

“Get it right the first time”: Critical Issues at the Crime Scene

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Abstract

This article examines a number of critical issues associated with the collection of forensic evidence at the crime scene. It argues that the crime scene is one of the most crucial aspects of an investigation and that the scene of the crime is where good forensic science begins. The article begins by demonstrating that high quality and useful evidence leading to accurate and fair criminal justice outcomes can only occur if the scene is processed effectively and professionally. Reducing risk of unjust outcomes is especially important in serious matters, such as homicide and sexual assault, for two reasons. First, the more serious the matter, the more likely that evidence mishandling can lead to wrongful imprisonment. Second, the more serious the matter, the more personnel will be involved, and the more likely that these personnel will be multidisciplinary (law enforcement, medicine, law, forensic science) and multi-organisational (health, justice, private legal/medical, police). Many of these personnel will have divergent work practices and divergent views about what their role is, or should be, during investigations and court trials. Drawing on empirical data from interviews with crime scene examiners, police, forensic scientists, lawyers and judges in a number of Australian jurisdictions, the article discusses the management of the crime scene as a critical issue in the justice process.

Introduction

Like crime itself, a crime scene is a dynamic event. As much as the outnumbered officers may try to control a scene, there are ongoing and often unforeseen alterations to the evidence that the authorities can do little to prevent. Emergency medical personnel move the injured and the bodies of the dead. Ambulances park on top of cartridge cases. Curious bystanders wander into bloodstains. Fearful witnesses move their vehicles. The sun comes up or goes down; the streetlights come on or go off.

Despite the best efforts of the street officers, the scene changes and continues to change (Garrison 2003:70).

Forensic science itself begins at the crime scene. The objects of study for forensic science are physical and chemical traces left at the crime scene; for example, hairs, fingerprints, glass chips. Traces themselves only become evidence if they are collected, analysed and

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reported effectively. Importantly, this initial stage of the forensic process is both a scientific and a social process (as is true for the whole forensic process). In other words, forensic evidence is not simply 'found' at a crime scene; it is socially constructed. The social construction of forensic evidence is undertaken by numerous people with various types of expertise throughout the process. Many different people attend crime scenes.

Processing a crime scene is considered to be one of the most critical aspects of effective criminal investigations. Inadequately managed scenes can result in poor quality evidence being used and increases the risk of ineffective investigations and/or wrongful convictions (Edwards 2005), such as in the cases of Madeline McCann (United Kingdom), Azaria Chamberlain and Farah Jama (Australia) and Guy Morin (Canada). This article explores some of the critical issues in the forensic process that arise at the scene of the crime. The aims of the article are to draw attention to the crucial significance of the crime scene (or crime scenes) in the effective use of forensic science, the importance of understanding the social roles performed and the interactions that occur between personnel who attend the crime scene, and ultimately, the importance of conceptualising crime scene management as a fundamental component of forensic science (Crispino 2008).

The importance of the crime scene in the forensic process

The crime scene has not always been conceptualised as part of forensic science. In the past, activities at the crime scene have been viewed as 'police work'; processing and managing the crime scene has been viewed as a technical discipline (Crispino 2008; Millen 2000). The role of forensic science has been understood as beginning once the items collected at the crime scene arrive at a forensic laboratory. However, in both the forensic world and the policing world (if not other agencies in the criminal justice system), there has been an increased focus in recent years on what happens at the crime scene. There have been a number of drivers for this: an increased reliance by the courts on presenting forensic evidence for identification purposes (Shelton, Barak and Kim 2007); the so-called 'CSI effect' that has led to an expectation by the prosecution (Wise 2008) and juries that forensic evidence will be presented in court and an identified reluctance to convict in the absence of such evidence (Goodman-Delahunty 2009); and the 'New Public Management' regime and fiscal constraints in policing organisations that have led to reviews of resource expenditure (Lawless 2010), including the questioning of efficiencies in police work at the crime scene (Adderley, Townsley and Bond 2007; Adderley and Bond 2008). While these drivers are predominantly generated by the courts (retrospectively), the embracing of intelligence-led policing by most police organisations in OECD (Organisation for Economic Co-operation and Development) countries (Ratcliffe 2008) has also led to a recognition of the potential value of forensic evidence for intelligence purposes. This raises important questions about what is collected at crime scenes and for what purpose (Ribaux et al 2010a, 2010b). One consequence is that forensic scientists and police are now beginning to focus more attention on the quality of traces collected at the crime scene and how these traces can most effectively be used as either forensic evidence or forensic intelligence.

In short, crime scene processing has come to be recognised as a critical stage in the forensic process. Maintaining the integrity of the crime scene through the management of personnel in attendance is crucial. If the front end of a criminal investigation is not handled effectively and reliably, then there are significant flow-on effects in the forensic process and, potentially, in justice outcomes (Brown and Willis 2009; Julian et al 2011; Kelty, Julian and Robertson 2012; Porter 2008). In this article, we draw on two case studies to illustrate the critical issues that can arise at the crime scene and the factors that can influence the value of forensic evidence if the crime scene is not managed effectively.

Method

The focus of this article is to highlight three specific critical issues that occur at the crime scene: recognising the crime scene and the role of first responders; identifying appropriate expertise and the problem of 'extended' expertise; and the effective control of complex crime scenes. These issues are aspects of crime scene management that can impact directly on effective processing of scenes, especially in cases of serious crime such as homicide and sexual assault. We focus on serious crime because the more serious the matter, the more likely a large number of personnel will be involved, and the more likely that these personnel will be multidisciplinary (law enforcement, medicine, law, forensic science) and multi-organisational (health, justice, private legal/medical, police). Many of these personnel may have divergent work practices and divergent views about what their role is, or should be, during the processing of the scene and during the investigation.

We use two case studies to illustrate the types of critical issues that are encountered at crime scenes and that, in some instances, can undermine the effective use of both forensics science and forensic services. The data for the case studies came from a number of sources, including court transcripts, newspaper articles and police journal reports. We also carried out 11 in-depth interviews with personnel who had either attended one of the scenes we discuss, had analysed the data from the scene, or had investigated/tried one of the matters. The interviewees were crime scene examiners, homicide investigators, forensic scientists, lawyers and judges. Consent to participate was freely obtained from each interviewee and no rewards were offered or provided. All procedures followed and complied with the National Health and Medical Research Council (NHMRC) guidelines for ethical research carried out in Australia. The data (either transcripts, media or interview narrative) was subjected to content analysis using Smith's (1995) sequential idiographic approach. This approach is where each document or interview transcript is read in full and themes running through the data are highlighted and noted. The two cases presented in this article came from two different Australian jurisdictions. To ensure confidentiality, neither the case names nor the jurisdictions are identified.

Case Study 1: Nothing suspicious

In the mid-2000s a motor vehicle accident (MVA) occurred late one evening. The vehicle was on fire and appeared to have collided head on into a tree. The police, fire brigade and a fire investigator attended. A badly burnt deceased male was found in the driver's seat. The passenger side door was open and a dumbbell observed in the driver's foot well. The fire investigator provided the police with an estimated speed of impact of 50–60 kms per hour. The fire investigator suggested the vehicle could have self-ignited at that speed. The senior investigating officer (SIO) took this opinion and viewed the MVA as not suspicious. The SIO informed the major crash team of the accident, but said they did not consider it suspicious. As this was a single vehicle/single victim MVA in a regional area (approximately 2.5 hours from a metropolitan CBD) and not considered suspicious, this was outside the major crash charter to attend the scene. Instead, they requested photographs and measurements to be forwarded electronically. Initial analysis by the major crash team estimated the speed that the vehicle was travelling at as below 30km. When the discrepancy in the speed of impact was discussed, the major crash team conceded to the higher speed of impact estimated by the fire investigator on the grounds that the fire investigator had physically attended the scene.

At post-mortem, the pathologist was told this was a single MVA where the vehicle ignited, although the MVA was not considered suspicious. The post-mortem revealed soot

in the lungs and the cause of death was noted as ‘consequence of the effects of fire’. This was consistent with an MVA and vehicle alight. However, other injuries consistent with a high-speed collision into a stationary object (the tree) were not present (thus, indicating a low speed of impact). The blunt trauma injury to the head was not noted at post-mortem. The deceased was buried.

One year after the accident, during the inquest it became apparent that this incident may not have been accidental. Suspicions were raised as to the behaviour of the widow who used victim compensation payouts for luxurious travel and her admission to an ex-partner that she killed the victim. The inquest was adjourned and the matter handed to homicide detectives. The deceased was exhumed and a second post-mortem found a round blunt trauma to the skull. In the late 2000s, the widow pleaded guilty to manslaughter by criminal negligence. She revealed that during an argument she had hit the deceased over the head with a blunt object; believing him dead she then staged the MVA and set the vehicle alight.

This case raises two issues that undermine the effectiveness of crime scene processing. The first is that of not recognising a crime scene: in this case, deeming an MVA to be an accident, rather than a homicide scene. It is argued that this occurs when the right questions are not asked of the evidence at hand. In this case, the police appeared to prejudge the event as a non-suspicious accident. The expert opinion they received appeared to confirm their beliefs that the MVA was accidental and the vehicle caught alight due to the high speed at impact. If other evidence at the scene (the dumbbell in the foot well and the passenger door open) had been pursued further a different outcome may have resulted. The pathologist was also told that the incident was not suspicious and this may have also impacted upon the questions they asked at first autopsy. For example, the blunt head trauma was not noticed at the first post-mortem and, hence, was not reported. The second issue here is that the opinion that was relied upon to determine speed of impact and ability for the vehicle to self-ignite was based on ‘an expert going beyond area of expertise’. In this case the fire investigator did have expertise in the behaviour of fires and how vehicles can self-ignite, but they did not have expertise in estimating speed of impact. There are several flow-on effects in this case that undermined the effective use of forensic science in the police investigation. First, as the MVA was viewed as not suspicious, the scene was not as thoroughly processed as it would have been had it been viewed as suspicious. Second, due to the passing of time, any evidence from the secondary crime scene (where the head injury took place and the MVA planned) was lost, such as the cleaning away of blood splatter. Third, due to the fragile condition of the deceased (when exhumed one year after burial), the second autopsy that located the head trauma was far more time consuming and challenging. Finally, to assess the actual speed of impact, the police contracted two independent vehicle crash experts who concurred that the vehicle was travelling 25–30 kms per hour when it hit the tree. Although the manslaughter was eventually uncovered, it was the widow’s behaviour that alerted suspicion and it could be argued that had she behaved in a different manner the crime may not have been discovered. To bring this matter to court took a lengthy and concerted effort by several homicide detectives.

Case Study 2: Too little command and not much control?

In the late 2000s a violent altercation took place during an early evening in a suburban shopping centre. One person was stabbed several times in full view of the public and members of their family. The two people involved were known in the local area and had a long history of altercations. The detective discussing the crime scene management stated: ‘they were a bit blasé I think, because of the characteristics of both the victim and the offender. If it had of been some other member of the public who is Joe, just doing a nine to

five to job, and he got stabbed I think they would've responded differently' (V44¹ 2011). The assault was called into emergency services by the suspect as they fled the scene. Two police officers, an ambulance and the fire brigade attended. The police attending did not seal the scene and control and command procedures were neither established nor followed. Initially, the victim remained on the pavement whilst members of the public and emergency services walked past. The paramedics removed the victim's jacket and a fire officer picked it up and threw it into the ambulance. The victim was taken to hospital and a police officer went with the ambulance. The officer did not attempt to find out from the victim who had stabbed them. The victim's partner refused to speak to the officer and the ambulance staff. A senior police officer attended the scene. This officer did not order a crime scene log to be started, did not seal the scene and did not prevent the fire brigade from washing down the pavement (of note, the fire brigade personnel were not told this was a crime scene and were doing what their charter provides: to clean up public places after incidents). Commercial premises at the scene were still open and staff present inside. The police attending the scene gathered evidence and noted that the shop had CCTV cameras; an assumption was made that the altercation was on tape. The tapes were not collected initially.

At the hospital, the victim received emergency surgery, but later died. Once the victim had died, homicide were called in. The detective ordered that the deceased's room be sealed. The officer at the hospital was unable to control the scene. Although contamination of the deceased was not noted as an issue, it was recorded that several hospital staff ignored the requests of the officer and entered the room to view the body (these were different staff to the emergency team). Further, the ambulance staff cleaned the ambulance and incinerated all bandages, medical items used and the deceased's clothing left in the ambulance, including the jacket she had been wearing during the assault. No tape lifts or examination for traces was carried out before incineration. Once the police were aware the victim had died, orders were given to seal the crime scene. By then, the scene was contaminated.

At both the crime scene (the shop) and the hospital, poor management and a lack of leadership exacerbated the problems associated with the involvement of multiple agencies. Neither the junior officer who was left 'in charge' of the resuscitation room at the hospital, nor the sergeant at the crime scene 'took charge' of the situation. As one of the investigating officers explained:

The junior officer didn't have the confidence to tell these people [going in and out of the resuscitation room] to shove off, and he didn't understand the police powers ... what they can actually do ; so that created an ... issue. A similar sort of thing happened actually, at the scene itself. The sergeant who was there stood back, didn't take charge; ... didn't say to the firies [firefighters]: "leave that alone, we need it". He didn't do that active scene management, he just stood back. The firies, as far as I understood, because they weren't told this was a problem; they do what they always do ... they'll clean up before they leave; ... that's how they do business. If they're asked [to do something different], it's not a problem, but they weren't asked. (S12 2011)

The detectives' issued instructions to a mobile police unit to watch the suspect's house and prevent anyone leaving; these were not fully followed and a vehicle was noted as leaving the house, but was neither followed nor stopped. There was also a time delay in the police patrol getting to the suspect's house. The delay and not locking down the suspect's house provided the suspect with time to shower and dispose of the clothes and murder weapon.

¹ V44 represents the code given to one of the interviewees who took part in this project. Each of our interviewees was given a random code to ensure confidentiality.

Further problems occurring at the scene included the assumption by a senior officer that the CCTV cameras in the shopping centre had caught enough footage of the incident. As the investigation continued it was discovered that the CCTV footage was not collected in a timely manner and some of the tapes had been wiped before being seized. Further, the footage that remained did not show any detail of the stabbing.

A search warrant was then raised to try and locate the clothes worn that night at the suspect's residence. The description of the clothes on the warrant came from the senior officer (rather than a crime scene log) and was based on the officer's memory. It was later discovered that the description was incorrect. A second warrant was raised, but no clothes were located. Information eventually became available as to the locality of the clothes. A massive field search at considerable expense was conducted and the clothes located. The weapon was similarly located. However, as the weapon and the clothes had been underground for a lengthy period, the ability to gather trace evidence or conduct DNA analysis was lost.

The case was eventually heard and the suspect was convicted of murder. While this case was heralded as a great success, the issues arising from the case are fourfold. First, the incident appeared to not have been taken seriously as all three crime scenes were not sealed and command and control practices not followed. Second, the police on that night *assumed* they had enough CCTV evidence of the assault and did not have the footage checked in a timely manner. Third, the suspect, whose identity was known to police at the time through eyewitness statements at the scene, was given enough time to dispose of vital evidence (especially the murder weapon). Fourth, the emergency services involved in the incident were not told officially it was a crime scene and either removed or destroyed potential physical and trace evidence. Taken together, these four aspects of poor crime scene management resulted in the ineffective use of forensic services and reduced the effectiveness of forensic science in this case.

What this case showed was that even though the processing and management of the crime scene were highly problematic, the investigation proceeded and the matter heard in court. No forensic evidence was able to be offered that shed light on what had happened or why. The trial itself, like many other trials, relied on eye witness testimony and statements from the suspect's partner and neighbours who confessed their part in disposing of the murder weapon and the suspect's clothes with police. As stated by one of the investigating officers: '... the case was solved by witness statements; old school policing. Forensics play a very minor component in our actual brief of evidence' (S12 2011). Referring more broadly to the role of forensics in police investigations, Ross (2009) states: 'I always think of it [investigations] as being a jigsaw puzzle, the whole case a puzzle. Sometimes forensic science will put in lots of pieces, or one big piece, or sometimes it doesn't contribute much at all'. As with Case Study 1, a conviction was obtained, but the cost in time and resources to gather enough evidence to try the matter was more timely and more challenging than if the three crime scenes (the shop, the hospital, and the suspect's house) had been managed effectively and control and command procedures put in place and followed. In addition, forensics may have played a bigger role in the case if the scene had been processed efficiently. In reflecting on the case, one of the investigators involved stated:

It was the first 24–36 hours [that] didn't go so well, but then after that it came together. I guess the forensics could've been a lot more effective if that initial response had've been different; I think it would have been completely different. (S12 2011)

Discussion

The two case studies illustrate a number of issues at the crime scene that are critical to criminal justice outcomes. Furthermore, these issues point to the importance of conceptualising crime scene management as a fundamental component of the forensic process. The decisions made by police officers at the crime scene determine the actions that follow. Decision-making at the crime scene is, thus, critical to the investigation (see Aepli, Ribaux and Summerfield 2011).

The specific issues raised in the case studies can be analysed and discussed in terms of three interrelated themes. These can be viewed as three critical issues at the crime scene that typically lie outside the protocols established by police organisations for processing crime scenes. They are:

1. recognition of the crime scene and the role of first responders;
2. identification of appropriate expertise and the problem of ‘extended’ expertise;
3. effective control of complex crime scenes.

Recognition of the crime scene and the role of first responders

All police organisations follow basic forensic operating standards (*R v Stafford*) in order to maintain the integrity of crime scenes. These protocols and procedures exist in order to achieve continuity of the chain of evidence and the integrity of trace evidence gathered. However, these procedures will only be followed once a decision has been made that a crime has occurred. An incident has first to be recognised as a possible crime. Only then can it be sealed and processed. This raises the question of who makes this decision and at what point in the police response? Both the case studies discussed in this article demonstrate the problems that flow from not identifying a crime and not sealing a scene as early as possible. A crime scene is a dynamic event and the processing of a scene is a reconstructive process. The sooner the recording of the scene begins, the more confident the crime scene examiner (and the investigator) can be in their perspectives and opinions regarding the event (Garrison 2003:73).

The dynamic nature of crime scenes means that if they are not processed in a timely manner, they are difficult (if not impossible) to ‘fix’ afterwards. The mantra for crime scene examiners is ‘get it right the first time’ (Robertson 1989).

The goals in sealing a crime scene are to reduce scene contamination and traffic, to maintain and collect quality traces, and to record the scene in a condition as close as possible to the timing of the event itself. This is clearly stated by a veteran forensic investigator:

High, unnecessary crime scene traffic turns processing into a nightmare. All those feet tramping through the room or the field, obliterating cues, adding to the trace evidence at a scene and distracting officers who are working it from their jobs, combine to add an unnecessary challenge to ... investigations. (Moore 2005:130)

The importance of making a decision early to seal a scene places pressure on first responders. As demonstrated in the case studies, the actions and responses of people at the scene (police officers, emergency services personnel and the public) are determined by whether it is treated as a crime or not. In some cases, whether to call an incident a crime is not clear-cut, especially in cases where there is (or has been) an attempt to conceal a crime. However, given the negative consequences of not recognising a crime scene, a sound risk management principle would suggest that first responders should err on the side of caution;

in essence, if one considers that an incident is serious, one can always lower the bar afterwards. This is not to suggest that *all* scenes should be treated as crime scenes or that all crime scenes should demand the same level of resources. The decision to declare a crime scene is a judgment call, but one that needs to be made early. At the same time, once an incident is considered to be a possible crime, the scene has to be scaled appropriately (Robertson 1989). First responders usually learn about crime scenes during police training, while on the road during their traineeship and from textbooks on crime scene processing and management (Fisher 2005; Lee, Palmbach and Miller 2001; Horswell 2004). Given the importance of this issue, future research could explore the effectiveness of the training of junior police on crime scene identification and management, the type and level of exposure by new recruits to the textbooks on recognising a crime has taken place and sealing a scene, and identify improvements that could be made to avoid problems and delays in the recognition of a crime scene.

Identification of appropriate expertise and the problem of 'extended' expertise

Expert opinion, and what counts for expert opinion, is a topic that has come under scrutiny in recent years in relation to whom the criminal courts regard as 'having expertise' (see ALRC 2006); *F v The Queen*; *HG v The Queen*), as well as what the coronial courts expect from expert witnesses (Frawley 2006). According to McClellan (2009), with the increased reliance on specialised knowledge in society, the role of experts in the criminal justice system has expanded so that they now play a crucial role in many civil and criminal trials. Of concern to many is the reliability and validity of the expertise presented in courts (Edmond and Roberts 2011). One aspect that McClellan (2009) noted as potentially problematic is the danger of expert witnesses exerting too much influence in determining the facts, rather than leaving the fact-finding to the courts. According to our data, these same issues that McClellan (2009) and Edmond and Roberts (2011) have voiced concerns about for the courts are relevant to the decisions made at the crime scene regarding whose expertise is called upon to assist in determining 'what happened'. Case Study 1 clearly illustrates that relying on the appropriate forensic expertise at the crime scene is vital in the decision about whether and/or how a police or coronial investigation will proceed. A number of factors are relevant here: first, the level of forensic awareness of the police officer attending the incident and whether they have the capability to determine the actual expertise of the person they rely on; second, accessibility to forensic experts, especially in non-metropolitan areas.

A number of studies have noted the low level of forensic awareness among front-line police officers (Tilley and Ford 1996; McCulloch 1996; Julian 2005). Furthermore, many front-line officers are also junior in their careers. Although they may have been exposed to critical incidents (suicides and non-suspicious MVAs), they may not have been regularly exposed to homicide scenes or forensic experts. When a low level of forensic knowledge combines with low exposure to suspicious/crime scenes, junior front-line responders may be heavily reliant on 'expert advice' to assist them in determining what has occurred.

The culture of policing encourages officers to call upon other police officers before they will approach forensic scientists (Julian 2005). Trust is a key ingredient in determining whom an officer will approach; experts who have assisted in previous investigations and who have established relationships of trust and rapport with individual officers are more likely to be approached. Police culture and existing relationships may, therefore, determine the decision about which expert to rely upon, rather than the adoption of a scientific and/or legal approach to the decision-making. This can lead to the well-recognised problem of experts acting outside their area of expertise (Cunliffe 2011).

Regardless of the motive for why people act beyond their area of expertise (whether it be self-interest or wishing to assist the police investigation, especially in a regional area where other forensic experts are simply not available), the outcomes for justice can be less than optimal. There are significant flow-on effects of not calling, or having, the ‘right’ expert at the scene. In Case Study 1 it impacted upon the decision to delineate the incident as ‘not-suspicious’ and led to the loss of forensic evidence (physical and trace) from the homicide scene, as well as the staged MVA scene. In addition, there were significant additional costs in recovering forensic evidence once a crime was identified, and further emotional and financial costs associated with the exhumation, second post-mortem and more extensive investigation. The question of whose expert opinion is accepted at the scene is a significant one. The ‘right’ expert is identifiable if people ask the right questions and are aware of the problems of prejudging an event. In section 79 of the *Evidence Amendment Act 2008* (Cth), three questions are asked of the admissibility of opinion evidence into criminal trials: does the witness have specialised knowledge; is that knowledge based on the person’s training, study or experience; and is the opinion of the witness wholly or substantially based on that knowledge. Whether these types of guidelines would assist front-line police to identify ‘the right advice’ at the scene may benefit from further exploration.

Effective control of complex crime scenes

The issues discussed so far point to the importance of decision-making at the crime scene over and above what is currently contained in the protocols on crime scene processing. A further critical issue identified through both case studies relates to who is in charge of the crime scene once it is established. As discussed above, the integrity of the scene must be maintained and, in complex crime scenes, someone needs to coordinate the activities of all the personnel involved (eg fire, ambulance and public). As noted by Fraser (2008):

The [forensic] investigation of crime, in particular major and serious crime, is a dynamic process that requires structured management to ensure the effective use of resources, to manage risks and to optimize outcomes.

At the scene of a complex crime, there may be personnel from a number of agencies as well as members of the public. Effective crime scene processing can only occur if the scene has been sealed early enough and if all personnel at the scene are aware of the forensic process and their roles at a crime scene. If these roles are not clear, conflicts can arise between personnel from different agencies. For example, in Case Study 2 above, conflicts arose between police and forensic personnel, between various forensic personnel and between the managers of different crime units who were responsible for resourcing issues. As one of the forensic officers explained:

Then this led to a series of meetings where we were saying certain things, they [police] were saying certain things, they were blaming us for a poor examination of the scene ... I’ve actually ended up pulling out now from being involved in the meetings because it was just too frustrating and I felt there was some conflict there with the investigators ... so I left the investigation. (Z4 2011)

The management of complex crime scenes requires a coordinated approach by police and emergency services. It highlights the need for inter-agency practices to be known and adhered to between emergency services (fire, ambulance etc.) and police. The practices must also be based on agreed understandings of what people’s roles are and how certain behaviours undermine an investigation. There is a need for emergency services personnel to be trained in the forensic process. It is vital that paramedics and firefighters see themselves as having a dual role; that is, in saving lives as well as assisting in achieving an effective and efficient forensic investigation. For example, protocols may be established in relation to order of response.

Conclusion

Previous studies and reports have identified a number of the issues discussed here as critical to good crime scene processing and, thus, to the overall success of the criminal investigation (Tilley and Ford 1996; Sorochan and Thomson 2006; *R v Stafford*). This has led to the development of protocols for effective crime scene processing in countries such as the United Kingdom, Canada and Australia. These include guidelines for good practice such as:

The victim or reporter of the incident needs advice on crime scene preservation if best use is to be made of any potential forensic evidence which may be available.

The first officer attending ... needs sufficient understanding of forensic science matters to come to an informed judgement. If a scene is to be examined FOAs² need to know what needs to be preserved and how to preserve it. (Tilley and Ford 1996:50)

Guidelines for processing crime scenes effectively, however, tend to focus on procedures for: (i) maintaining the integrity of the crime scene once it has been designated as such; (ii) maintaining a consistent chain of evidence; and (iii) ensuring the integrity of any physical and/or scientific evidence gathered. Although focus is given to who should manage a crime scene, limited focus is given to how a crime scene can be managed well. For example, in the European Crime Scene Management *Good Practice Manual* it states that 'once a crime scene has been designated as such, then a forensic officer/scientist is appointed as the scene manager. They are in complete charge of how the scene is worked, and in what order experts are called to examine the scene' (Napper 2009, cited in *R v Stafford*). Although recent studies have noted the importance of leadership in crime scene management (Pepper 2010), what actual leadership looks like and how to 'do leadership' in practice is often missing (Stelfox 2011).

Our research on the effective use of forensic science in policing has led us to identify the management of complex crime scenes as critical in the forensic investigation. The critical issues we have identified often lie outside the parameters of established guidelines and protocols. In this article, we presented the issues we have identified that focus on decision-making processes and the management of complex scenes (such as: Who decides a crime has occurred and how is the decision made? Which experts can be relied upon to establish what happened at the scene? How do various agencies work together at the crime scene? What are the protocols and who is in charge? How are good crime scene management and leadership skills learned, developed and practised?). In this article we have not attempted to provide solutions to the issues we have raised, although we have identified a few key aspects for consideration. Strong leadership and good management skills are necessary if a complex crime scene is to be processed effectively and efficiently (especially where personnel from numerous agencies and the public are present). The value of forensic evidence in supporting a criminal investigation lies in the early designation of the crime scene and compliance with good practice guidelines for crime scene processing. This can be achieved where both first responders and crime scene managers know how to ask the 'right' questions, question assumptions and hypotheses made about what may have happened, and have a high level of forensic awareness.

The purpose of this article was to raise awareness of what can go wrong at crime scenes and why this occurs. Within an intelligence-led policing paradigm, forensic evidence is increasingly relied upon to support and direct criminal investigations. However, one of the

² First Officers Attending.

critical challenges for contemporary policing is the integration of scientific examinations into the overall investigation (Fraser 2000). A forensically-driven investigation (Fraser 2008) is reliant on the quality of the evidence collected at the crime scene. We, therefore, argue that what happens at the front-end of an investigation is crucial to justice outcomes. The crime scene, thus, deserves much greater attention from researchers (criminologists and forensic scientists), as well as practitioners.

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Select interviews

Interview with S12, police detective (11 January 2011)

Interview with V44, police detective (1 November 2011)

Interview with Z4, forensic scientist (3 May 2011)