EAP-Based Critical Incident Stress Management:
Utilization of a Practice-Based Assessment of Incident Severity Level in Responding to Workplace Trauma

Abstract

Central to the field of trauma psychology is assessment of the impact of critical incidents on individuals, as measured by individual symptoms of stress. Accordingly, the trauma literature reflects a proliferation of clinical impact of event scales. Workplace incidents however, affect not only individual employees, but also work organizations, requiring a multi-level response. Critical incident stress management (CISM) is the most prevalent multi-level incident response strategy utilized by organizations, often through specialized CISM units operating within their employee assistance programs (EAPs). While EAP-based CISM units seeks to support both individuals and organizations, studies focused on individual stress dominate the literature, mirroring assessment scales that tend to emphasize clinical as opposed to organizational practice. This research contributes to less-prevalent studies exploring incident characteristics as disruptive to organizations, rather than clinical symptoms as disruptive to individuals. To measure incident disruption, an EAP-based CISM unit developed a critical incident severity scale. By analyzing this unit's extensive practice database, this exploratory study examines how critical incident severity level varies among various types of incidents. Employing the methodology of clinical data mining, this practice-based research generates evidence-informed practice recommendations in the areas of EAP-based CISM intake assessment, organizational consultation and incident response planning.

KEYWORDS   critical incident severity index scale   workplace trauma   critical incidents
critical incident stress management   employee assistance programs   clinical data mining   practice-based
research

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In recent years tragic school shootings (Sandy Hook Elementary School, Virginia Tech) and massive devastation from natural disasters (Hurricanes Sandy and Katrina) have raised public awareness about psychological trauma. The impact of the wars in Afghanistan and Iraq on returning service members and their communities will likely serve to maintain or increase this awareness. Incidents potentially traumatizing to individuals are ubiquitous in society. The PTSD Alliance (2006) estimated that as high as 70% of adults in the United States have experienced a potentially traumatic event at least once in their lives. Potentially traumatic events occurring within the workplace, better known as critical incidents, are similarly increasingly prevalent (Chan, Chan, & Kee, 2012; Fairris & Brenner, 2001), resulting in significant disruption for work organizations (Bureau of Labor Statistics, 2010; Federal Bureau of Investigation, 2008, OSHA, 2007). The most prevalent strategy utilized by organizations to respond to incidents is critical incident stress management (CISM) (Everly & Mitchell, 1997; Flannery, 1998). This exploratory

1

study reports on the work of a major EAP-based CISM unit operating within Magellan Health Services. It first details the ways traumatic stress symptoms present in the workplace and reviews the prevalence of CISM as the response strategy of choice within EAPs. Subsequent sections discuss how CISM situates within EAP settings, identifies challenges and constraints for EAP-Based CISM units and describes how the unit in the study addresses them. Next the article introduces a critical incident severity scale developed by the unit and reviews various types of incidents and their subtypes. The study's objective is to capitalizing on potential discoveries within the units' extensive practice database. Practice-based clinical data mining (CDM) is presented as adjunctive research methodology to university-based, controlled studies. Following presentation of results, the study closes with implications for CISM practice and recommendations for further research.

Expressions of Traumatic Stress in the Workplace

Across all occupational groups, a significant number of individuals in the workforce will experience trauma, which can lead to symptoms that meet criteria for a diagnosis of Acute Stress Disorder (ASD) or Post Traumatic Stress Disorder (PTSD) (Brewin, Andrews, Rose, & Kirk, 1999). Critical incidents cause physical, emotional, cognitive and behavioral stress symptoms. Physical symptoms can include fatigue, restlessness, insomnia, nausea, loss of appetite, and gastro-intestinal disturbances. Emotional reactions often reflect anxiety, grief, detachment, guilt, agitation or depression. Cognitive impairments, such as intrusive images, racing thoughts, poor concentration, despair and disbelief, are common as well. Finally, several behavioral expressions of traumatic stress include crying, neglecting basic needs, blaming self or others, poor decision making, social withdrawal, hypervigilance or substance abuse. These symptoms in turn compromise occupational functioning, presenting in the workplace as absenteeism, poor presenteeism (attending work, but in a highly distracted state), reduced productivity, increased work conflicts, diminished morale and loss of motivation. Employees may socially isolate themselves as a means of avoiding talking or thinking about the incident. Anxiety and depression can impair cognitive functioning required for work tasks. Arousal symptoms create difficulties with sleep, resulting in tardiness and absenteeism, poor concentration on tasks or irritability with co-workers. An employee may become distressed merely at the thought of entering the workplace (Bolton et al., 2004). Kleinberg (2005) writes about "worker's block", the application of symptoms of PTSD to the workplace, particularly those that relate to avoidance of stimuli, numbing, diminished interest in activities, detachment and estrangement from others. He defines workers block as a vocational impairment, an emotional, attitudinal and relational disengagement from the job. To the uniformed manager, the employee may appear distracted, unmotivated or irresponsible. Clearly, workplace expressions of traumatic stress greatly affect both employee and organization. As employers assumes a central role in responding to workplace crises and disasters, it created the need for a work-based, comprehensive crisis response strategy (Everly & Mitchell, 1998).

Critical Incident Stress Management (CISM)

CISM (Mitchell, 2004) represents a comprehensive, integrative, multi-phased approach to crisis response incorporating several service components (Everly & Mitchell, 1997; Flannery, 1998). Components include pre-crisis preparation, small-group interventions, organizational

consultation, referral and follow-up. On-site interventions frequently utilized as part of CISM include psychological first aid – PFA (Brymer et al., 2005; Everly, Barnett, & Links, 2012; Everly, Smith, & Lating, 2009; Weinberg, Nuttman-Shwartz, & Gilmore, 2005), critical incident stress debriefing – CISD (Everly & Mitchell, 1997, 1998; Mitchell, 1983, 1986, 2004; Mitchell & Everly, 1995) or trauma-focused cognitive behavioral therapy – TFCBT (Blanchard et al., 2003; Foa, Hearst-Ikeda, & Perry, 1995). Many critical incident teams coordinating these response activities register with and adhere to standards set by the International Critical Incident Stress Foundation (ICISF, 2013). CISM teams operate within government entities, community agencies, law enforcement, emergency services, unions, airlines, banks, retail stores, schools - and EAPs.

EAP-Based CISM

EAPs provide a wide range of worksite-based services to increase worker health and wellness, assist employees in resolving problems that negatively affect job satisfaction and productivity and support organizational development. EAP's core services include confidential short-term counseling for employees, consultation for managers on improving performance and training programs for management and employees (Barker, 2003; Heery & Noon, 2001; IFEBS, 2008; NBGH, 2008). EAPs also provide specialized CISM services for client organizations. EAPs and organizations that sponsor them understand that workers are most productive when they are motivated, healthy and adapt constructively to stress, whether generated from day-to-day work situations or from the extraordinary challenges that follow critical incidents. While general EAP services address everyday workplace challenges, the acute needs of individuals and organizations post-incident are best addressed by specialized EAP-based CISM units.

Challenges and Constraints for EAP-Based CISM Units

EAP-Based CISM units face several challenges, summarized briefly here and discussed further below. Contrary to what is feasible in clinical practice settings, the workplace does not easily accommodate pre-screening of employees to identify which workers exhibit resistant, resilient or problematic stress responses (Nucifora, Langlieb, Siegal, Everly, & Kaminsky, 2007; Nucifora, Subbarao, & Hsu, 2012). While EAP-based CISM staff is largely unaware whether individual workers are at risk for a trauma disorder, due to employer demands that support groups be delivered immediately post-incident, interventions are generally delivered to workers whose levels of stress or risk factors are largely unknown. This requires on-site interventions to be appropriate for all levels of stress response. Finally, since critical incidents affect not only individuals but also work organizations, intake assessment and response planning need to accommodate organizational level needs.

Impact of Event Scales and Range of Stress Responses

Central to the field of trauma psychology is measurement of the impact of traumatic events on individuals. Accordingly, the trauma literature reflects a proliferation of scales clinically measuring symptom severity (Davidson et al., 1997; Derogatis, 1983; Devilly & Hutchings, 2004; Elklit, 1993; Foa, Riggs, Dancu, & Rothbaum, 1993; Goldberg, 1971; Hammerberg, 1991; Horowitz, Wilner, & Alvarez, 1979; Newman, Kaloupek, & Keane, 1996;

Tehrani, Cox, & Cox, 2002; Weiss & Marmer, 1997). Within clinical practice settings, it is feasible to employ such scales to inform trauma-focused interventions for individuals, who react with a range of stress responses. Individual stress response can range from resistant to resilient to requiring recovery. Resistance is a form of immunity, the ability to withstand the initial distress an incident causes. Resilience is the capability to quickly regain equilibrium after some level of distress. Recovery applies to those who do not regain functioning and require trauma-focused treatment (Nucifora et al., 2007; Nucifora et al., 2012). An estimated 86% of those exposed to traumatic stimuli are likely to exhibit resistance or resiliency and will not develop symptoms meeting criteria for ASD or PTSD (APA, 2000; Harvey & Bryant, 1998; Kessler, Chiu, Demler, & Walters, 2005; NIMH, 2006; PTSDA, 2006). While all stress responses justifiably warrant attention, sometimes overlooked is the high probability that the majority of those exposed exhibit normal reactions and will resume prior functioning without complication. Screening of exposed workers to determine their specific level of stress response would substantially informs response planning. However, in the aftermath of an incident, there are multiple barriers to accessing individuals.

Clinical Screening Post-Incident: Universally Applicable Interventions

In the post-incident environment, systematic screening for risk factors, protective factors, resistance, resiliency or a stress disorder is generally not feasible. Due to the workplace requirement to provide a rapid response within a few days, or in some cases, within a few hours, the time available between incident and intervention is generally inadequate for scheduling and conducting interviews or administering assessments. Additionally, since in most circumstances attendance is voluntary, CISM providers rarely know which employees will attend a group or individual session ahead of time. Further, the post-incident work environment may be unsafe, unsecured or chaotic, which can compromise logistics. Finally, workers may not be available to provide advanced consent or may not be in a mental or emotional state conducive to participate in an assessment. Due to the demand to respond rapidly, on-site providers often deliver interventions with no understanding of whether an incident is clinically traumatizing, or for whom. As a consequence, in the context of EAP-based CISM practice, workplace interventions need to be safe and effective for all recipients – resistant and resilient employees as well as those with clinical symptoms of ASD or early symptoms of PTSD. This contrasts sharply with screening capabilities in a clinical practice setting and the ability to target intervention to fit individual stress response.

Organizational Level Response Planning

Despite these challenges, EAP-based CISM units need to devise an incident response plan at intake and deliver services appropriate for all levels of stress response. They additionally have to quickly assess the nature of the incident and its potential impacts on the organization. This multi-level objective to support employees and organizations is consistent with the EAP principle historically referred to as the "dual client relationship" (EAPA, 2009). Supporting management in restoring critical organizational functioning and assisting employees with stress symptoms are equally important objectives of EAP-based CISM practice.

An EAP-Based, CISM Unit's Approach: Incident Severity vs. Symptom Severity

Responding to more than 3,000 critical incidents each year, the EAP-based CISM unit in this study coordinates various services, including pre-incident training, intake assessment, consultation, response planning, delivery of on-site interventions and follow-up. To operate within constraints on pre-screening workers while providing an intervention appropriate for all levels of stress response, the unit relies on PFA as its most commonly delivered on-site intervention. For intake assessment, in place of pre-screening for worker stress levels, the unit focuses on assessing what is readily observable – the nature of an incident itself and its potential to disrupt organizational functioning. To accomplish this, they sought an instrument to determine incident severity level. To be practical in the unit's high volume CISM environment, the instrument needed to be quickly and easily administered at intake and unobtrusive to callers in distress. Due to their inability to find such a scale, the unit developed internally a scale for their own use. The result was a Critical Incident Severity Index Scale (CrISIS). In contrast to clinical impact of event scales measuring symptom severity for individuals, CrISIS measures incident characteristics. The scale is based on the theory that extent of organizational disruption depends on variation among specific incident characteristics. Minor incidents will minimally impact organizations while major incidents can be disruptive to such an extent that the organization ceases operation for a time. The unit employed the scale to inform organizational consultation and incident response planning.

Critical Incident Severity Index Scale - Revised (CrISIS-R)

Based on their extensive practice observations of thousands of incidents and their disruptive impact on organizations, the unit designed their original scale to include nine indices, each corresponding to an incident characteristic (McCullough et al., 2005). To test scale reliability for this study a Cronbach's Alpha was conducted. Three original incident characteristics, (level of worker injury, workgroup history of prior trauma and extent of advanced notice of event) thought to inform incident severity level, compromised scale reliability. While these characteristics inform planning and services, they were empirically unrelated to incident severity level as measured by CrISIS. Based on results, the scale was reduced to include six remaining indices (CrISIS-R), which has an Alpha of .7. Table 1 presents a description of the six indices.

Table 1:
CrISIS-R Scale Indices

Index	Description
Portion of Employees Involved	Portion of employees directly vs. indirectly involved in an incident relative to the total employees at the site where the incident occurred. The greater the portion of both combined, the higher the index score.
Employees' Exposure Type	Extent to which employees directly witness the incident vs. indirectly encountering the incident or reacting to others who witnessed it. The more direct exposure, the higher the index rating.
Violence Level	A hierarchy of escalating external force from minimal (earning a lower rating) to bodily harm and weapons involvement (earning higher ratings).
Attendance Impact	Length of time workers are unable to return to work post-incident, with score increasing progressively with longer durations of work shut down.
Threat Level	Employees' appraisal of threatening stimuli and the level of subsequent arousal accompanying it. Higher levels of perceived threat receive a higher score.
Media Exposure	Level of internal and external publicity surrounding an incident, whether organizational communications or local, statewide, national or international news. The more extensive the coverage the higher the rating.

Descriptive Analysis Of A Critical Incident Database

CrISIS-R-Scores

Each of the six indices is rated on a Likert scale with a maximum rating of five, allowing for a maximum combined incident severity score of 30. From 2006 to 2008, the CISM unit administered the CrISIS-R scale at intake for 5,181 incidents. The mean score is 12.21. The standard deviation is 5.64. The score range is 26 and the median score is 13. Figure 1 displays the overall scale score distribution graphically.

Figure 1:
Distribution of CrISIS-R Scores (2006 – 2008)
N = 5,181
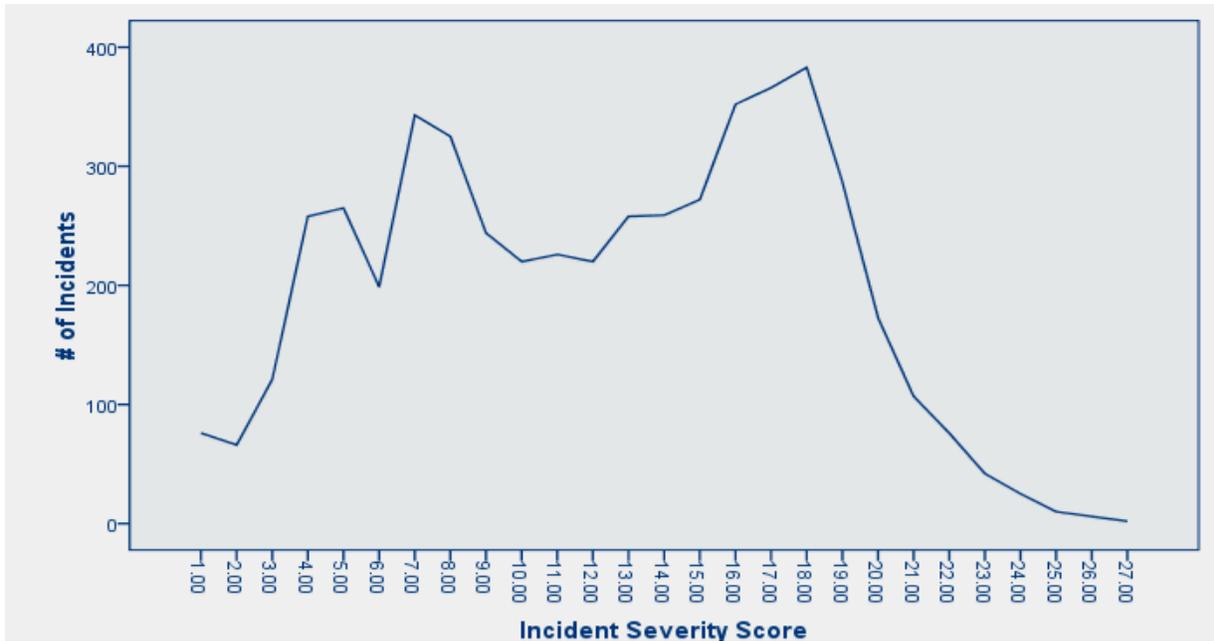
A bi-modal pattern is evident, with spikes for mild and severe incidents. This is consistent with two general classifications of events generating requests for assistance – traditional critical incidents vs. less severe organizational incidents – discussed further below. To further analyze incident severity, the unit created five incident severity categories ranging in impact from low to catastrophic. Each category encompasses a range of six CrISIS-R scores. Severity categories, score ranges and distribution of incident scores are presented in Table 2.

Table 2:
Distribution of CrISIS-R Scores by Severity Category

	Scores Range	Frequency	Percent	Cumulative Percent
Catastrophic Impact	25 to 30	18	0.3%	0.3%
Severe Impact	19 to 24	710	13.7%	14.1%
Moderate Impact	13 to 18	1890	36.5%	50.5%
Mild Impact	7 to 12	1578	30.5%	81.0%
Low Impact	0 to 6	985	19.0%	100.0%
Total		5181	100%	

Catastrophic and severe incidents, corresponding to a severity score of 19 or higher, represented a combined 728 incidents (14%). Most incidents however, were moderate to low in

impact. Incident frequency within these categories includes: moderate impact (37%), mild impact (30%) and low impact (19%).

Critical Incidents vs. Organizational Incidents

EAP-based CISM units often serve employers in a manner broader than would traditional CISM services. Many employers expect their EAP-based CISM services to address a continuum of workplace events, from every day work stress to potentially traumatic incidents. As a result, incidents for which organizations sought assistance from the unit divide into two broad classifications – traditional critical incidents, which are potentially traumatic vs. organizational incidents, which seldom are. Critical incidents are unpredictable, severely stressful and outside of normal experience, including events such as disasters and criminal acts. Organizational incidents, while also disruptive, reflect situational stress endemic to the workplace. Organizational incidents can include large scale events such as a downsizing, site closing or a facility relocation, or smaller scale, isolated incidents, such as a distressed individual worker, peer conflicts or inter-departmental crises. Out of 5,181 incidents for which the unit administered CrISIS-R, 4,532 incidents (87%) were classified as critical and 649 (13%) were classified as organizational.

Critical Incident Types and Subtypes

The CISM unit divides critical incidents into five overall types – disaster, criminal act, accident, death and illness. They further divide each overall critical incident type into subtypes.

Disasters. Disasters are large scale, natural or industrial events. While infrequent (representing only 2% of incidents in the database), disasters can be devastating to a large area, including thousands of employees (Hillenberg & Wolf, 1988). The most common subtype of disasters in the database is hurricanes (39% of disasters). The 2008 season was the most active with 5 major hurricanes, including the very destructive Hurricane Ike. Explosions were the next most frequent subtype (17%). Other subtypes of natural disasters can include wildfires, floods, tornadoes and earthquakes. Additional subtypes of industrial disasters are chemical fires, chemical spills and toxic exposure. Man made disasters and toxic exposures are increasing (Flannery, 1996). As society becomes more technologically complicated, mechanical parts' fatigue, human error and negligence result in large scale, catastrophes that cause psychological trauma (Lloyd & D'Antonio, 1992). In 1984, Union Carbide's massive, toxic gas leak in Bhopal, India, frequently cited as the world's worst industrial disaster, resulted in more than 20,000 deaths (Eckerman, 2005). Not only are disasters disruptive psychologically and injurious physically, they can destroy infrastructure, communications and transportation and separate coworkers, family and friends. Widespread destruction compromises emergency response and delays interventions, increasing traumatic stress (NASW, 2006).

Accidents. In 2008, the Bureau of Labor Statistics (2010) recorded 4.6 million non-fatal accidental injuries. Lester et al. (2001) note that 6.1 million employees experienced accidental injuries on the job in a given year, many under dramatic conditions such as amputations, burns or severe head trauma. Injuries from transportation accidents occur while traveling by train, bus or car. Manufacturing and construction workers risk injury from equipment malfunctions or unsafe

working conditions. Health care staff is particularly vulnerable to injury (Antai-Otong, 2001). However, despite their frequency in the workplace generally, accidents rarely triggered requests for assistance from the unit, comprising only 2% of incidents within the study period. Among accidents in the database, the most common subtype is accidental injury (71% of accidents), followed by motor vehicle accidents (22%).

Criminal Acts. As violence increases in society in general, it increases in the workplace (Blair, 1991; Gwaltney, 1987; Mantell & Huntting, 1987; Walsh & Rue, 1987). Criminal acts were the second most prevalent overall incident type in the unit's database, representing 38% of incidents. Among subtypes of criminal acts, robbery represented 91%, consistent with the frequency with which robbery occurs in the workplace (Bradit & Normandeau, 1987). In 2008, law enforcement recorded 5,682 bank robberies (Federal Bureau of Investigation, 2008). Other criminal subtypes, much less prevalent in the database, include criminally threatening behavior, abuse or assault. Criminal acts involving sexual or physical assault are severely traumatic. Flannery (2001) and Bell (1995) have written extensively about assaults, citing their "human intentionality" (the intentional action of another person specifically to do one harm) as increasing traumatic stress. Disgruntled co-workers and customers assault employees or managers (Blair, 1991; Flannery, 1996; Mathews, 1994). Health care staff is particularly vulnerable to assaults by clients (Antai-Otong, 2001).

Workplace Death. In 2008, there were 5,051 workplace deaths nationwide (Bureau of Labor Statistics, 2010) and over the study period employee death was the most common overall incident type for which the units' client organizations sought assistance (44%). The subtype of death by natural causes represented the majority of deaths (45%), followed by subtypes of accidental death (27%), suicide (15%) and homicide (13%). Natural employee deaths can occur at work, home or in a hospital, but even off-site co-worker deaths can still have a dramatic impact on the workplace. Accidental loss of life occurs when emergency workers respond to disasters, when firefighters are lost in a rescue attempts or when heavy equipment malfunctions. The subtype suicide is particularly stressful for the workplace and in recent years, workplace suicides were increasing. In 2008, workplace suicides rose 28% over the previous year (Bureau of Labor Statistics, 2010). Suicide, whether occurring visibly in the workplace (Bolton et al., 2004) or unobserved off-site (Pennebaker & O'Heeron, 1984) can be a traumatic experience for co-workers. Homicide may occur as an employee is murdered performing his or her job functions (Castillo & Jenkins, 1994; Pulley, 2005). Line of duty homicide examples include police officers killed, lawyers murdered for retribution, disgruntled employees killing managers, colleagues murdered by co-workers or retail or health care staff fatally attacked by aggressive clients. Workers in retail sales and service industries are at the highest risk for workplace homicide (Bradit & Normandeau, 1987; Jenkins, Layne, & Kisner, 1992; Keim, 1999; Toscano, 1995; Yang & Lester, 1988). In 2006, workplace homicide was the leading cause of death in working women and the second leading cause of workplace death in men (OSHA, 2007).

Illness. Health care staff risks illness from needle pricks and a myriad of infectious diseases. Large-scale infectious epidemics, such as bird flu, or their threat, can create significant workplace stress. The unit identified only two illness subtypes – terminal (52% of illnesses) vs. non-terminal (48%). Whether occupational in etiology or occurring naturally, illness can be debilitating to an afflicted employee and detrimental to the organization. Bolton et al. (2004)

note that observing a life-threatening illness can trigger stress in co-workers. Gluhoski and Wortman (1996) discuss the repercussions of non-terminal illness on the affected worker and organization. In the sample, however, illness was rarely a precipitant for a client organization to contact the unit, representing only 2% of incidents.

Organizational Incident Types and Subtypes

The unit divides the classification of organizational incidents into two overall incident types – employee stress vs. organizational stress. Each further subdivides into subtypes. While assisting workers and organizations with employee and organizational stressors is normally accomplished by off-site EAP management consultations and EAP counseling (Van Den Bergh, 2000), when these situations escalate to a level disruptive to the workplace, or there is anticipation they will escalate, organizations approach the CISM unit for on-site assistance.

Employee Stress. The National Institute for Occupational Safety and Health defines work stress as a conflict between work demands and the capabilities, resources or needs of workers (NIOSH, 2009). Several authors investigated factors associated with employee stress (House, 1981; Karasek, 1979; Karasek & Theorell, 1990; Lerner, 1985; McGrath, 1970). Azaroff et al. (2010) cite various sources of work stress, including role change, role tension, time pressure, conflicting directives and inadequate autonomy. Additional examples of work stress include strained manager-employee relations, frustrating administrative procedures, multi-tasking, demanding workloads and deadlines, shift duties and limited resources. Work-induced stress is inherent in today's workplace (McFarlane & Bryant, 2007; Tesh, 1988) and work stress-related disorders are a growing concern. In 2009, NIOSH (2009) cited one third of employees reported high levels of work stress. Dewy (1991) reported 70% of workers stated work stress caused frequent health and productivity problems and 33% considered resigning from their jobs. Despite the prevalence of work stress generally, employee stress, represents only 3% of all incidents, suggesting that EAP management consultation and employee counseling address most routine causes of work stress. While very few instances of employee stress escalated to a level triggering a call to the CISM unit, among subtypes addressed the most common were conflict resolution (27% of employee stressors) and general job-related stress (24%).

Organizational Stress. While rarely traumatic to individual workers, organizational stressors can stress a large portion of a workforce. Representing 9% of all incidents in the database, organizational stress was the third most frequent overall type. Organizational stressors include major technological change, change in job tasks, culture shift, merger or acquisition, bankruptcy or outsourcing – events which can create significant distress for employers, employees and their families (Bargal & Karger, 1991; Johnson, 1995; Mor-Barak & Bargal, 2000; Rabner, Hawkins, & Hawkins, 1995). Also intrinsic in today's workplace is large scale job insecurity. Even during times of strong economic growth, job security is threatened by outsourcing and globalization. Consistent with this trend the database shows reduction in force as the most prevalent subtype of organizational stressors (69%). The next most common is a site closing or relocation (16%), followed by termination of employees with high organizational visibility (11%) and reorganization (4%). While such incidents are not as stressful as critical incidents, they can still be disabling to organizations and workers and therefore warrant intervention to ameliorate them.

Incident Categorization Scheme

In summary, the unit's incident categorization scheme accommodates three levels: a broad classification (critical vs. organizational incident), overall incident type (disasters, criminal acts, accidents, etc.) and incident subtype. For example, in the unit's categorization scheme for a workplace murder the classification is critical incident and the incident type and subtype are death and homicide. For a dispute between co-workers the classification is organizational incident and the type and subtype are employee stress and conflict resolution.

Research Setting

The research setting is Magellan Health Services, a large, national EAP. During a three-year period this EAP served over 1400 client organizations. Over 43 million individuals (one out of every six Americans) were eligible for its services. The EAP's CISM unit responded to more than 3,000 incidents each year. Due to the volume of requests for assistance, the EAP maintains a dedicated and specialized CISM unit to respond to workplace incidents. Two characteristics therefore positioned this program as an ideal setting for a practice-based CISM study. The unit is the highly experienced and one of the largest of its kind, an exemplar in the field, and it maintains a large database of computerized practice records, a rich source of data unprecedented in size and well suited for quantitative research (DeFraia, 2011; Epstein, 2009). Since the early 1990s, this unit collected extensive data on over 60,000 workplace incidents, presenting a unique opportunity to conduct practice-based research examining the severity level of critical incidents.

CISM Unit: Structure, Services and Data Collection

The CISM unit consists of three specialized teams – an intake team, a coordination team and a follow-up team. Intake consultants conduct an incident assessment, gather details about the event and identify workgroup and organizational needs and expectations. The intake team provides immediate telephonic consultation, sends educational materials for employees and management and delivers communications promoting the EAP as a resource to support affected workers. They also provide guidance on developing an overall response strategy. As part of the response plan, the intake team offers telephonic follow-up services. Follow-up includes additional consultation, monitoring workgroup and organizational recovery and determining need for additional services. Over the three-year period, the intake team received 9,768 requests for assistance. Organizations involved in 4,497 incidents (46%) declined follow-up and these incidents were closed. Those organizations accepting follow-up (5,181, 54%) were administered the CrISIS-R. The intake team hands off these incidents to a coordination team. To supplement initial telephonic assistance, coordination staff offers services on-site (group sessions, individual counseling and management consultations). The majority of organizations (4500, 87%) elected to provide on-site services while 681 (13%) declined them. Somewhat fewer organizations followed through with delivering on-site services (4337, 84%). After services are scheduled, a follow-up team takes over the incident, making multiple outreaches to the organization at regular intervals.

Research Objective

Considering the EAP-based CISM unit in this study is only one of literally hundreds that provide CISM services, the role of EAP-based CISM in responding to workplace trauma is extensive. Despite widespread reliance on EAP-based units to address workplace trauma and the massive amounts of practice data they collect, there are few published research studies capitalizing on the potential insights that existing CISM practice data may provide. The research question posed is whether a relationship exists between incident types and incident severity level. Insight into this association would be of value to CISM practitioners in intake assessment, consultation and response planning.

Methodology

An anecdotal scan of articles in professional journals generally shows university-based research outnumbers practice-based research. University studies have many advantages, including a primary focus on research, access to funding and resources, the ability to conduct controlled studies and the leadership of premier trauma researchers. While the contribution of university-based studies to the field is invaluable, practice-based research, as a complementary alternative, offers unique advantages. Practice-based studies generate "evidenced informed practice" (DeFraia, 2010; Epstein, 2009; McNeill, 2006). Findings based on practice data are immediately relevant to practice, eliminating the need to address translational issues between research and practice settings (Epstein, 2009). While random, controlled studies are sometimes feasible within practice settings, in many programs the protocols, time and resources required to conduct them are not. An alternative to controlled research is the methodology of CDM. Advantages of CDM are its reliance on readily available and relevant practice data and its ability to inform practice unobtrusively (Epstein & Blumenfield, 2001). CDM research does not disrupt day-to-day processes of a unit and its interactions with client organizations. Reflecting this approach, this study is practice-based, retrospective and exploratory, employing the methodology of CDM to examine data produced by a single EAP-based CISM program. To explore the role of incident severity level in CISM practice, bivariate analyses were conducted to test whether certain incident types and subtypes reflect significant differences in CrISIS-R scores. The statistical test employed was Analysis of Variance (ANOVA). As an exploratory study, the level of statistical significance set was $p < .05$. Effect size was measured by eta squared.

RESULTS

CrISIS-R score and Overall Incident Type

Incident types vary in their association with incidences of traumatic stress disorders (Antai-Otong, 2001; Elklit, 2002; Flannery, 1996; Gluhoski & Wortman, 1996; Green et al., 1990; Lloyd & D'Antonio, 1992; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992; Toscano, 1995). This analysis explores the related question of whether incident types also associate with different levels of incident severity as measured by CrISIS-R. Table 3 details ANOVA results.

Table 3:
Mean Incident Severity Score: Association with Incident Type
ANOVA

Incident Type	N	%	M	SD
Disaster	111	2%	17.59	5.83
Criminal Act	1950	38%	17.00	3.09
Accident	109	2%	13.89	4.71
Employee Stress	163	3%	9.69	4.45
Death	2258	44%	9.05	4.43
Illness	104	2%	8.74	3.83
Organization Stress	486	9%	7.77	4.16
Total	5181	100%	12.22	5.64

$F_{(6, 5174)} = 869.395$, p = .000, $\acute{\eta}2 = .502$

Findings

The effect of overall incident type is significant for mean severity score, *$F_{(6, 5174)} = 869.395$, p = .000, $\acute{\eta}^2 = .502$,* with a medium effect size. The highest mean CrISIS-R score is seen for disaster (17.59), followed by criminal act (17.00), accident (13.89), employee stress (9.69), death (9.05), illness (8.74) and organizational stress (7.77).

Discussion

Differences in mean severity score among incident types seem consistent with the amount of organizational disruption associated with specific incidents. Disasters, which are destructive on a large scale, have the highest mean incident severity score. Criminal acts have the next highest mean score, suggesting their "human intentionality" may create as much distress for organizations as it does for individuals. Accidents are fairly disruptive as well, which fits with their unpredictability and potential for severe injury. The lower mean CrISIS-R score for employee stress is consistent with its typically isolated impact. While the score differences between employee stress, illness and death are not meaningful, it is surprisingly that employee stress (an organizational incident) scores higher than both illness and death (critical incidents). This runs counter to the assumption that critical incidents are generally more severe than organizational incidents. An explanation may be that all three incidents share the characteristic of limited scope of organizational impact. Organizational stresses earned the lowest mean score, consistent with their unique "organizational intentionality" - meaning their occurrence is the often the result of intentional management decisions. Mergers, reorganizations, facility closings or lay offs are often announced ahead of time. While stressful, predictability of such events may account for a lower incident severity score.

CrISIS-R score and Incident Subtype

Table 4 displays ANOVA results for an association between incident subtype and mean CrISIS-R Score.

Table 4:
Mean Incident Severity Score: Association with Incident Subtype
ANOVA

Incident Type	Subtype	*N*	% of Type	*M*	*SD*
Disaster	Other Industrial Disaster	3	2.7%	21.33	4.51
	Hurricane	43	38.7%	20.49	4.56
	Tornado	9	8.1%	18.89	2.93
	Explosion	19	17.1%	16.58	6.62
	Electrocution	8	7.2%	16.38	2.56
	Biochemical Accident	1	0.9%	16.00	0.00
	Flood	6	5.4%	15.33	2.88
	Industrial Fire	14	12.6%	15.00	5.17
	Natural Fire	5	4.5%	13.00	6.75
	Earthquake	3	2.7%	3.00	3.46
Criminal Act	Robbery	1780	91.3%	17.10	2.96
	Assault	55	2.8%	16.65	4.50
	Abuse/Neglect	3	0.2%	16.33	1.53
	Other Criminal Act	47	2.4%	15.85	3.95
	Threat of Violence	65	3.3%	15.45	3.87
Accident	Accident - Other	5	4.6%	15.60	5.59
	Accidental Injury	77	70.6%	14.73	4.03
	Accidental Fire	3	2.8%	12.33	7.77
	Motor Vehicle Accident	24	22.0%	11.04	5.28
Employee Stress	Job-related Stress	40	24.4%	11.13	4.87
	Multiple Stressors	21	12.8%	10.90	4.32
	Peer Impact	24	14.6%	10.38	3.84
	Conflict Resolution	44	26.8%	9.30	3.44
	Other Employee Incident	12	7.3%	9.17	3.35
	Individual Crisis	23	14.0%	6.30	5.00
Death	Homicide	294	13.0%	12.91	5.29
	Accidental Death	619	27.4%	10.60	4.33
	Suicide	334	14.8%	8.72	3.56
	Natural Death	1011	44.8%	7.09	3.21
Illness	Non-Terminal Illness	50	48.5%	10.16	4.02
	Terminal Illness	53	51.5%	7.43	3.17
Organizational Stress	Site Closing or Relocation	77	15.8%	8.75	3.44
	Reduction in Force	333	68.5%	7.90	4.12
	Reorganization	23	4.7%	6.57	4.43
	Termination of Employees	53	10.9%	6.04	4.68
Total		5181		12.22	5.64

$F_{(34, 5146)} = 207.161$, p = .000, ή2= .578

Findings

The effect of incident subtype is significant for mean incident severity score, *F(34, 5146) = 207.161, p = .000, η^2 =.578,* with a medium effect size. For disaster subtypes, the highest mean CrISIS-R scores are observed for hurricanes (20.49), tornados (18.89), and explosions (16.58). For criminal subtypes, robberies were the most severe (17.10) followed by assaults (16.65). Among accident subtypes, accidental injuries were the highest scoring incidents (14.73). Job stress (11.13) and conflict resolution (9.30) scored highest among employee stressors. Among subtypes of death, homicide (12.91) and accidental death (10.60) have the highest mean scores. Finally, among organizational stressors site closings/relocations were the highest scoring subtype (8.75) followed by reductions in force (7.90).

Discussion

Very high severity scores observed for the disaster subtypes of hurricanes, tornadoes and explosions were expected for these dramatic and large-scale events. Biochemical accidents, floods and fires score high as well, consistent with their destructive characteristics. The unexpectedly low mean score for the few workgroups affected by an earthquake is likely due to the workgroup being impacted only indirectly through family located in an earthquake impacted zone elsewhere. Among criminal subtypes, robbery scored the highest, followed by assaults, abuse/neglect and threats of violence. In addition to generating more severe individual symptoms, their human intentionality may also account for more severe organizational disruption. A possible reason for accidental injuries scoring highest among accident subtypes is they are unexpected and arbitrary, potentially afflicting any worker. Among employee stress subtypes, job-related stress scores higher than stressors involving co-workers (inter-worker conflict or a co-worker's crisis). This raises the question of whether interpersonal work stress is less disruptive than stress related to performing one's assigned duties. Homicide, as anticipated given its unexpectedness, human intentionality and devastating impact, has the highest mean score among subtypes of death. Accidental death has the next highest mean score, followed by suicide. While their score difference is not meaningful, it is surprising that accidental death scores higher than suicide, suggesting that a death that is accidental may be more disruptive than one that is self-inflicted. One possible explanation is that, similar to accidental injuries, accidental deaths are both arbitrary and potentially universally applicable, whereas suicide may be viewed as self-inflicted and potentially affecting very few workers. A related influence, not captured by the database, is whether a co-worker suicide occurred within the workplace or in the community. As expected, natural employee death, which is often anticipated, has a very low mean score. Among illness subtypes, non-terminal illnesses scored higher than terminal illnesses. This may be due to the characteristic that many terminal illnesses allow co-workers to prepare for an anticipated death. Finally, for organizational stressors, the relatively high score for site closings/relocations is consistent with their widespread, albeit non-traumatic impact.

Practice Implications

The readily observable characteristics of an incident can inform intake assessment, organizational consultation and incident response planning. CrISIS-R represents a potential

measure of an incident's severity level as based on incident characteristics disruptive to organizations. While different incident types intuitively associate with more or less severity, in practice, contingent on specific incident characteristics, an event associated with a high level of disruption (i.e. robbery), under certain circumstances, may be less so. For example, two robberies could vary significantly in characteristics. One may have involved a weapon while the other did not or one may have received more extensive media coverage. The two incidents will generate different CrISIS-R scores. Incorporation of CrISIS-R score into response planning guards against assumptions that a particular type of incident is more or less disruptive to the organization and therefore requires a higher or lower level of response or interventions.

A measure of incident severity based on incident characteristics may also help CISM practitioners manage organizational decisions about services, often made under stressful circumstances. Organizational assessment about the impact of an event and subsequent demands for specific types of interventions, their timing and overall level of services can all be unduly influenced by unfounded beliefs or assumptions. The availability of an objective measure of incident severity level and normative data may assist staff in securing agreement to better align services with needs. For example, if organizations with a highly scored incident decline to provide recommended services on-site or accept follow-up services, CISM intake consultants can explore the caller's beliefs and assumptions regarding incident severity and corresponding response planning. Advising the requestor that for incidents of similar severity peer organizations provide services and complete follow-up may improve acceptance of these recommendations. On the other hand, an organization experiencing a mild incident may demand immediate, multiple and intensive group interventions. To guide the organization towards a more appropriate response, the practitioner can cite severity score and the timing and level of services appropriate for the incident.

It is essential that managers are prepared to engage employees constructively post-incident, especially for more severe incidents. Intake consultation should communicate management's pivotal role in employee recovery and recommend on-site management consultations as part of the incident response plan. In addition, consultants should consider whether the organization would benefit from scheduling training on managing performance in the aftermath of an incident. Such training would increase manager unawareness of how symptoms of traumatic stress express themselves in the workplace as performance issues. For organizations declining management consultations or training, CISM staff could again reference normative data confirming most organizations provide these services.

Study Limitations

With an Alpha of .7, scale reliability falls outside the desired range of .8 to .9. Additionally, as exploratory research using pre-existing practice data, the study is by definition retrospective, precluding randomization within a controlled design, limiting its generalizability. Another, and anticipated, limitation of clinical data mining studies is data intended for practice or program administration may not be structured optimally for research. For some variables, pre-existing data produced less than optimal distributions for analysis. Also, characteristic of research testing for bivariate associations within a very large sample is a high likelihood of finding statistically significant relationships. Lastly, effect sizes were only medium in strength. These limitations indicate results should be considered tentative, pending testing in prospective, controlled research.

Recommendations For Further Research

CrISIS-R Scale Improvement. While this study confirmed CrISIS-R scores varied significantly among incident types and subtypes, a general association provides no insight into which incident characteristics account for the observed variance. An expanded CrISIS-R, incorporating additional characteristics, could generate a comprehensive incident typology – a more inclusive profile of incident characteristics. Use of an expanded incident profile could also further investigation into why incident types associate with more or less incident severity. To supplement the current six indices, Table 5 proposes additional indices.

Table 5:
Proposed Additional CrISIS-R Indices

Incident Characteristic/Index	Variation
Site of Event	Workplace vs. outside workplace
Scale	Large scale vs. limited, localized
Origin	Natural vs. man-made
Human Intentionality	Intentional act vs. accidental occurrence
Organizational Intentionality	Planned management decision vs. unpredictable event
Predictability	Anticipated vs. unanticipated
Preventability	Preventable vs. not preventable
Duration	Singular event vs. enduring stressor
Fatality	Involving deaths vs. no deaths

Expansion of the scale may also improve the reliability of CrISIS-R, which needs continue scale refinement to improve its reliability to the desired Alpha of .9 and produce stronger effect sizes.

Incident Severity and Individual Symptoms. Future research could examine whether a link can be established between incident severity, as measured by incident characteristics (CrISIS-R) and symptom severity, as measured by worker's clinical symptoms. As noted, several clinical impact of event scales measuring disruption to individuals are available.

Incident Severity and Organizational "Symptoms". CrISIS-R, as a measure of incident features, does not measure extent of organizational disruption. Its' association with incident types, while informative, provides no insight into how incident severity may associate with specific organizational outcomes post-incident. A follow-up CDM study could pursue this relationship by testing the CISM database for a relationship between CrISIS-R scores and various organizational outcomes available in the database, such as employee retention or post-incident performance. An alternative would be identifying an assessment scale measuring the ways in which the workplace is impacted by an event, a measure of post-incident organizational "symptoms". Such a scale, administered during follow-up, would compliment the administration of CrISIS-R at intake, allowing for examining an association between measures of incident severity and measures of organizational impact.

17

Organizations' Service Delivery Decisions. Three organizational service decisions are of interest to CISM units: whether an organization elects to supplement telephonic services with on-site services, whether the organization follows through with delivering on-site services and whether they accept follow-up services. The organization accepted the recommendation to deliver on-site services for 4500 incidents (87%), while for 681 incidents (13%), the organization declined. Of the 4500 initially intending to provide services on-site, 203 (3%) did not follow though with delivering them. Which factors influence initial client organizations' decision or their deviation from intent to deliver services on site? For follow-up services, the unit offered them for 9,678 incidents, but nearly half (46%) declined them. Which factors, whether incident-related, a CISM unit's approach to offering follow-up or factors within the client organization might influence this decision? Since follow-up is considered essential to CISM practice, understanding which variables predict for accepting it would enhance CISM practice.

CONCLUSIONS

While CISM seeks to equally support individuals and organizations, measurement of individual symptoms of traumatic stress and clinical practice dominate the trauma literature, mirroring practitioner orientation that tends to emphasize clinical as opposed to organizational practice. This study contributes to less-prevalent studies focusing on the organizational level. To address the ways employee stress symptoms impair organizational functioning, many employers turn to their EAPs, which rely on CISM as the preferred incident management strategy. However, the application of CISM processes within EAP-based units poses challenges, including the need to intervene on the organizational level and assist employees without knowledge of their risk factors or stress response level. To adapt to these challenges and develop intake assessment procedures that inform organizational consultation, an EAP-based CISM unit developed a critical incident severity scale (CrISIS-R), a measurement based on incident characteristics considered disruptive to the workplace. To capitalize on potential insights existing within a CISM practice data, this retrospective, exploratory study examined whether incident severity level associates with various critical incidents types and subtypes. The effect of incident type was found to be significant for mean CrISIS-R score for both overall incident types and their subtypes. Results suggest evidence-informed practice recommendations in the areas of CISM intake assessment, organizational consultation and incident response planning.

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