

## What makes an incident critical for ambulance workers? Emotional outcomes and implications for intervention

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Ambulance workers use the term “critical incident” to refer to a category of workplace stressor. Developing an evidence-based approach to critical incident stress begins with identifying what makes incidents critical. The aim of this qualitative study was to characterize critical incidents as well as elicit suggestions for interventions. We interviewed 60 ambulance-based workers, both front-line and supervisors, and analysed interview transcripts. Having presented their suggestions for interventions more fully elsewhere (Halpern et al, 2009), here we characterize the incidents that emerged as critical and the emotional responses evoked by them. We found they suffered considerable distress from critical incidents and would welcome interventions. Incidents that were identified as critical commonly involved patient death, often combined with poignancy. These events appeared to evoke vulnerable feelings of inability to help and intense compassion, which led to further emotional, cognitive, and behavioural responses. Difficulty in acknowledging distress and fear of stigma presented significant barriers to accessing support. These barriers may be overcome by educating both ambulance personnel and their supervisors to recognize and tolerate the vulnerable feelings often evoked by critical incidents. While gender and length of service did not seem to impact on evoked emotions, recent recruits may be more open to this type of education.

**Keywords:** critical incident stress; ambulance workers; qualitative methods; secondary trauma; intervention; work-related stress

### Introduction

Emergency personnel and other first responders, such as ambulance workers, often encounter stressful or “critical” incidents in their work that may produce physical or emotional sequelae (Alexander & Klein, 2001). Over the past decade, in the light of the controversy over the risks and benefits of Critical Incident Stress Debriefing (CISD) (van Emmerik, Kamphuis, Hulsbosch, & Emmelkamp, 2002; Bledsoe, 2003), research in this area has become increasingly important. Both ambulance workers and their employers need effective new interventions (McFarlane & Bryant, 2007).

Posttraumatic Stress Disorder (PTSD) is the long-term outcome that has been most studied in ambulance workers. They exhibit an increased prevalence of PTSD

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compared to community samples (20% vs. 1–3%) (Stein, Walker, Hazen & Forde, 1997; Sterud et al., 2006), likely because of their increased exposure. According to DSM-IV (American Psychiatric Association, 1994), PTSD criteria of a traumatic event include involvement in, witnessing, or learning about (the latter in a close associate or family member) actual or threatened death, injury, or threat to physical integrity (DSM-IV criterion A1), and a response of intense fear, horror or helplessness (DSM-IV criterion A2). Since witnessing death and injury are relatively commonplace for emergency service personnel, the prevalence, although higher than the community, suggests that only a minority of these incidents are experienced as traumatic. It is therefore important to characterize carefully the minority of incidents that lead to posttraumatic symptoms. Ambulance workers also suffer from other long-term sequelae. In previous studies, nearly 10% met criteria for probable clinical levels of depression (Bennett, Williams, Page, Hood, & Woollard, 2004) and 20–36% reported high levels of burnout symptoms (Alexander & Klein, 2001). This also suggests that critical incidents are not simply identical to traumatic incidents, and that the term ‘critical incident’ needs further clarification. Each subset of first responders, i.e. the police, fire-fighters, and ambulance workers, likely experiences a different array of critical incidents, due to the diverse demands and daily tempo of each profession. A recent study (Jeannette & Scoboria, 2008) explored preferred organizational responses to critical incidents in fire-fighters.

In the present qualitative study, we interviewed front-line and supervisory ambulance workers about their experience of critical incident stress and their recommendations for intervention. The themes concerning intervention have been presented more fully in a separate publication (Halpern, Gurevich, Schwartz, & Brazeau, 2009). In the present paper we focus on the data and thematic analysis of their experience of critical incidents, and in particular the emotional qualities that characterize them. Understanding the emotions and psychological mechanisms involved in an incident becoming critical may help delineate the mechanisms of stress in this unique population. We expect that these mechanisms, together with recognizing their natural coping strategies and suggestions for intervention, may inform the development of strategies for dealing with critical incident stress.

### *Previous studies*

The term ‘critical incident’ was coined by Mitchell (1983). He defined a critical incident as “Any situation faced by emergency personnel that causes them to experience unusually strong emotional reactions which have the potential to interfere with their ability to function either at the scene or later” (p. 36). Researchers have since explored further the qualities of critical incidents. Using pilot interviews and previous studies, Clohessy and Ehlers (1999) developed a list of potentially traumatic categories of patients and asked British ambulance workers to rate the stressfulness of dealing with them. They found that cot (crib) deaths were the most stressful, followed by incidents involving children; dealing with relatives of patients, burn patients, and mental health patients; and handling dead bodies. In their free descriptions of the most distressing aspects of their work, ambulance workers volunteered that organizational/managerial problems and workplace stressors such as shift work were also distressing aspects of their work. Alexander and Klein’s (2001) study of a Scottish ambulance service identified other types of stressful

incident categories, such as road traffic collisions, medical emergencies, suicides, and violent incidents. They too used open text comments to expand their findings. In this case the comments identified a potentially emotional component i.e. “the victim is known to the ambulance crew,” and an explicitly emotional feature of a stressful incident, i.e. “the ambulance crew feel helpless at the scene” (Alexander & Klein, 2001, p. 78). They also identified organizational mismanagement of the incident such as inadequate back-up and dispatch errors as contributory. In each case, the use of open text introduced a new category of stressor, i.e. workplace stressors and subjective experience. Van der Ploeg and Kleber (2003) asked ambulance workers in the Netherlands to describe their most recent critical incident. From the responses, they reported similar categories to the previous studies. A new post-incident organizational problem emerged in this study, i.e. lack of acknowledgement by a superior. When Regehr et al. (2002) interviewed ambulance workers in Toronto, Canada, about critical incidents, the subjective experience of an emotional connection to a victim or the bereaved family emerged as an important factor.

Thus, over time, and with narrative as the most informative component, investigators have begun to identify the subjective qualities that make incidents stressful. We expected that a narrative approach would also be appropriate for defining critical incidents and providing further insight into their subjective components.

## **Methods**

### ***Participants***

Volunteers were recruited from attendees (supervisors and front-line providers) of a mandatory Continuing Medical Education (CME) programme in a large urban Emergency Medical Services (EMS) organization in Toronto, Canada. This included all supervisors and front-line ambulance workers on active duty at the time of the CME. They were given a choice of individual interviews or focus groups, or were assigned if they had no preference. We interviewed all volunteers as they came forward until saturation was reached (i.e., the point at which no new information emerges), and ensured that both genders and all job levels were represented. In this organization there are three ambulance worker levels, designated as levels 1, 2, and 3, with level 3 personnel having the most advanced training. Supervisors have all worked on the front lines in the past, and were welcome to comment on either their experience on the front lines, or as supervisors, or both. Each participant received a C\$60 honorarium. The study received institutional Research Ethics Board approval and each participant signed a consent form.

Out of a total of approximately 100 supervisors and 900 front-line ambulance workers in the Emergency Medical Services organization, there were 60 participants. Of these, 31 participated in 8 focus groups (each composed of between 2 and 8 members) and 29 participated in individual interviews. Four of the individual interview participants were supervisors, but no supervisors participated in any focus groups. Participants in both kinds of interviews were representative of the organization in terms of mean age (39, range 26–56 years) and years of service (13, range 2–30 years). There were 33% females (compared to 24% in the organization), and 49% level 3 ambulance workers (compared to 25% in the organization).

### ***Data collection***

A qualitative exploratory method was used in order to understand the construct of “critical incident” from the point of view of the ambulance workers. Identical guidelines were used for individual interviews and focus groups (Britten, 1995). The semi-structured interview opened with an invitation to talk about their experience of critical incidents, including the types of incidents they experienced as critical, their responses to them, and the physical, emotional, and relationship effects of critical incidents, as well as suggestions for intervention. The interview structure was sufficiently flexible to permit the elaboration of more in-depth or emotionally significant data. If the participants insisted on a definition from the interviewers, a brief suggestion of incidents that caused strong feelings was offered. Individual interviews lasted between 60 and 90 minutes and were conducted by one of the authors (PB). Focus groups ran for 90 to 120 minutes and were conducted by two facilitators (two of JH, PB, and a focus group facilitator). We planned for focus groups of 4 to 8 members, to maximize interactive data. Interviewers kept notes on non-verbal interactions and tone of the interview. All interviews took place in facilities away from the workplace, and were audiotaped and transcribed.

### ***Data analysis***

Two of the authors listened to all audiotapes (JH, PB) for emphasis and emotional tone, and three of the authors (JH, PB, MG) together developed thematic coding trees based on the transcripts. Coding was discussed and compared regularly among coders, and one author (JH) reviewed the coding of all the transcripts. All instances of differences in coding were resolved by consensus among the three coders. Ethnographic content analysis (ECA) was used to examine the transcribed material (Altheide, 1987; Savage, 2000). ECA is an integrated method for describing contextualized meaning patterns as well as analyzing textual material for both frequency and numerical relationships. We enumerated textual data only from the individual interviews, and analyzed the qualitative data from both individual and group interviews. Textual data were enumerated only from the individual interviews because the nature of free-flowing group discussion does not lend itself to enumeration. For instance, usually only some group participants choose to comment on a topic, and those who do may not give a complete response. Group interviews, however, are particularly useful for understanding organizational culture (Kitzinger, 1995).

We categorized both broad and specific themes using a constant comparative method (Glaser & Strauss, 1967). This entailed a systematic iterative examination and categorization of text based on specific themes. Following initial textual categorization based on meaningful units or data segments, multiple re-readings eventuated in progressively higher-order thematic coding (Tesch, 1990). Initial themes were: the perceived impact of critical incidents; perceived need for intervention; types and frequency of incidents; emotional, physical, and relationship sequelae of critical incidents; coping strategies; and recommendations for intervention. In our previous paper, the next level of themes included roles of various supports and barriers to supports (Halpern et al., 2009). Themes that emerged on further reading and are reported in the present paper were: underlying commonalities among critical incidents, emotions evoked by critical incidents, ways of dealing with evoked emotions, and effects of gender and experience.

## **Results**

### ***Description of participants***

Both in focus groups and in individual interviews, the front-line personnel and supervisors presented as professionals who are dedicated to their work and take pride in it. For the most part, they expected to see dramatic, gruesome incidents in their work, and were even drawn to the career because of the excitement surrounding them. For many, discovering that much of the job consists of dealing with more chronic illness and social issues was initially disappointing. Although many had not anticipated coping with the emotions of patients and their families, they had learned to do so with considerable sensitivity and expertise. They presented as an insular and cohesive group, preferring the company of other front-line ambulance personnel, and feeling most understood by them.

### ***Definition of critical incidents***

Ambulance workers appeared to use a working definition of critical incidents as a workplace phenomenon which they differentiate from chronic workplace stressors. Critical incidents are discrete incidents in the field which are attended by the ambulance worker. They involve strong emotions which last for long enough to be uncomfortable in their own right or to produce uncomfortable sequelae. The emotions were often sadness or anger. Although chronic workplace stressors, such as high volume of workload, ongoing difficulties with management, shift work, etc, may impact on the experience of critical incidents, they are distinguished from it. The management of the incident by the organization before, during, and after it has transpired are considered an important aspect of the incident. They regard critical incidents as an often distressing component of their occupation which should be managed primarily within the organizational context.

### ***Experience of critical incidents***

The interviewees reported considerable experience with, and concern about, critical incidents. Most had a working definition of critical incidents that was much like that of Mitchell (1983), described above, and launched into their descriptions without asking for a definition. Most described between 1 and 7 such incidents, with a median of 2. Most interviewees described one or two in detail, and often experienced considerable discomfort recalling them, even if they had occurred many years previously. Here a paramedic describes intense discomfort many years after an incident: "Sometimes I just think maybe I'm just losing my mind, you know. Maybe I just don't have the correct coping skills or I'm not intelligent enough to figure out how to work this through and fix it!" A minority did not express discomfort, but instead named a large number of incidents without detail and with bravado.

### ***Impact of critical incidents***

There did not appear to be a relationship between type of incident and type of emotional sequelae. Thirteen of the individual interviewees (45%) described symptoms that lasted at least 2 weeks; eight (28%) described symptoms that lasted at least a month, and some of these lasted years. A larger percentage of the women in

our sample than men (60% of the women *vs* 37% of the men) reported symptoms lasting at least 2 weeks. At the time of the incident, six of the interviewees with symptoms lasting at least 2 weeks had less than 10 years experience, and seven had 10 years or more. One interviewee suggested that an incident which caused him significant distress early in his career was more impactful because he had not yet established a base of support within the workplace.

The types of emotional sequelae suffered as a result of these incidents are listed in Table 1. While only one individual interviewee admitted to substance abuse, a common theme of substance abuse triggered by critical incidents emerged within the focus groups. Two examples of posttraumatic growth emerged: one interviewee developed a close relationship with a work partner as a result of discussing a critical incident, while another described how his experiences had deepened his appreciation for life and moved him to volunteer his time in his community. The vast majority of interviewees agreed that the symptoms were sufficiently disruptive to their work and their personal lives that developing a new intervention to prevent or mitigate emotional sequelae was important.

### *Commonalities of critical incidents*

A total of 71 critical calls were described in some detail by the 29 individual interviewees. Of these, 62 were cases in which the patient(s) died. Of the 9 cases in which there was no death: 4 involved danger to the ambulance personnel, 3 were poignant, and 2 were gruesome. In the cases of patient death, there was often the additional quality of poignancy. Poignant incidents tended to be those involving children, innocent victims, strikingly senseless deaths, or those to whom the ambulance worker felt connected, either because they bore a resemblance to a loved one (e.g. reminding them of an elderly grandparent), or because he/she spent

Table 1. Physical and emotional outcomes (lasting for at least 2 weeks) for those traumatic incidents that were reported as most traumatic during individual interviews ( $N=29$ ). Note that most interviewees suffered multiple sequelae.

Sequelae	Number of ambulance workers who reported this outcome
Somatic symptoms (e.g. headaches, gastrointestinal distress)	9
Sleep disruption	8
Sadness	8
Avoiding thoughts or situations	7
Intrusive memories	6
Anger at organization	5
Irritability	5
Job dissatisfaction	4
Social withdrawal	4
Relationships affected negatively	4
Loss of compassion	3
Relationships affected positively	1
Substance abuse	1
Personal growth	1

sufficient time with the patient to develop a personal connection. Some incidents are particularly poignant because they involve parents harming children, by neglect or violence. Incidents were often characterized by more than one quality.

The four cases that were considered critical because of the element of danger were described by two men and two women, only one of whom was relatively new on the job. The others were experienced and working in high-level positions at the time of the incident. The three poignant cases were attended by two men and a woman. One man had suffered from similar incidents throughout his career and at this point was very senior in both years and level. The other two had experienced the incidents within the first 10 years of work. The two gruesome cases were experienced by one man and one woman, each within their first 5 years on the job. No association between gender or length of service and the emotions evoked was thus apparent in this sample.

***Emotions evoked by critical incidents: inability to help***

Death of patients appeared to arouse strong feelings of inability or failure to help, uncomfortable feelings which were dealt with by a variety of strategies. In the following quote, an ambulance worker recognizes this type of call as distressing:

Well, for myself, particular calls are more stressful than others. Calls that . . . I feel like I have no control over . . . my partner and I get a call; this is a number of years ago and uh the patient, older lady . . . we couldn't figure out what it was. We knew we had to get her to the hospital fast and we did, and of course, as soon as we were transferring her from our stretcher to the hospital bed, she arrested. So, it's one of those things where you walked out of the call and what the hell just happened, and what could we have done, and that type of thing. It makes you think, well, maybe I shouldn't be doing this. It sort of undermines your confidence in the job or your ability to do the job.

Sometimes there is clearly nothing to be done:

There are always some calls that stay with you . . . I think maybe the frustration that in a lot of instances you couldn't do anything . . . Things were already over before you could make any interventions. Not all of them, but I think most of them are that way.

There is a clear difference in how they feel about an incident based on whether the patient survived or not:

I've had younger patients but they've always seemed to make it or I've done something to contribute to them making it. It's always been a positive outcome and this time he didn't make it. It just seems to stick in my head.

***Professional identity: expectations of being able to help***

There is a clear expectation on the part of the ambulance personnel that they rescue:

And then there's the issue of us not being able to do what we're supposed to do. That's save somebody's life. Okay. That's our job. You know, that's sort of the peak of our job. And we weren't able to do that.

The expectation is even higher when they have trained to initiate more complex levels of medical care:

And I try to invest myself in calls because it is rewarding being able to help somebody. I remember when I first became Level 3, I thought “Oh great” doing all this fancy intervention life saving stuff and people still died. That kind of bummed me out. I was thinking, “This is not supposed to happen.” It’s sort of your mindset and you have to adjust to that. It doesn’t matter because some people are going to die and stuff happens. I asked my family doctor . . . how he deals with it and he said, “You’ve got to stop caring sometimes” and I didn’t really like that answer. I’ve since changed doctors (Both laugh).

### *Discomfort with inability to help*

Here the members of a focus group describes the difficulty presented by an incident in which there is no action to be taken:

P3: “I think the worst call for me was to take a kid down to [the hospital] and it was palliative care . . . just looking at this kid and great big eyes and there’s nothing you can do. And all you want to do is get him down to [the hospital], because you don’t want this kid to die in the . . . ride. Just because there was absolutely nothing. A lot of the times I find when I’m busy, I’m okay. Because you’re busy doing stuff and your mind is focusing on what you have to do. In this case there was nothing to be done.”

P4: “Yeah it’s different if you can help the kid. If you can’t help it’s awful.”

P3: “It’s terrible and you’re just sitting there.”

P2: “We’re very task oriented, right? That’s how our brains work, right? It’s system and tasks and it’s algorithmic, right? You start here and you end up here and when you end up here, you’re still . . . That’s it. When you start to think, right? You don’t want to think, you just want to operate.”

P3: “Yeah you don’t want to think. You just keep doing what you have to do, get them to the hospital and then you can walk away. Because as soon as you start thinking, that’s when it starts bothering you . . .”

P5: “And then, you know, you just want to get away after that’s done, because you don’t want to get pulled into that emotion. You just want to get out, get on to the next call so you don’t have to think about it.”

### *Responses to feelings of inability to help*

One type of response consists of concerns about professional competence:

. . . it was more like I was second guessing myself on a lot of the next calls that I was doing. And I really felt like I was going to make a mistake, if something that I was going to do that was going to be out of order. And things I know how to do by rote, I would keep checking before I would do them to make sure that was right.

In an attempt to shore up their sense of competence, some seek out reassurance about their professional competence from physicians and colleagues:

I did more a review of our procedures, looked up on the internet about any type of case that was similar to that, spoke with my colleagues, spoke with the pathologist I had run into, asked a few other physicians that I’ve run into what they might have done. And



more of the consensus from people on my level was that they weren't there; I was there and they would have done what I had done under the circumstances. So, that alleviated a lot of my feelings of discontent about the situation.

Some attempt to restore their feelings of professional competence from management, particularly their supervisors:

If we were to see genuine concern from our managers, from our immediate supervisors and they punctually show up and ask how you're doing, how you're feeling, that goes a long way!

Others express a wish for more public recognition of their type of work to restore their flagging self-esteem:

I think for a lot of the guys, if I had to focus on one thing that bugs me some days when I come to work, I think sometimes it's the lack of recognition that our department maybe has, the lack of understanding from the public.

Feelings of guilt also arise from feelings of inability to help:

So, I think it was also part of, like, oh my God, maybe if we'd done things differently, we could have saved her, you know. Kind of a guilt feeling too. So I think it was just me constantly reviewing it. Did everything go the way it should have? Should I have done that? Could I have done that?

Some respond by blaming the organization. In the following case the ambulance worker did not describe any fault of the organization, but seemed to need to ascribe blame to someone: "So there's a number of factors and I remember thinking, you know, thinking that it just wasn't handled right."

In some cases, where there were organizational errors (for instance incorrect advance information from dispatch or lack of support from management afterwards), intense anger at the organization ensued, sometimes lasting years: "This time I'm angry. I am still really very angry about this . . . no support from my management staff."

Compensatory acts were also a way of dealing with feelings of inability to help. Some try to do whatever they can in order to feel they have had some positive influence. These compensatory acts may include comforting the family, attending funerals, or visiting their patients in hospital:

So maybe it did help me too, by helping them kind of thing. Because I do think a lot of times about my patients' families, things like that, what they're going through, you know like with that baby, you know. I just thought, oh, the family, how are they going to cope with that and the blame they're going to have. And so, I think about those things a lot. So I, sometimes think it's nice to be able to talk to them and maybe something you say or whatever helps them.

I remember going to the hospital and I remember I was disappointed because the parents weren't there at that time . . . And I don't know what it was. It was just something that made me feel like I just needed to talk to them. But I never ended up talking to them. So anyway that call definitely stands out as being . . . (Stuck with you.) Yeah.

“And it’s weird, I looked in the newspaper. I saw his funeral announcement and I went to the funeral. (Oh okay.) I didn’t talk to any of the family. I just went for my own, I don’t know why . . . I, for some reason, I guess I felt I needed to follow up and so I did. And I sent the family a condolence card and then a friend of mine . . . met a friend of the family’s friend and he had said, oh, his [relative] wants to talk to you . . . So she called me and she wanted to know, like, you know, what happened with her [relative] and who was the last one to talk to him . . . It’s kind of funny because there are so many calls you do and you never think about them again. But this one, I thought about him a lot. I guess because he was so young and again, I really didn’t think he was going to die. So I thought, okay, well, you know, he’s at the trauma centre now and I had no idea that he was that badly injured. And then he died. So I think that freaked me out. I wasn’t prepared for that. And I thought, oh my God, he’s so young and his family wasn’t there. I felt badly his family wasn’t there and then. So that one stuck with me for a while.”

Interviewer: “And talking to his [relative], did that help or . . .?”

“It more, I felt it was helping them so it made me feel better, because she really, really was upset. And I felt she wanted, I think she felt a lot better after talking to me and hearing something about what happened. And so it made me feel better to give them some kind of closure.”

### ***Emotions evoked by critical incidents: intense compassion***

The struggle with overwhelming compassion often results in suppressing these emotions, sometimes to the extent that the interviewees in this study had difficulty even naming the emotion connected to the incident. They experienced greater difficulty in defining this emotion than concern about failure to help. Not infrequently, a feeling of anger rapidly fills the place of the suppressed sadness and compassion. In the following example, the ambulance worker is struggling with identifying and also managing overwhelming feelings. He had witnessed a child dying from a particularly gruesome accident, and was powerless to do anything because of the extent of the child’s injuries. He suffered from some intrusive symptoms and sadness:

Interviewer: “Any emotional responses?”

“As in anger, frustration, whatever? I don’t think anything that I could identify. I don’t know if sadness or frustration factor in per se. Even now, if you ask me why I feel emotional about it, I’m not sure I could label the emotion, I’m sort of, I can feel a sense of sort of being overcome with emotion and that you could break down, in a sense, if you let yourself go too far, but whether that’s, I don’t know what it is, whether that’s sadness, I have no reason to feel sad about the call. I don’t have a lot of reason to feel frustrated or guilty about the call. It’s just a bad call. So I’m not sure what that emotional component actually consists of.”

Later in the interview, discussing another pathos-filled incident, he is able to identify its essential quality: “Well, whatever, it may not just be gruesomeness, it might be tragedy.”

In the following example, in which the ambulance worker was unable to rescue a child who died, the emotion rapidly metamorphoses into anger. In the context of a focus group, he discusses his fear that not allowing himself to experience the emotions connected with similar incidents will eventually harm him emotionally:

“I have memories of a lot of things. I know they’re there. I don’t think they’re piling up waiting to explode, but they’re there.”

Interviewer: “How many would you say you have ‘piled up’ in there?”

“I don’t know, maybe eight—anywhere from six to a dozen calls that stand out. I can’t remember addresses and so forth, but I can remember particulars of calls along those lines. The majority of them are VSA [vital signs absent] babies or deceased babies and I guess what stands out is just the nature of it. The biggest one that stands out was . . . where the infant died . . . society failed her and it’s like—things of that nature, it’s just total BS and it makes you angry about the whole thing . . . There was absolutely no need for it to happen. And you know, I guess, after we delivered the child to the hospital, that’s what takes over. Why did this happen? It wasn’t an accident! The child didn’t crawl and fall down the stairs or anything of that nature, this was just total lack of love for the child and it was . . . it did not have to happen, period.”

Later, in the same focus group, the overwhelming pathos that underlies the ambulance worker’s anger is quickly avoided and replaced with anger:

Interviewer: “Do you ever, [interviewee’s name], talk about the emotions with anybody?”

“Well, I guess if you want to consider the anger surrounding the call as an emotion, like just getting angry that this certain thing should never happen, or the situation should never have gotten to this point to happen, whatever systems are in place have failed, things of that nature . . . But well, I guess I really . . . I don’t really talk about that much . . .”

Later, he begins to contemplate his sadness from the incident as he poses the question of whether he has cried in response to a call. However, he quickly leaves the topic of sadness as he segues into concern about emotional numbing:

No. I mean, have I ever cried after a call? No. I sometimes wonder whether or not I should be and I’m not. I haven’t really had anything personal at home really to trigger that yet, and I often wonder whether or not I will shed a tear when somebody close passes away? I don’t know if that’s because I’m desensitized to death and dying from being in this profession. I guess I’ll find out at some point when it happens.

### ***Other methods of coping with feelings of inability to help and intense compassion***

Ambulance workers use other methods of managing these vulnerable feelings, such as avoidance and distraction:

I think my response normally was just to push aside that thought as quickly as possible and move on.

I guess I was trying to get away from it, because I would get on my bike and just head up north. (Okay.) And strangely I would just keep riding and riding and riding and wherever I was at the end of 12 hours, I would just stop and either sleep at a gas station or sometimes I’d get a hotel or whatever. I guess it was an escape.

Black humour is another method of coping. It turns vulnerable feelings into a format which suggests that the speaker has mastered them, and they do become more

bearable. It provides bonding among peers at times of emotional vulnerability, which is another important form of coping. However, it may also isolate them from non-peers, who respond to the uncomfortable feelings the ambulance workers are keeping out of mind:

Because if you can't laugh, you'll cry. Because you, if you can't brush it off, you're going to internalize it and if you internalize it, you're not going to be able to do the job.

And if the public were to look at us going, God you guys are gory and ghoulish. No, we talk about it and that's our, that's our debriefing, without actually acknowledging that's our debriefing.

### *Ambulance workers' suggestions for intervention*

In our previous publication we noted the importance to the ambulance worker of peer and supervisor support, as well as a brief period post-incident in which to access them. A significant barrier to accessing support in the workplace was their difficulty dealing with post-incident distress. They struggled with acknowledging this vulnerable emotion within themselves and feared the stigma that might result from revealing it to others. In fact, the culture of the organization stigmatises vulnerable feelings (Halpern et al., 2009). Nonetheless, we note that more recent recruits tended to feel quite comfortable with their own feelings of distress. The following are from individuals who had been in the field for just a few years:

Even though we're medical professionals of a sort, when it comes to the psychology aspect or the emotion aspect we're kind of slow. I mean really slow. (Yeah.) We deal with so much. I mean like you see people shot in the head and you make jokes about it. I mean that's a coping mechanism ... but some people really do need to talk about it and you see it but there is no ... it's like there's no ... (There's no mechanism in place to ...) ... to stop that ... (Yeah.) Yeah.

But I think it's fantastic and I think just even coming in here and talking about it (*gives a deep sigh*), it's like you just could, you know, you just shut up and deal with it at work and you never talk about it.

They also recommended ongoing education and improving chronic workplace stressors. Educational initiatives included Morbidity and Mortality Rounds, a non-judgemental format for discussing cases in which they felt unable to help. Many suggested education on recognizing the signs and symptoms that might predict further difficulties after an incident for themselves, and proposed that this include their families and supervisors (Halpern et al., 2009).

Some interviewees recognized that identifying emotions evoked by critical incidents is key to accessing support. Comments like the following suggest an openness to learning more about them:

I think for, for everybody, is, here's my thought towards your process, is giving them the tools. People are going to be very tough and say, yeah, yeah, fine. But you know if you could somehow identify the emotions that go along with these calls that might be starting to put you on tilt ... Then you can teach people to be aware of them and say, hey, you know what, it's okay to say, I need to talk to someone.

## Discussion

Ambulance workers have a working definition of critical incidents that resembles that of Mitchell (1983) and as such overlaps, but is not congruent with, the DSM-IV definition of traumatic events. These calls are a source of significant distress and at times disability for ambulance service providers. There is evidence to suggest, both in this narrative study and in the literature, that incidents often become critical as a result of a blend of workplace factors (Alexander & Klein, 2001; Sterud et al., 1996; Thompson & Suzuki, 1991; van der Ploeg & Kleber, 2003) and qualities of the incident itself (Bryant & Harvey, 1996; Clohessy & Ehlers, 1999; van der Ploeg & Kleber, 2003; Weiss, Marmar, Metzler, & Ronfeldt, 1995).

Fear, horror, and helplessness, the feelings that characterize traumatic incidents in the community (DSM-IV; American Psychiatric Association, 1994), are not the most threatening feelings for ambulance personnel. In fact, many of them pride themselves on their emotional toughness (Miller, 1995) and are disappointed when the career does not present enough of these challenging experiences. Instead, the types of incidents that emerged as critical in this study are ones that evoke feelings of inability to help often co-existent with overwhelming compassion. These vulnerable feelings came across as difficult to tolerate, especially for individuals who had chosen an action-filled profession.

The recognition of one's inability to help can undermine feelings of professional competence. In a study of stress in the London Ambulance Service, Thompson and Suzuki (1991) note that the coping methods most commonly reported after an incident were ones that tend to be used when self-esteem is threatened. In the case of our sample of ambulance workers, we observed that this undermining of professional self-esteem led to self-doubt and self-blame, blaming others, and/or acts of reparation. It may also involve seeking reassurance, wishing for support from superiors, and public recognition. We found that ambulance workers wish in particular for their supervisors' support in the aftermath of a critical incident, and this is likely at least partly because they see supervisors as arbiters of professional competence. If these mechanisms are unavailable or insufficient, the ambulance worker may become chronically angry, sad, dissatisfied with work, or plagued with intrusive or avoidant symptoms. Relationships may suffer and substance use may become problematic.

When pathos was evoked, the ambulance workers in our sample had difficulty admitting the presence of these vulnerable feelings, even within themselves. It may be that feelings of deep compassion are experienced as a threat to the ambulance worker's identity as an emotionally strong individual, as well as to his/her ability to maintain focus and composure at the time of the incident. Instead of experiencing it, the ambulance worker may immediately bury the feeling, but is sometimes left with a number of disabilities, such as emotional numbing and concerns about emotional stability. Anger, or related affects of indignation and frustration, replace the more tender emotion. Black humour, another approach to distressing feelings, provides a bond between peers, but can also isolate them from those outside their workplace.

Although one might suspect from the literature on trauma in the community that emotional sequelae result from monumentally grisly events, evidence is mounting that it is the quiet motionless moments that trigger intense distress in ambulance workers: the silence of a dead child, the times when action is futile. Regehr et al. (2002) noted that dangerous and gruesome situations were not often described as

traumatic by the ambulance workers. Instead, the authors suggested that “vicarious trauma” appeared to occur when ambulance workers developed a sense of what the victim or their families had endured, that is, they developed empathy for them. Vicarious trauma is a term usually used with respect to mental health workers who develop PTSD-like symptoms as a result of hearing about their clients’ trauma (McCann & Pearlman, 1990; Saakvitne & Pearlman, 1996). Unlike mental health workers, who purposefully immerse themselves in their clients’ emotional worlds, ambulance personnel are thrown willy-nilly into a state of emotional vulnerability which itself may be frightening to them.

Interestingly, Brunet et al. (2001) include feeling “helpless to do more” and “frustrated or angry I could not do more,” as well as shame and guilt as items in their Peritraumatic Distress Scale (PDI). The scale was tested in another first responder group, police officers, as well as a non-police control group matched for age and gender. The authors indicate that the development of the items in the questionnaire was based on a literature review as well as the experience of a panel of clinicians. They cite evidence in the literature on trauma victims for inclusion of shame, guilt, and anger, as they have been described in trauma in the community, but none on the feelings of inability to do more. It is likely that these reactions were familiar to their panel of clinicians, but they have not thus far been clearly elucidated in the literature.

The experiences of self-doubt and blame that follow upon feelings of inability to help have not been previously clearly identified in the literature, and yet they seem to be important sequelae of the inability to rescue. Coping by performing compensatory acts also has not previously been clearly identified.

In this study, incidents that primarily evoked feelings of inability to help and intense compassion caused workers to experience, *inter alia*, intrusive and avoidant PTSD-type symptoms. These evoked feelings are not completely congruent with the DSM-IV Criterion A2 feelings of fear, helplessness, and horror. The mechanism by which PTSD-type symptoms evolve from these vulnerable feelings in ambulance workers remains unclear. Bryant and Harvey (1996) reported that volunteer firefighters felt threatened by the subjective feeling of inability to manage the victim’s trauma, either physical or emotional. This suggests that fear may be aroused, but the fear is of internal vulnerable feelings rather than of outside elements. Alternatively, it may be sufficient that distress is experienced, and the type of distress need not be confined to DSM-IV A2 criteria. Another possibility is that entering a vulnerable state of mind allows the frightening impact of the incident to break through the ambulance worker’s usual filtering mechanism.

Critical incidents recalled by our interviewees evoked both short- and long-term emotional sequelae, mostly negative, but also including personal growth. Although there appear to have been more negative effects in women than in men, this may be as a result of self-selection or reporting bias. Our study was unable to identify a difference in the impact of incidents based on length of experience. Further, neither length of experience nor gender differentiated between types of incidents that caused distress, that is, those that were poignant, frightening, or horrifying. It is likely that experience interacts with a variety of other factors, such as coping strategies and other personality factors, such that those who cope well may be inoculated against further stress, while those who cope poorly find that longer experience adds to their difficulties.

Interviewees' comments offer further insight into possible differences based on experience and training. New recruits may be better able to handle the shock of critical incidents once they have a social support in place in the organization. Increased training can be a two-edged sword in terms of expectations of rescuing. While it increases rescue skills, it also raises expectations.

#### *Implications for interventions for critical incident stress*

Ambulance workers tended to focus on the availability of workplace supports and a time-out period post-incident, improving chronic workplace stressors, educational interventions on recognizing the signs and symptoms of critical incident stress, and the provision of opportunities to discuss cases in a non-judgemental format. However, some appreciated that difficulties in recognizing and admitting to distress pose significant barriers to accessing support. Recognizing the emotional impact of critical incidents may help to address these barriers. While gender and length of service did not seem to impact on evoked emotions, recent recruits may be more open to this type of learning.

In particular, it would appear from this study that teaching ambulance personnel about the emotional aspects surrounding different types of critical incident may diminish their confusion about which incidents they can expect to impact them. Taking into account the underlying emotional component, rather than lists of common types of critical incident, offers several advantages. It gives them the tools to identify idiosyncratic critical incidents and the confidence that their assessment of the situation is valid, as well as increasing their ability to recognize affects, which leads to greater facility in processing them. Increased affect recognition may also lead to increased capacity to request support, a crucial element in dealing with critical incident stress (van der Ploeg & Kleber, 2003; Weiss et al., 1995). Supervisors also need to recognize which incidents necessitate reaching out for help and support. Although setting aside vulnerable feelings may be necessary for ambulance workers during the incident itself (Regehr et al., 2002), dealing with them in the aftermath may increase operational readiness. This skill could be taught ideally in the context of a curriculum that prepares providers and supervisors for the myriad exigencies that may arise in their work, thus normalizing and de-stigmatizing emotional responses, particularly those responses that involve vulnerability. This may be augmented by programmes such as stress inoculation courses (Meichenbaum, 1996), which involve familiarization with affects and cognitions.

#### *Limitations of the study*

Our interviewees were all self-selected and, although the sample was representative of the Emergency Medical Services organization studied in many ways (such as level of training, gender, and length of experience), volunteers may also have been more (or less) traumatized, more vocal, or differed in other important ways from the majority of ambulance personnel. While the group we studied was not large, we achieved our goal of sampling until new information was no longer forthcoming.

## Conclusions

The ambulance workers in our study used a working definition of critical incidents similar to Mitchell's (1983), i.e., incidents that cause them to experience unusually strong feelings which have the potential to interfere with their ability to function either at the scene or at some later point in time. Our interviewees suffered significantly from critical incidents, and said that they would welcome interventions intended to deal with them. The incidents that they identified as critical were primarily those that involve death and poignancy. Such incidents evoke feelings of inability to help and intense compassion in the ambulance workers, vulnerable feelings which appear to threaten their professional identity. These emotions are different from fear, horror, and helplessness, which are generally characterized as traumatic in non-first responder populations. We found that in response to critical incidents, ambulance workers may exhibit any of the following: self-doubt, blame, compensatory acts, seeking support and reassurance, avoidance, distraction, and black humour. Other possible sequelae are sadness, anger, and irritability, as well as social and relationship difficulties, sleep and somatic symptoms, job dissatisfaction, intrusive memories, substance abuse, and post-traumatic growth.

The valuing of supervisor and peer support and a brief timeout period in the immediate aftermath of the incident is a useful finding that requires further investigation. It may be equally important to deal with the barriers to accessing these resources, such as discomfort with experiencing emotions, and fear of the stigma that may result from revealing them. This may be facilitated by educating front-line and supervisory ambulance workers to recognize and tolerate the vulnerable feelings often evoked by critical incidents. More recent recruits may be more comfortable with this type of primary intervention.

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