

How long is too long at the sharp end? Critical incident staffing: prevention is better than cure

Background

This paper is about a model for the scheduling of staff at Critical Incidents.

The scope of this paper is confined to Critical Incidents. It is not concerned with the 'normal' shift of the emergency service worker. For example 80% of an ambulance worker's time is taken with patient transfer and non-emergency transport. Less than 20% of their time is taken with emergency response, and responding to critical incidents is only a small part of that time. Fire Department workers are operational between 2% and 7% of their available working time, within that, only part is involved in an actual emergency response to critical incidents (as opposed to false alarms). Within the Police Department 12% to 17% of their time is used on what may be called emergency response, and again only a part of that would involve critical incidents (Tasmanian Police & KPMG 1995). This paper is not concerned with shift times for the normal day of an emergency service worker. What this paper does address are shift times for the abnormal day and the proposition that the scheduling of emergency service workers for the abnormal day, needs to be different.

This paper does not include in its scope the optimal active time for staff and managers of command and control centres, but I hope that it will encourage similar research into that aspect of emergency/disaster response.

The incidence of distress among emergency service workers, and their subsequent burnout represents significant financial and social costs to the individual and their organisation.

This distress and the costs are phenomena that have been the subject of considerable research, but with very few conclusions or recommendations with regard to management of the response aspect of a critical incident, and the minimisation of exposure of the emergency services worker.

Part of the problem occurs because each event is unique, and until an incident has been running for some time, there is

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no opportunity to gather information about the event, i.e. how long it may last, and some of the consequences in terms of deaths, injuries and their severity.

Attitudes of scene managers

These aspects conspire to create a situation where the first emergency service workers on-scene will often be subjects of the following conscious or unconscious reactions:

- 'I was here from the beginning and I am one of the few who really knows what has been going on from the start, so I had better stay'
- 'It probably won't last much longer so I might as well see it through'
- 'There's no point in handing over to someone else and putting them through it as well'
- 'This is my chance to put all my training into practice and make it all worthwhile'
- 'Other people will think I've gone soft if I ask to be relieved'
- 'I will think I've gone soft if I ask to be relieved'
- 'This is my chance-in-a-lifetime for fifteen minutes of fame, and I'll show myself and others what I can do'
- 'I know what's going on and what needs to be done. I'm not sure the relief crew would know as much, as they weren't here from the start. No matter how well I brief them there could be a mistake and it would be my fault'
- 'It's mine and I'm not about to let go!'
- 'It lasted for over 36 hours and I was there from go-to-whoa. On reflection I may have done some things differently if I hadn't been so tired, but hey I was there from go-to-whoa'

Traumatic Stress—is prevention better than cure

'Many individuals are routinely and predicably exposed to potentially traumatising events in connection with their employment. 'High risk' groups include servicemen and members of the emergency services, aid workers and journalists who cover conflicts and disasters.' (McFarlane 1986).

In the general population the prevalence of post-traumatic stress disorder (PTSD) is as low as 1–2% (Helzer, Robins & McEvoy 1987), but it may be 30% or more in observers and rescuers after serious accidents and disasters (Duckworth 1986; Cobb & Lindemann 1943). The study of Gulf War body-handlers revealed symptoms of post-traumatic stress in 50% of the sample nine months after the conflict. Serious psychological distress has also been reported in second-line support workers such as administrators, control-room and reception staff, switchboard operators, hospital ancillary and volunteer workers, as well as the families of emergency service personnel (Deahl 1998b).

Legislation and regulations

What specific legislation or regulations exist with regard to exposure to distress of emergency service workers?

My searches to date indicate no regulations that have been put into place, with the specific purpose of reducing or managing the exposure to distress of emergency service workers.

The only legislation would appear to be the general 'Duty of Care' legislation which only becomes relevant after the case, when 'blame' has to be apportioned.

Critical incident

What constitutes a critical incident and who deems it to be one?

There are many definitions of what is a critical incident, including one which I think includes the key aspects of most definitions:

'An event which has a stressful impact sufficient enough to overwhelm the usually effective coping skills of either an individual

or a group' (Boudraux & Mandry 1995).

Who deems it to be one, and what are the criteria?

Firstly who deems it to be one?

It is easy to say who it should not be. It should not be the people at the 'sharp end'. By their nature they tend to be unwilling to call it a 'critical incident' with the inherent implication that they will need assistance of some sort.

The 'critical incident' call has to be made back at base according to some objective criteria. If there is doubt, the tag should be applied and then, if necessary, relaxed to a lower grade afterwards, rather than not making the call and then, after seeing the consequences, saying 'I wish I had'.

Based on intelligence received by the communications operator at base, the shift supervisor should be alerted to the possibility that there might be a 'critical incident'.

The shift supervisor then reviews the incident intelligence with the 'critical incident' criteria and, if appropriate, activates their organisational protocols for managing 'critical incidents'.

What are the criteria?

Multiple deaths, horrifying deaths and injuries, or when intervention went all wrong make the call easy at one end of the spectrum.

A 'cot death' would not appear to qualify for tagging as a 'critical' incident until it was perhaps realised that the incident responders had young children, one of their own children had been a victim of the 'sudden infant death' syndrome, or they were close to the upper threshold of their incident coping abilities.

But how are we to know about all of the emotional luggage that each and all of the responders are carrying with them? (You can't!)

Most emergency service responses are not to critical incidents. All incidents involving sudden death and injury have the potential to be 'critical' incidents. All should be considered to have the potential and treated as such. Many will be handled by the responders and filed away successfully as 'not a nice one' but without disabling the responders.

Early appropriate support will reduce the incidence of responders ending up as victims.

Risk

Voluntary and involuntary risk.

When you get out of bed in the morning you are taking a voluntary risk; the risk

of falling over your slippers, choking on your breakfast, crashing your car etc. There are also involuntary risks that you are subject to ie. the pollution of the atmosphere that you breath, the driving skills of other commuters etc.

We can do things to decrease our vulnerability by increasing resilience and decreasing susceptibility.

In driving, we might slow down, improve our skills, chose routes and times that are less hazardous etc.

To seek employment as an emergency service worker displays an implicit willingness to expose oneself to potentially distressing situations and the associated risks to well-being. By accepting employment as an emergency service worker there is a voluntary risk that one takes as part of accepting the position. The worker can reduce their vulnerability by increasing resilience and reducing susceptibility. The devices that may be used include improving coping skills, reducing exposure to unnecessary risk and recognising one's stress threshold.

There is also an expectation/hope within the emergency service worker that their employer will implement appropriate management strategies to enhance the resilience of the worker, reduce their susceptibility, and reduce the overall vulnerability of the worker to the risks associated with their work.

Emergency Service Worker temperament profile

According to a study by Herbison R.J et al. (1983), featured in a National EMS Burnout Survey, the personality profile of EMS responders to the survey resulted in the identification of a strong tendency toward dependence and obsessive characteristics as well as the need for structure and rules among the respondents.

Simply put this appears to indicate that the temperament of many emergency service workers tends to have or need:

- high levels of self control of objectivity
- cautious self critical
- methodical detail minded

According to Mitchel and Bray (1990) 'individuals who work in emergency services are characteristically 'can-do', adventurous persons who in the course of helping others, seek out and encounter risks, excitement and challenge. They seem to like being in control of situations, harbor exceptionally high performance expectations of themselves, like to see the results of their work and have great professional pride in their duties. Extreme loyalty and dedication to task contribute to their high sense of frus-

tration with failure and low tolerance of shortcomings in others. These tendencies, coupled with risk-taking, tend to drive them to perform their duties to point of exhaustion. Their tendency to jeopardize their own safety to help others is intensified by their belief in their emotional and physical indestructibility (Spitzer & Neely 1992).

Work schedules

Most of the emergency services provide a twenty four hour a day, seven days a week service to the community. This means that most emergency service workers are part of a shift work roster, which in itself has a significant impact on the physical and mental well-being of the worker. Shiftwork and its impact is not part of this paper other than to mention that it is another factor that has influence on the affected persons and could well form the subject of further research in this area.

Indicators and effects of burnout

Increased adrenaline secretion, blood pressure elevation, gastric disturbance, sleep disturbance, job dissatisfaction, injury rate, substance use/abuse, quality of response diminished, self-harm and suicide.

Emotional exhaustion, the inability to take on any more 'feeling' without becoming distressed. An event reported in the media, a television drama, a 'heart tugging' advertisement can be sufficient to distress an emotionally exhausted person.

Depersonalisation, an apparent detached, uncaring, or negative attitude towards the public and or co-workers. A strategy unconsciously adopted, which aims to protect the worker from 'feeling' but which may only delay the onset of acute distress.

Reduced feelings of personal accomplishment, a feeling of lack of worth. They feel inadequate to the task and the standards they set themselves and what they believe are others expectations of them. Because they are distressed they cannot cope, and because they cannot cope they become more distressed.

Selection processes

As a way of reducing the incidence of critical incident stress it would seem useful to identify any person with a predisposition to critical incident stress and screen them out at the recruitment selection stage.

However it is worth noting that in research carried out by Atkins et al in 1983 it was concluded that:

'Psychological screening may rule out

certain major psychiatric problems, but has questionable effectiveness in preventing burnout.'

From the work that I have done with emergency service personnel a temperament profile for Emergency Service workers could include something like:

- high self control/objectivity
- average/low self centredness
- high average gregarious/energetic
- high cautious self critical
- average/low introspective imaginative
- average/high power exerting
- high methodical detail minded

This profile could indicate that the person is temperamentally better suited to emergency services work than someone with a different profile. But this profile also has implications for a higher degree of susceptibility to critical incident stress than others.

The dilemma then appears to be, do we try and recruit people with profiles that are best suited to the work to be done, or do we recruit people who are least susceptible to critical incident stress? Given the proportion of work that involves critical incidents it would appear rational to select the best profile for the work, but also recognise that the person could be susceptible to critical incident stress and manage that appropriately when incidents arise.

Employee obligations

One of the cardinal rules of emergency service workers is 'never put yourself or others in a situation where the rescuer has to be rescued'.

This rule applies as much to the mental welfare of the rescuer as their physical safety.

If we keep in mind the principle that it is the strongest person who can admit their 'weakness', then each worker needs to:

- know their physical and mental limitations
- let other people know their limitations
- recognise when they are getting close to their limits of coping
- let other people know when they are getting close to their limits of coping
- recognising when they have to call for help
- call for help when needed.

A distressed worker is not a fit worker and is not able to provide the optimum service to the community. It is an obligation of the worker to do all they can to maintain all aspects of fitness for their work.

Employer obligations

A concern expressed by Gerald A Cannon, a division chief with the San Diego Fire

Department in March 1998:

'One concern addressed was the high turnover for paramedic personnel. This turnover seemed to be linked to two factors: compensation (pay and benefits) and burnout caused by a high volume of high stress calls. The factor of pay and benefits can be easily understood; the more you pay your employees the more costly your Emergency Medical Services becomes. However, there are several personnel management experts who will be quick to point out that pay will not in itself be a complete cure for turnover. Employees will leave for lack of adequate pay. But they may not stay, no matter what the pay level is, if other job factors are perceived by the employees to be adverse. A constant high volume of calls without a break can be such a factor.'

In subsequent studies requested by the San Diego Council the question was posed (Cannon 1988):

'Why not rotate paramedic personnel between high-volume and low-volume posts? It made sense to 'spread the wealth', that is, to spread the number of total incidents in the system as evenly as possible among all the paramedics. But what about seniority? Or bidding for a steady post? Or even having a steady post in a desired area? Rotation of personnel in a large system needs to address these and several other issues to be fair and workable and to provide adequate breaks in the high volume of incidents for paramedics.

With all that in mind, the design team settled on a rotating schedule which they felt addressed clinical-skills enhancement and employee burnout associated with high call volume. The system that was developed they called the 'Paramedic Triad System'.

The concept was based around teams serving in one of three locations for about one month in turn so that each team took their turn at 'quiet' and 'high' volume locations.

Did it work?

'Management experts of the '80's (Cannon 1998) are now espousing the principle of service management. Briefly, that principle states that if you don't serve the public directly, then your functions should be involved with providing service to those who deal with the public. In no other field does this principle ring truer than emergency services. Our front line personnel need to know that management is there to help them do a better job

through: reasonable salaries, career stability, promotional opportunities, comprehensive health care including employee assistance programs,, critical incident stress management, and even a rotation model to relieve burnout from stress.

Their model remains just that, a model, not a reality currently in use. Their design team thought it had merit and that it addressed the issues in a rational, cost effective way. They still believe that the high cost of employee turn over will mean that this or a similar approach will be tried and the cost benefit proven.

The military, emergency services, aid organisations and the media routinely send their employees into potentially traumatising situations. All employers have a statutory 'duty of care' to protect the health of employees and minimise the impact of occupational health hazards, but the focus is on the observable (broken bone versus broken brains).

There is now sufficient evidence to suggest that psychological debriefing, by itself, is inadequate—indeed, mandatory PD (as advocated by many banks and building societies following robberies) may itself be harmful. If PD is used at all it should be one part of an overall strategy to minimise the long term impact of trauma. This should include primary preventative measures, careful recruit selection, realistic training, stress-inoculation and operational stress packages.

Whatever strategy is adopted in the workplace, employers must not become complacent and assume that their workforce is now immune to PTSD and other psychiatric disorders because they have received PD or any other psychological intervention. Employers should arrange systematic follow-up of workers exposed to potentially traumatising events, and ensure that individuals who develop PTSD and other psychiatric disorders receive appropriate treatment and support. PD alone is an inadequate preventative occupational health measure. Employers and occupational health physicians should become more actively involved in research to identify interventions that reduce psychiatric morbidity after trauma, particularly in occupations that predicably expose workers to traumatising events (Atkins et al 1983).

In the past, emergency service systems tended to perpetuate the myth of individual indestructibility by not explicitly acknowledging or responding to the concept of occupational stress. When first responders did show evidence of stress related emotional problems, their

superiors tended to refer them to outside agencies for counselling. These referrals were often perceived as disciplinary action rather than an effort to help the individual with work induced concerns (Spitzer & Neely 1992).

Despite the concerns expressed by some people about mandatory debriefing it is my belief that everyone involved in a critical incident should be included in a mandatory initial debriefing. This enables the macho 'tough guy', who feels unable to stick up their hand and say I need help because of their self-image and the image they feel they have to project to others, to get access to the help they might need. Quite often it is the person who needs the most help who is least able to ask for it.

Current strategies

The treatment of established PTSD is far from satisfactory. Psychological and pharmacological interventions have been used separately or in combination, but often give only partial symptom relief (Deahl 1996a). Lately, efforts have focused on early intervention to minimise long-term psychological sequelae, PTSD in particular. Secondary preventative strategies of this kind, widely employed in civilian and military practice, include various forms of brief counselling as well as more specific interventions such as psychological debriefing (PD) or 'critical incident stress debriefing' (Mitchel 1983; Dyregrov 1989).

Designed for groups of emergency service workers, debriefing is thought to help victims of psychological trauma process their experience cognitively and emotionally. Immediacy is deemed important because the earlier debriefing occurs, the less the opportunity for maladaptive and disruptive cognitive and behavioural patterns to become established (Rachman 1980). Diverse groups, not only from the voluntary sector—lay counsellors, psychologists, social workers, psychiatrists—advocate these techniques and have sought to establish a role for themselves following traumatic incidents (British Psychological Association 1990).

Although intuitively appealing, and a response to perceived need, these methods have been extremely difficult to evaluate (Bisson & Daehl 1994), and it is only lately that PD has been subject to randomised controlled clinical trials. Bisson *et al.*, studied 110 burn victims, the treatment group being debriefed on average six days after their injury.

In this study the debriefed group actually had a worse outcome, although it was suggested that they had a greater

pre-incident vulnerability. Although debriefing was originally designed for groups of emergency service workers, there have so far been no randomised trials of group debriefing.

The incidence of Workers Compensation claims for work related stress and the need to control costs has spawned a current strategy whereby most claims are disputed routinely by the employer and their insurer and the current view adopted by some tribunal commissioners is that, because of a psychological predisposition by the worker, the claim by the worker is denied. This psychological predisposition is why many emergency service workers choose to do the job that they do and why they tend to be very good at doing that job. ie. individuals who work in emergency services are characteristically 'can-do', adventurous persons who in the course of helping others, seek out and encounter risks, excitement and challenge.

They seem to like being in control of situations, harbor exceptionally high performance expectations of themselves, like to see the results of their work and have great professional pride in their duties. Extreme loyalty and dedication to task contribute to their high sense of frustration with failure and low tolerance of shortcomings in others. These tendencies, coupled with risk-taking, tend to drive them to perform their duties to point of exhaustion. Their tendency to jeopardize their own safety to help others is intensified by their belief in their emotional and physical indestructibility (Spitzer & Neely 1992).

Prevention

Primary prevention programs are increasingly employed to prepare high-risk occupational groups for trauma. There are numerous anecdotal reports that preparation and training for traumatic events can substantially modify the emotional impact of subsequent trauma and may also protect individuals from long term sequelae (Chemtob *et al* 1990). Unfortunately, although prevention, (like debriefing) is intuitively sensible, primary preventative techniques have not been evaluated in randomised controlled trials. The topic straddles medical and non-medical disciplines including occupational psychology, risk management, human resources, occupational medicine and psychiatry, each with its own tradition and methodology; thus research in this area is difficult.

Simple stress-inoculation techniques such as the exposure of prospective body handlers to human remains and necropsies

have long been practised within the military and emergency services. The factors associated with high levels of distress in servicemen and emergency service workers are well known: the emotional impact of actual trauma can potentially be reduced by teaching rescue workers the physiological basis of anxiety, by anxiety reducing techniques, by strategies to minimise identification with victims, as well as by maintaining social support. Similarly managers can be taught the protective effects of positive leadership, the maintenance of morale, realistic training and the use of ritual.

In its broader context primary prevention includes recruit selection and the exclusion of vulnerable individuals from high risk occupations (e.g. those with a history of psychiatric illness or a previous severe reaction to trauma) as well as training of high-risk individuals to cope with anticipated trauma. Training reduces uncertainty, increases a sense of control and mastery, and teaches automatic responses that are not 'eroded' under stress. Training may also limit or alter the type of exposure to potentially traumatising events, decrease the unexpected, maximise a sense of hope, and prepare individuals for the unexpected need to act (Hyttén & Hasle 1989).

Perhaps by boosting self-confidence, the psychological benefits of training may even exceed the benefits of any practical skills acquired. Helplessness is minimised by an understanding of behaviours that aid survival. The intensity of exposure and reality of threat may be modified by the use of learned adaptive behaviours, e.g. automatic routines when coming under fire or handling human remains (Weisah 1989). Training must be as realistic as possible, and will be least effective when the trauma is prolonged or uncontrollable. This indicates a dichotomy, on one hand there is the proposition that we 'trauma proof' people through controlled exposure to potentially traumatising realistic training situations, then on the other hand we need to minimise exposure to trauma.

It is my belief that we all have a ceiling or limit to our ability to cope with trauma. Our life experiences, training, physical and mental well-being can lower or raise that ceiling, but as we get older we all get closer to that ceiling. Events that happened to us in our twenties we thought had no effect, but they form part of our emotional luggage and as our life experiences add more, our strength or resilience diminishes. I am therefore concerned that 'trauma proofing' may enhance short term coping capabilities, but reduce long

term resilience as it adds, artificially, to an overall life-load of trauma.

Conclusions

How long is too long at the sharp end? Simply, when the length of exposure has led to an incidence of critical incident stress or post traumatic stress disorder.

How long this is for any individual will vary according to the individual, the events and their impact. But the incidence, along with the social and economic cost, are reasons enough to conclude that current strategies of critical incident stress management are not sufficient, and that more work has to be undertaken to reduce or prevent critical incident stress.

The foundation of any community wide initiative lies in legislation. Laws, regulations, policies are the authority that provide the incentive and power to act. Individual organisational initiatives take a long time to bring about community wide changes through their establishment and acceptance as precedence. A consortium of employer and workplace safety insurer organisations would be an appropriate lobby group to encourage the politicians to pass legislation which would put into place regulations and policies that reduce the incidence and cost of critical incidents.

The vulnerability of workers would be reduced by the adoption of strategies to reduce the susceptibility of workers and enhance their resilience.

These strategies would include:

- recruiting workers with more suitable temperament profiles, while recognising that they might be more susceptible to critical incident stress
- provision of training for workers about critical incident stress management and their obligations
- provision of training for supervisors and managers about critical incident stress management and their obligations

As we get to the end of this millennium, economic rationalism appears to be the mantra of executive management. Maximum return to the 'shareholder' will not be achieved if we do not control the costs of critical incident stress. In controlling these costs we will also achieve a social benefit, a 'win-win' that will be good for all concerned.

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Recommendations

Many conclusions in this paper are themselves triggers for necessary initiatives. In the abstract for the paper concerns were raised about the lack of critical incident stress management initiatives during the response aspect of an event. Recommendations have been therefore confined to a specific recommendation with regard to the management of exposure of the emergency service worker during the response aspect of an event.

Critical incident staff scheduling

For an example take an event that has the first teams on scene at 1200 and finishes at 0100 the following morning.

The first team on scene is designated the C team and they will remain 'up front' on scene for the first two hours. This will enable them to commence activities including establishing communications and the flow of intelligence back to the command and control points. After the first two hours, progressively, two other teams will be scheduled through one hour each at the 'up front' position through a one hour 'stand-by' position at the scene. The one hour 'up front' will be followed by a one hour stand down.

The 'stand-by' position is in support of the 'up front' position and enables the stand-by team to learn about what is going on and what they will have to do when they take over at the 'up-front' position. The 'stand down' is close to the scene, but ideally far enough away for the team to be able to get some rest and refreshment and get away from the sounds and smells of the incident scene.

The schedule would look like *Table 1*. In an operation that lasted for 13 hours the total activities for each team in hours are as in *Table 2*.

If an operation were to last longer than 13, but less than 26 hours then the same teams could be used in the same rotation until the end of the operation. If it is expected that the operation will last more than 24 hours, then a further set of three teams should be scheduled with team D on stand-by at 1200, E stand-by at 1300, and F stand-by at 1400. If it is expected that the operation were to last longer than

Teams	Stand-by time	Up-front on scene	Stand down
C	1500	1200	1400
A	1300	1400	1500
B	1400	1500	1600
C	1500	1600	1700
A	1600	1700	1800
B	1700	1800	1900
C	1800	1900	2000
A	1900	2000	2100
B	2000	2100	2200
C	2100	2200	2300
A	2200	2300	2400
B	2300	2400	0100

Table 1: team scheduling for a 13 hour incident

48 hours then a further three teams will be scheduled into the operation G, H and I. For further protracted operations teams C, A & B ; then D, E & F and so on will be progressively rescheduled through the incident following the same sequence until the operation is completed. In protracted events teams which have completed a 25 hour sequence of 'active duty' that is either on 'stand-by', 'up front' or on 'stand down' would have about 48 hours before they were required to be back on 'active duty'. One should also prepare contingency plans and have reserve team members 'on call' should a team member needed to be replaced for any reason.

The teams may be made up of as little as two members or hundreds depending on the context. The principles remain the same if we wish the rescuers to operate at their optimum effectiveness with the least harm to themselves and those they are helping.

Exceptions

As with most principles or rules it is the exception that proves the veracity of the rule. The same is true of the proposed principle of critical incident staff scheduling.

There are events when it would not be appropriate to replace an emergency service worker with another. These events are those where a vital part of the management of the incident has been the establishment and maintenance of a relationship between the emergency service worker and the person whose effective recovery is the objective. These events could include those such as:

- hostage negotiations,
- long term rescues from extreme locations and conditions.

In these situations the negotiators/rescuers must be treated as victims as well, particularly, but not only, when the result was not successful.

Teams	Stand-by time	Up-front on scene	Stand down
C	4 Hours	5 Hours	4 Hours
A	4 Hours	4 Hours	4 Hours
B	4 Hours	4 Hours	4 Hours

Table 2: activities for each team in hours over a 13 hour incident