellbeing in a very direct way. In their words, "We don't just want to be your guinea pigs". As a result, we brought together the findings of 3 major analyses of the study (along with some findings in our other studies and the extant literature) to develop a tool for use by paramedics and their supervisors. We expect the tool can also be used, possibly with some modifications, for other first responder groups (firefighters and police officers). These laminated 2-sided cards, one set designed for paramedics and one for their supervisors, are pocket-sized for easy reference, should the paramedic experience a critical incident. See them at the bottom of this poster.

## Background

### Our qualitative studies:



Focus groups and individual interviews on 60 self-selected individuals, including frontline and supervisory paramedics, gave us insight into the difficulties paramedics face in accessing support after a critical incident. The literature repeatedly advises organizational support after a critical incident to minimize long-term sequelae. However, there are significant barriers to accessing workplace support.

1. Paramedics have difficulty asking for help.
2. Supervisors are often reluctant to provide it.
3. It is unclear what constitutes effective support.

A large component of these difficulties is the stigma attached to suffering from a critical incident. First responders are, by nature, self-sufficient, and are reluctant to admit emotional vulnerability. This also applies to their supervisors, who all started out as front-line personnel.

Another barrier to requesting and offering support is that no one knows which incidents are likely to cause later sequelae, and the literature on community samples (not high risk occupations) does not apply to these groups who are routinely faced with death and illness in their line of work. This inability to identify the incidents that require intervention is a significant barrier to accessing workplace support.

In fact, an NIMH Call for Proposals 2011 makes this very point when writing about high-risk occupations: "It is currently not possible to differentiate trauma survivors (early on) who will recover naturally from those who will develop enduring symptoms."

### Our quantitative studies:

## Goals

The goals of our research programme were informed by the findings of the qualitative studies. Our main goal in this study was to identify which critical incidents would be more likely to evolve into long-standing emotional sequelae, and since our focus groups identified other sequelae besides PTSD, we also included as sequelae depression, burnout, and stress-related physical symptoms.

A secondary goal was to identify what kind of support might be helpful. Since the EMS organization we studied had already enshrined "downtime" in their collective agreement some time before, we also chose to study whether that intervention did, indeed, mitigate later emotional sequelae of CIs. To our knowledge, it has not been found to be effective in preventing long-term PTSD, and its effectiveness on depression symptoms has not been studied.

Our third goal (which was primary to our research subjects) was to develop a tool that would allow them to make use of our findings.

## Methods

After studying the results of focus groups and individual interviews, front-line and supervisory EMT/paramedics were recruited from attendees of a mandatory continuing medical education program in a large urban EMS organization to complete a self-report cross-sectional survey which inquired about 2 time periods:

1. The time of a self-chosen critical incident (the peri-CI period) and the hours to weeks following (the early post-CI period: Retrospective)
2. The time of the survey: in the present

## Participants

Of 906 ambulance workers informed of the study, 635 provided consent and received the survey, and 243 (38.3%) returned it. Of these, there were 201 valid responses for the questions on responses in the peri-CI period, recovery from acute distress post-CI, long-term emotional outcomes, and downtime. The demographic distribution of participants was similar to that of the organization in terms of age, gender, years of service, and level of training. Exceptions were a moderate overrepresentation of women and the highest level of training. High depressive scores were the most common (in 24% of the sample); high post-traumatic symptoms were least common (8%).

### DESCRIPTION OF EACH OF THE 3 QUANTITATIVE STUDIES:

#### Study #1: Does the early response to the index CI predict current symptoms?



**RATIONALE:** Based on evidence that persistence of some measures of anxiety beyond the first week post-incident is associated with emotional sequelae, we tested the hypothesis that the persistence of self-identifiable components of the acute stress reaction (ASR) as early as a few days post-incident is associated with sequelae.

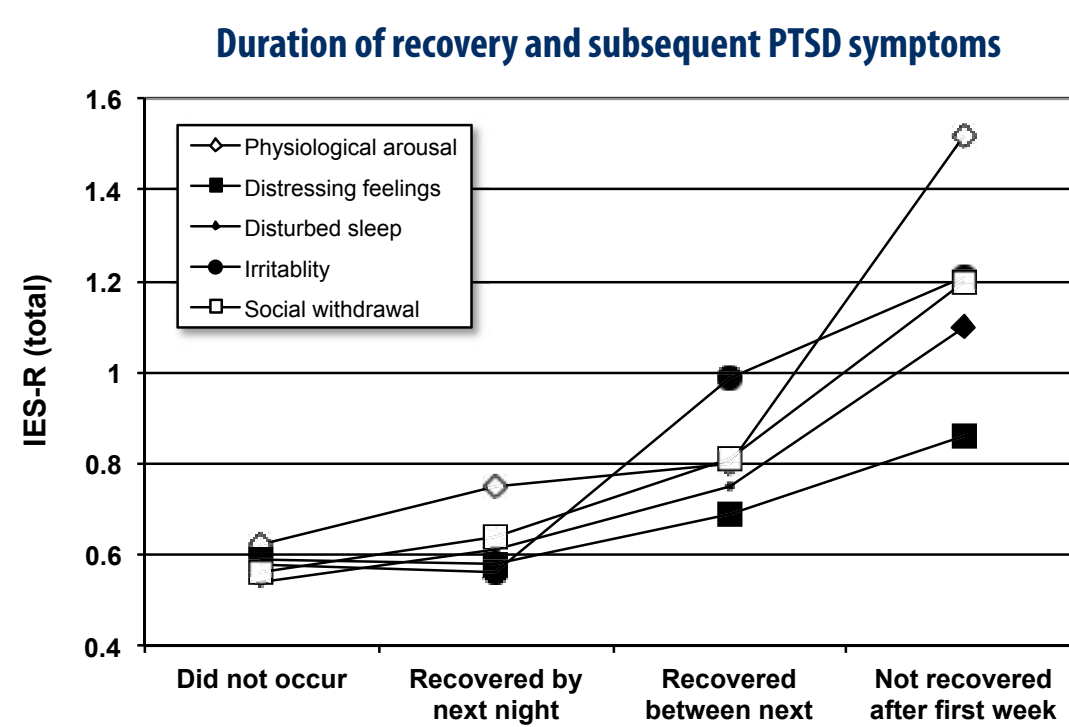
**MEASURES:** The index traumatic incident: We defined them as "calls that have generated unusually strong feelings, either because of the incident itself, or how it was handled or some other reason." Participants identified an index traumatic incident that was "still troubling" (51%), "had been troubling in the past" (40%), "a composite of a number of critical incidents" (2%) or "one of your worst calls" (6%).

**RECOVERY TIME FOR ASR COMPONENTS:** We asked if they had experienced: physiologic symptoms of panic, distressing feelings, insomnia, irritability, social withdrawal, and if so, how long did it take to recover from them: a few hours, by the next night, by the next week, by the next month, within a few months, still not recovered.

**LONG-TERM EMOTIONAL SEQUELAE:** In the present, we asked about symptoms of depression (CES-D-10), PTSD (IES-R), burnout (Maslach burnout inventory HS, Emotional Exhaustion scale), and stress-related physical symptoms (BSI).

**ANALYSIS:** Spearman's rank order correlations were calculated to measure the association between five ASR component recovery trajectories and four measures of current psychological symptoms. Scores were re-coded into dichotomous variables for three times: happened at all, recovered after 1 night, recovered after one week. Relative risk (RR) and Odds ratios (OR) of high symptom scores were calculated for each time point.

**RESULTS:** Relative risk of high depression and PTSD scores at least double if physical reactions of panic occur at all, or disrupted sleep, irritability, or social withdrawal, persist beyond 1 night. The pattern for burnout and stress-related physical symptoms is similar, but weaker.



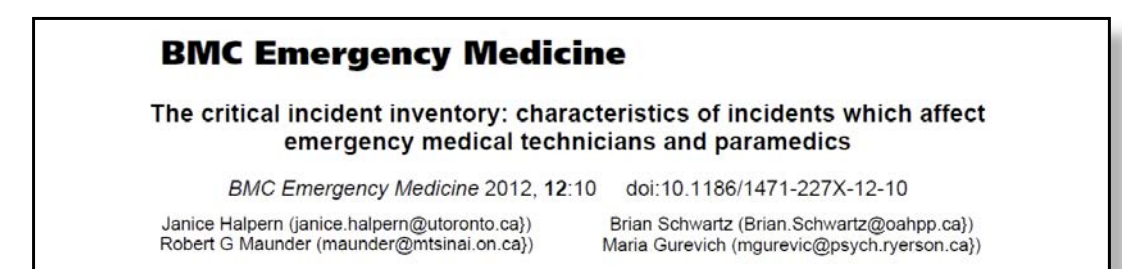
#### Study #3: Does downtime help prevent long-term emotional sequelae?



**RATIONALE:** We tested the effectiveness of downtime, which is a period of time off-duty, and its possible mediators.

**MEASURES:** same as in study #1, plus a questionnaire on experience of downtime

#### Study #2: Do characteristics of the incident predict later distress?



**RATIONALE:** Characteristics of CIs that cause later emotional sequelae have been suggested in the literature, however no one had ever tested this before.

**MEASURES:** We developed a list of 36 characteristics that might have made an incident troubling, based on the literature and our qualitative study. These factors can be divided into 3 domains: situational, personal, and systemic. We asked subjects to rate each characteristic on a scale from 1-4, according to how much it contributed to the incident being troubling.

All measures as in study #1, plus the Peritraumatic Distress Inventory and The Peritraumatic Dissociation Experience Questionnaire.

**ANALYSIS:** Developing the Critical Incident Inventory: First, items which caused distress or dissociation were chosen to remain in the inventory, and then, by agreement, all items were placed in the most appropriate domain. After accounting for personal and situational factors, systemic factors did not contribute anything to explaining peritraumatic distress.

Following this, we tested the relationships between (a) endorsing any domain item and (b) outcomes of the critical incident (peritraumatic dissociation, recovery from components of the Acute Stress Reaction, and depressive, posttraumatic, and burnout symptoms). Analyses were repeated for the number of items endorsed.

**RESULT:** The result of this study is a 14-item inventory which consists of 6 situational characteristics and 8 personal characteristics, that contribute to a CI being likely to result in long-term sequelae, especially PTSD. Higher number of relevant characteristics also predict poor outcomes.

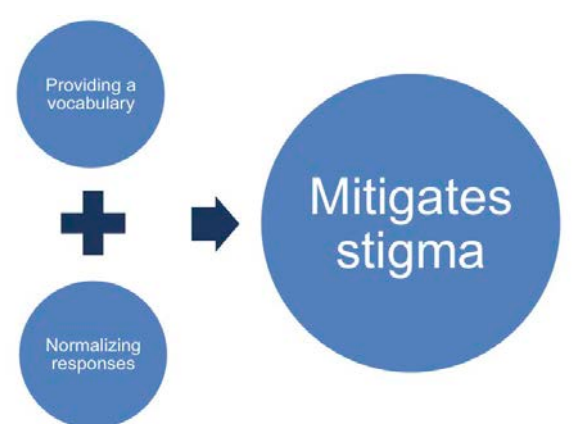
**DISCUSSION:** This validates the importance of the paramedic's internal experience in the pre, peri, and immediate post-incident period as a predictor of long-term sequelae, and offers a clear framework for identifying and reporting these at the time of a critical incident. Internal experiences include state of mind, appraisals, and affects.

### CRITICAL INCIDENT INVENTORY

How much did EACH of the following make the recent incident troubling for you?

- |                 |              |
|-----------------|--------------|
| 1 (N/A)         | 2 (somewhat) |
| 3 (quite a bit) | 4 (a lot)    |

- Factors beyond my control
- It showed how people can be cruel and neglectful.
- Dealing with relatives was difficult.
- End of shift
- The situation was dangerous for me or another paramedic.
- I spent time with the patient and got to know him/her.
- I was surprised by the call.
- I felt helpless.
- I felt overwhelmed.
- I felt I didn't do a good enough job.
- Fatigue
- There were cumulative work stressors in my life at the time.
- I felt unappreciated.
- There were stresses in my personal life at the time.



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