

Excited Delirium Syndrome (ExDS):
Understanding the Issues and Reducing the Risks
Associated with Police Use of Force

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Abstract

The review of sudden and unexpected in-custody deaths (I-CDs) clearly demonstrates that there is a cluster of features which indicate that a subject is suffering from a medical emergency. For those who most frequently deal with these subjects (e.g., law enforcement, paramedics, emergency physicians, medical examiners) this is a real issue with serious implications. The labelling of this cluster of features as Excited Delirium Syndrome (ExDS) continues to be contentious. However a standardized and concise label with which meaning (e.g., medical emergency) can be assigned is necessary for the recognition, identification, intervention and treatment of these subjects. Additionally, despite there being many risk factors and a multitude of etiologies and pathophysiologies for ExDS, there are prevention and intervention strategies that can be employed within these dynamic and rapidly unfolding events to diminish adverse outcomes.

Through the theoretical lens of symbolic interactionism and the sociology of diagnosis, this research examines the meaning attributed to ExDS, how this meaning influences actions as well as the risks and benefits of medicalization. This research presents promising intervention strategies for gaining control of these subjects, as well as risk factors and officer safety concerns. Furthermore, through the use of grounded theory and excerpts from use of force reports, this research provides an interpretive account of the extreme and violent nature of encounters with probable cases of ExDS, providing a better understanding of these situations.

This research represents a new area of inquiry into non-fatal cases of ExDS and the prevention of sudden and unexpected I-CDs. The use of a mixed methods research

design utilizes the strengths of qualitative and quantitative methods to analyze police use of force reports. This provides the opportunity to triangulate the results from each of these differing methodological approaches in order to elucidate, validate and generalize the findings. This gives both the depth and breadth required to inform law enforcement training and policy in the area of use of force and medically-high risk situations. As such, this research provides grounded recommendations for policy and training as a delivery mechanism of meaning as well as for equipment and use of force reporting. Thus, the overall focus and intent of this research is reducing the risk of I-CDs and improving police and public safety.

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Dedication

This thesis is dedicated to my beautiful wife Victoria. Without your love, support and patience, I would not have made it through this endeavor. To my daughter Quinn, for keeping me energized and helping me gain a better understanding of symbolic interactionism by letting me watch you learn and grow into your own little person. Also, to baby Bodie, for keeping me motivated and on a strict timeline.

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List of Acronyms

APA	American Psychiatric Association
CCC	Criminal Code of Canada
CEW	Conducted Energy Weapon (i.e., Taser)
DSM	Diagnostic and Statistical Manual of Mental Disorders
EMS	Emergency Medical Services
ExDS	Excited Delirium Syndrome
IACP	International Association of Chiefs of Police
ICD	International Classification of Diseases
I-CD	In-Custody Death
IMIM	Incident Management/Intervention Model
NAME	National Association of Medical Examiners
OC Spray	Oleoresin Capsicum Spray
RCMP	Royal Canadian Mounted Police
SB/OR	Subject Behaviour/Officer Response
WHO	World Health Organization

1 Chapter: Introduction

The history of empirical science shows that the reality of the empirical world appears in the “here and now” and is continuously recast with the achievement of new discoveries. The danger of the belief that the reality of the empirical world exists in a perpetually fixed form comes in the natural disposition to take existing knowledge of that reality as constituting the perpetual fixed form. Such a disposition, as history shows, can be a formidable blockade to new inquiry and new discovery. (Blumer 1986:23)

In Canada, the police are responsible for ensuring public order and safety and when members of the public are faced with circumstances beyond their control, they often involve the police as a public agency to restore that order (Royal Canadian Mounted Police 2009a). As part of their duties, the police are occasionally required to use force as a mechanism to re-establish control which is authorized by the Criminal Code of Canada (CCC). Section 25(1) of the CCC states, that when a police officer is justified and acts on reasonable grounds, they are authorized “in using as much force as is necessary for that purpose” (Department of Justice 1985a). In approximately 2.3% of these use of force encounters, the police will be responding to individuals likely suffering from Excited Delirium Syndrome (ExDS) (Hall and Votova 2013). ExDS has been defined as “a state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, hostility, exceptional strength and endurance without apparent fatigue” (Morrison and Sadler 2001:46). The police are often requested to attend these scenes because the subject is violent and a threat to themselves and others. As a result, the subject needs to be controlled to stop their behaviour, maintain public safety and ensure that they receive the necessary medical attention.

These encounters however, can result in the sudden in-custody death of the subject either “during or following an episode which often includes a struggle with police and the use of physical restraint and in which an autopsy fails to reveal evidence of sufficient trauma or natural disease to explain the death” (DiMaio and DiMaio 2004:1). Due to the numerous co-factors often involved in these deaths including substance use, mental health issues, poor physical health, psychological and physiological stress, as well as a prolonged struggle; ExDS has remained a “contested diagnosis” (Jutel 2011a:77) in the medical field with an unknown and varying pathophysiology. Currently ExDS is used primarily by individuals who encounter these subjects most frequently; including police, paramedics and emergency physicians as a way of identifying and responding to a medically high-risk situation. Coroners will often use ExDS to explain a cause or associated cause of death. The lack of formal unique recognition for Excited Delirium from the American Psychiatric Association (APA) and World Health Organization (WHO) have served to support criticism that it is simply a diagnosis made up by law enforcement “as a way of deflecting the investigation of such deaths away from the actions of law enforcement personnel” (Ranson 2012:667). The contentious use of the conducted energy weapon (CEW) or Taser, a tool that is often used to control these subjects, has also contributed to the controversy surrounding this debate as it is viewed by some in the media, general public and field of critical criminology as a cover-up for excessive force.

1.1 Purpose of the Study

Research in the area of Excited Delirium Syndrome has typically focused on the review of in-custody deaths, or fatal cases of ExDS. This research has focused primarily

on defining the syndrome, identifying causal/risk factors, determining an association with police use of force and restraint, as well as providing behavioural indicators (Grant et al. 2009; Mash et al. 2009; O'Halloran and Lewman 1993; Pollanen et al. 1998; Rutenber et al. 1997; Rutenber, McAnally, and Wetli 1999; Stratton et al. 2001). Other research in the area provides descriptive accounts, discusses its existence and importance in policing and medical communities, and develops intervention and aftercare strategies (American College of Emergency Physicians Excited Delirium Task Force 2009; Blaho et al. 2000; Bunai et al. 2008; Burnett et al. 2012; Das et al. 2009; DiMaio and DiMaio 2009; Gordon and Schmelzer 2012; Jauchem 2010; Jauchem 2011; Johnson et al. 2012; Kleinman 2009; Kodikara, Cunningham, and Pollanen 2012; Kutcher et al. 2009; Morrison and Sadler 2001; Otahbachi et al. 2010; Paquette 2003; Penders, Gestring, and Vilensky 2012; Ranson 2012; Samuel, Williams, and Ferrell 2009; Sztajnkrzyer and Baez 2005; Takeuchi, Ahern, and Henderson 2011; Truscott 2008; US Department of Justice 2011; Vilke, Payne-James, and Karch 2012; Vilke et al. 2012b).

Canadian research conducted by Chris Lawrence (2005), a former police officer and a defensive tactics instructor at the Ontario Police College, focused on officer perceptions of how to effectively respond to subjects experiencing ExDS. While most research on ExDS focuses on fatal cases, collaborative work between Dr. Christine Hall and several Canadian police services over the past several years has produced prospective research on the frequency at which police officers encounter individuals displaying features of ExDS (Hall and Butler 2008; Hall et al. 2009; Hall and Votova 2013; Hall et al. 2013). These features of ExDS include “pain tolerance, constant/near constant physical activity, not responding to police presence, superhuman strength, rapid

breathing, not tiring despite heavy physical exertion, naked/inappropriately clothed, sweating profusely, hot to the touch, and attraction to/destruction of glass/reflective surfaces” (Hall et al. 2013:102). A case with six or more of these features present would “describe an individual who is highly abnormal, and who is in a state that could only be described as a medical emergency” (Hall and Votova 2013:35) or a probable case of ExDS.

Building from the Canadian research conducted by Dr. Hall and Chris Lawrence, the current line of inquiry will target non-fatal probable cases of ExDS, seeking to answer the overarching research question: *What does RCMP use of force data reveal with regards to police perceptions and interventions on probable cases of Excited Delirium Syndrome and how can this be used to improve police and public safety?* Compared to previous research, this mixed methods research approach, which utilizes a micro-sociological theoretical framework (i.e., symbolic interactionism), will provide a broader and more nuanced understanding of these encounters. Specifically, the research will present insight into officers’ perceptions, interpretations, association of meaning and action. The key risk factors, types and effectiveness of interventions, as well as injury sustained by both the subject and/or officer and treatment of ExDS will also be discussed at length. As an effort to evaluate and identify the operational and safety implications around this syndrome, the quantitative portion of this research will test the following four hypotheses.

Hypothesis 1:

H₀: There is not a significant difference between the number of use of force events (i.e., separate interventions differing either temporally, by level or type of force employed and/or by officer) applied to probable cases of Excited Delirium Syndrome compared to other subjects.

H₁: There is a significant difference between the number of use of force events applied to probable cases of Excited Delirium Syndrome compared to other subjects.

Hypothesis 2:

H₀: There is not a significant difference between the officer's perceived effectiveness of their use of force on probable cases of Excited Delirium Syndrome compared to other subjects.

H₁: There is a significant difference between the officer's perceived effectiveness of their use of force on probable cases of Excited Delirium Syndrome compared to other subjects.

Hypothesis 3:

H₀: There is not a significant difference in the risk of injury to probable cases of Excited Delirium Syndrome during use of force encounters compared to other subjects.

H₁: There is a significant difference in the risk of injury to probable cases of Excited Delirium Syndrome during use of force encounters compared to other subjects.

Hypothesis 4:

H₀: There is not a significant difference in the risk of officer injury when applying force to probable cases of Excited Delirium Syndrome compared to other subjects.

H₁: There is a significant difference in the risk of officer injury when applying force to probable cases of Excited Delirium Syndrome compared to other subjects.

Furthermore, this quantitative analysis will attempt to identify which intervention options are most effective for controlling these subjects with the least amount of struggle, as well as present the lowest risk of subject and officer injury. It is hypothesized that intervention options that offer greater time and distance will be best suited. Since symbolic interactionism is a micro-sociological theory, its application will be reserved for the qualitative inquiry discussed next.

The qualitative portion of the research will be used to elucidate and triangulate the quantitative findings, particularly around the risk assessment, intervention techniques, effectiveness of the intervention and injury/treatment. Furthermore, the qualitative analysis will assist in answering the following questions:

1. What is the context surrounding these situations?
2. What are the police perceptions in dealing with these subjects and meaning that they give to the term Excited Delirium Syndrome? How does this meaning affect officers' actions?
3. What is the influence of policy and training on police perception and understanding?
4. What impact does prior knowledge of Excited Delirium Syndrome and its associated indicators have on a police officer's response (perception, intervention/de-escalation, aftercare, etc.)?
5. What, if any, protective/risk factors can be identified?
6. How can this information be used to improve police and public safety?

The use of symbolic interactionism will provide a robust theoretical lens to analyze these encounters as it will provide greater context and a more nuanced understanding of an officer's individual perceptions, interpretations, association of meaning and action.

There are numerous implications for this research due to the use of mixed methods, the size of the study population, the theoretical approach, the focus on non-fatal cases, as well as the officer's perceptions. First, there are many unknowns around Excited Delirium Syndrome and in particular non-fatal cases; including implications for law enforcement and substantiating Canadian prevalence rates. Since I¹ am a researcher with the RCMP, it is imperative that this research is pragmatic to improve police and public safety. As such, this research is taking a mixed methods approach which will allow for qualitative and quantitative results to be triangulated, providing both generalizability and context. Through utilizing these methodologies, the research aims to provide grounded recommendations and intervention strategies that can guide law enforcement policy, training and equipment with the intent to improve police and public safety, as well as reduce the risk of sudden in-custody deaths. Second, research by Hall and Votova (2013) was conducted on a study population of 4599 subjects from four cities over approximately seven years with 108 (2.3%) subjects displaying six or more concomitant features of ExDS. The current inquiry will target a more diverse and widespread population policed by the RCMP over a two year time period and as such, is anticipated to yield a larger study population and detailed officer accounts surrounding the use of force. This will build on the current state of knowledge surrounding ExDs. Third,

¹ I will refer to myself in the first person, in support of the theoretical framework, research findings and recommendations (see 4.7).

research on Excited Delirium Syndrome is typically produced from the medical perspective, thus there is little in the way of socio-theoretical approaches to the analysis of this syndrome. Additionally, sociological research of police use of force encounters is generally analyzed with a critical criminology and macro perspective which fails to holistically consider the dynamic and complex nature of these individual human interactions. By using symbolic interactionism as the micro-sociological theoretical framework, particularly the work of Herbert Blumer (1986), this research will attempt to evaluate the effects of current training on the attribution of meaning to these subjects and how that influences police officers' response and intervention. Depending on the results obtained, this will have implications for policy and training as a delivery mechanism of meaning, as well as a potential opportunity for enhancing police officer empathy and understanding or taking on "the role of the other" (Mead 2009:254). Furthermore, this research will test the practical applicability of this micro-sociological theoretical framework for the analysis of police use of force encounters. Fourth, this research will attempt to create a storyline or identify a case study that will promote an enhanced police and societal understanding of the issue and realities surrounding these encounters. Lastly, this research seeks to validate or refute current research in the area, and may provide support for a clinical case definition which is an identified gap (Hall et al. 2013). This will further the debate over the existence of Excited Delirium Syndrome which addresses the recommendations outlined in several coroner's jury reports emphasizing the need for further research in this area.

1.2 Outline and Procedures

Due to the controversial medico-legal nature of this research and its potential implications for police and public safety, I am not taking this endeavor lightly. As such, significant efforts will be taken to ensure the literature review is comprehensive, covering all facets of ExDS to ensure the current line of inquiry is appropriately informed. As such, Chapter 2 will conduct a review of the literature including: police and the use of force; the history, causes, indicators and intervention strategies for ExDS; a review of coroners' recommendations from in-custody deaths involving ExDS; and the Canadian context surrounding this syndrome. The latter part of Chapter 2 will focus on the theoretical framework that will be used for this line of inquiry. This will include symbolic interactionism, particularly the work of Blumer and Mead, labelling theory, as well as the medicalization of deviance and the sociology of diagnosis due to ExDS being a "contested diagnosis" (Jutel 2011a:77). Chapter 3 will present the source and content of the data and an overview of mixed methods research. Moreover, this chapter will discuss the quantitative methods (i.e., logistic and Poisson regression) and qualitative methods (i.e., grounded theory) to be used, as well as the assumptions associated with each methodology. Chapter 4 will present the quantitative findings including descriptive statistics and results pertaining to the four hypotheses. Chapter 5 will outline the results of the qualitative inquiry, providing greater context to the quantitative analysis and employing the micro-sociological framework of symbolic interactionism. Finally, Chapter 6 will triangulate and discuss the results from both the qualitative and quantitative inquiry; providing conclusions with implications for theory, policy, training and equipment.

2 Chapter: Review of the Literature and Theoretical Framework

2.1 Police and the Use of Force

2.1.1 Background

In Canada, the police are responsible for ensuring public order and safety. When members of the public are faced with circumstances beyond their control, they often involve the police as a public agency to restore order (Royal Canadian Mounted Police 2009a). As part of their duties, the police are occasionally required to use force as a mechanism to re-establish control. This is not a common occurrence, with a Canadian study determining that only 0.14% of over 3.5 million police public interactions involved the use of force (Hall and Votova 2013). Correspondingly, the unpublished results of a meta-analysis that I conducted on the 20 largest municipal police forces found that only 0.168% of calls for service and 2.4% of arrests involved the use of force (Baldwin 2013). Results from a 2002 national survey in the US determined that 1.5% of police public contacts involved the use or threat (e.g., the reference or display of an intervention option for the purpose of deterrence and/or de-escalation) of force (Durose, Schmitt, and Langan 2005).

The authority to use force is outlined in the Criminal Code of Canada (CCC), which states that when a police officer is justified and acts on reasonable grounds, they are authorized “in using as much force as is necessary for that purpose” (Department of Justice 1985a). In Canada, the appropriateness of the use of force is based on two tenets; whether proportionality of force was “reasonable” and “necessary” (Department of Justice 1985a) given the circumstances. In the US Supreme Court case of *Graham v. Connor*, Chief Justice Rehnquist (1989) stated that the:

“reasonableness” of a particular use of force must be judged from the perspective of a reasonable officer on the scene, and its calculus must embody an allowance for the fact that police officers are often forced to make split-second decisions about the amount of force necessary in a particular situation....rather than with the 20/20 vision of hindsight. (p.490)

This is an important standpoint as use of force encounters are extremely complex and dynamic situations. What is more, the intricacies of these situations are also often compounded by the effects of critical incident stress including; auditory exclusion, visual impairment, increased heart rate and deterioration of cognitive processing which affects judgment, decision-making, fine motor skills and memory (Bennell, Jones, and Corey 2007; Grossman and Christensen 2007:55). As such, the Canadian Supreme Court judgement in *R. v. Nasogaluak* (2010:228), similarly states that: “police actions should not be judged against a standard of perfection. It must be remembered that the police engage in dangerous and demanding work and often have to react quickly to emergencies. Their actions should be judged in light of these exigent circumstances.” Furthermore, building on UK case law of *Palmer v. R.* (1971), which discussed the exactitude of force in defensive action, Judge Anderson in the case of *R. v. Bottrell* (1981) dissented that:

...in deciding whether the force used by the [officer] was more than necessary in self-defence you must remember that one cannot be expected to weigh to a nicety, the exact measure of necessity, the defensive action; it was put this way by a Judge in one case; detached reflection cannot be demanded in the presence of an uplifted knife. (p.17)

This justice's comments further demonstrate that an external retrospective examination of such incidents must place the appropriate weight upon the officer's risk assessment, the realities of policing, as well as human psychological and physiological limitations. These

perspectives are important when considering any actions of police officers, though are particularly essential in situations where they are dealing with extremely violent subjects, such as those suffering from ExDS. To provide further context around the process by which police officers assess and respond to these encounters, the following section will discuss the Incident Management/Intervention Model (IMIM), which is a critical component to the use of force and police training.

2.1.2 Incident Management/Intervention Model (IMIM)

Use of force models or visual aids have been developed for training purposes and for officers to “reference when making decisions and understanding and explaining their actions with respect to the use of force” (Hoffman, Lawrence, and Brown 2004). However, traditional linear use of force continuums (Figure 1) fail to recognize the dynamic and evolving nature of these events. It is not simply an, if this-then that, type of equation or an additive model. Instead, a police officer’s decision to utilize force and at what level, is assisted by their continuous risk assessment which takes into account “the totality of the situation, including the officer’s perceptions, assessment of situational factors present, and subject behavior” (Royal Canadian Mounted Police 2009a). To properly represent this and to promote consistency in use of force training, practice, and standards in Canada, in 1999, use of force trainers and experts from across Canada and the US developed a “single model or ‘framework’ [Figure 2] describing the use-of-force process, endorsed by the Canadian Association of Chiefs of Police, that can be used consistently by police services and police officers across the country” (Hoffman, Lawrence, and Brown 2004).

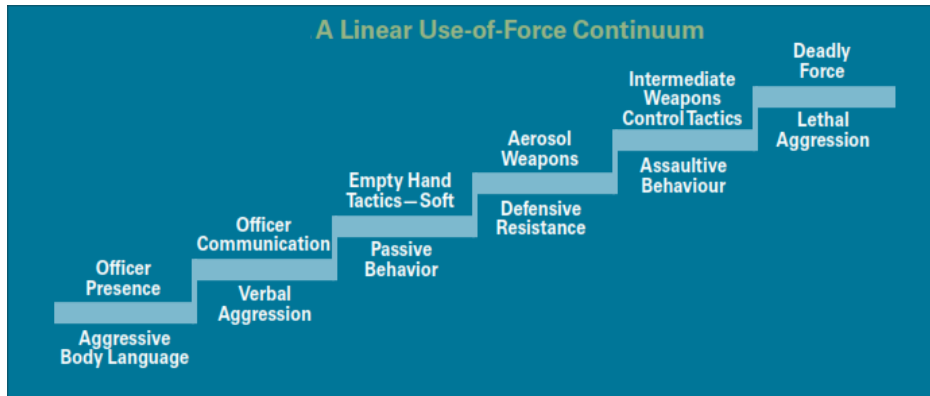


Figure 1: Linear-Progressive Decision-Making Process (Hoffman, Lawrence, and Brown 2004)



Figure 2 – National Use of Force Framework (Hoffman, Lawrence, and Brown 2004)

The RCMP has based their Incident Management/Intervention Model (IMIM) displayed in Figure 3, off of the National Use of Force Framework. The RCMP (2009a), list the following six principles that underlie the IMIM:

1. The primary duty of a peace officer is to preserve and protect life.
2. The primary objective of any intervention is public safety.
3. Peace officer safety is essential to public safety.
4. The IMIM is consistent with federal statute law and common law authorities and in no way replaces or augments the law.
5. The intervention model must always be applied in the context of a careful assessment of risk, taking into account

- the likelihood and extent of life loss, injury, and damage to property as a result of the intervention.
6. Risk assessment is a continuous process and risk management must evolve as situations change.

This framework emphasizes the role of the officer in ensuring police and public safety as well the purpose of the IMIM as a graphical depiction to assist with decision-making during and articulation after these dynamic and continuously evolving events.

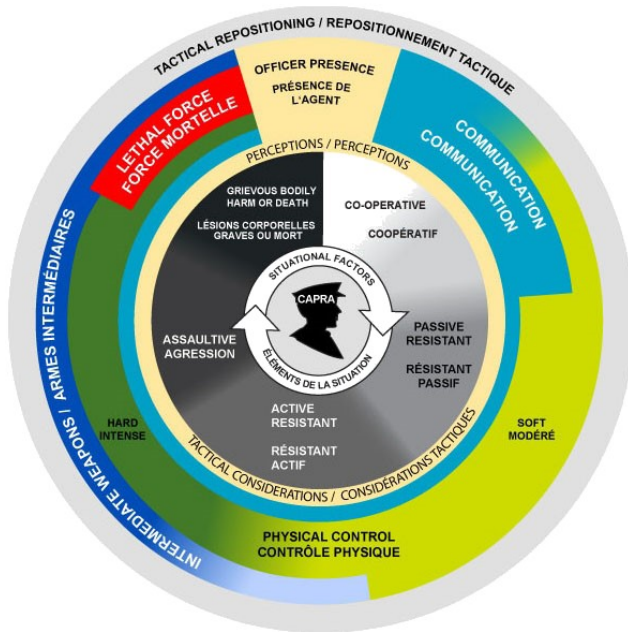


Figure 3 - Incident Management/Intervention Model (Royal Canadian Mounted Police 2009a)

At the center of the model is the officer and CAPRA, which is the RCMP's Community Policing Problem Solving Model and stands for "clients", "acquire/analyse information", "partnerships", "response" and "assessment of action taken" (Royal Canadian Mounted Police 2008). An officer's risk assessment is made up of several components including situational factors, subject behaviours, the officer's perception, and tactical considerations.

Situational factors includes the environments in which the incident occurs such as whether it was indoors or outdoors, lighting and weather conditions. The number of

subjects and officers present at the scene will affect the officer to subject ratio and thus, influence the officer's perceived risk. However, while this may affect an officer's risk assessment, a study by Castillo, Prabhakar and Luu (2012) did not find that the number of officers on scene was significantly associated to subject or officer injury. Situational factors also include the subject's perceived ability, which is influenced by the size and strength of the subject; emotional state; the influence of drugs and/or alcohol; and the presence or availability of weapons. In their study of use of force encounters, Hall and Votova (2013) found that 61% of subjects were intoxicated by alcohol, 25% by drugs and 21% were under emotional distress or suffered from mental illness. Kaminski, DiGiovanni and Downs (2004) established that these judgementally impaired subjects have significantly increased odds of being involved in a use of force encounter. While it is intuitive that these factors might increase the risk of subject and officer injury, studies have not indicated such an association (Castillo, Prabhakar, and Luu 2012; Kesic, Thomas, and Ogloff 2013). Furthermore, the presence of weapons has one of the largest associations with officer injury (Castillo, Prabhakar, and Luu 2012). Other situational factors include previous knowledge of the subject including prior dealings or information provided by a complainant, time and distance which involves the serious and imminence of the threat, and threat cues which can involve aggressive gestures or indicators of non-compliance.

Subject behaviour is typically broken down into five ordered categories on the IMIM: cooperative, passive resistance, active resistant, assaultive and threat of grievous bodily harm or death (Royal Canadian Mounted Police 2009a). Subject behaviour has been shown as a significant factor associated to subject and officer injury (Castillo,

Prabhakar, and Luu 2012; MacDonald, Kaminski, and Smith 2009). Passive resistance is refusal or non-compliance to lawful orders with little to no action, while active resistance includes a component of non-violent action such as physical evasion. Assaultive behavior is any application of force by the subject or if the subject “attempts or threatens by an act or gesture, to apply force to another person, if he/she has, or causes that other person to believe upon reasonable grounds that he/she has the present ability to effect his/her purpose” (Royal Canadian Mounted Police 2009a). The most severe level of subject behavior is where the “subject exhibits actions that the officer reasonably believes are intended to, or likely to cause grievous bodily harm or death to any person” (Royal Canadian Mounted Police 2009a). Bodily harm has been defined in the CCC (1985a:s.2) as “any hurt or injury to a person that interferes with the health or comfort of the person and that is more than merely transient or trifling in nature”. Grievous or serious bodily harm has not been defined in legislation, although in the Supreme Court Decision of *R. v. McCraw* (1991:80) the judge stated, “I would interpret ‘serious bodily harm’ as being any hurt or injury that interferes in a grave or substantial way with the physical integrity or well-being of the complainant”, concluding that “‘serious bodily harm’ means any hurt or injury, whether physical or psychological, that interferes in a substantial way with the integrity, health or well-being of a victim”. This demonstrates definitional and interpretative issues in the legal realm surrounding the subjectivity of harm and its various levels. Subsequently, the CCC provides peace officers with the authority to use lethal force in these situations. The CCC (1985a) states the following:

25(4) A peace officer, and every person lawfully assisting the peace officer, is justified in using force that is intended or is likely to cause death or grievous bodily harm to a person to be arrested, if

- (a) the peace officer is proceeding lawfully to arrest, with or without warrant, the person to be arrested;
- (b) the offence for which the person is to be arrested is one for which that person may be arrested without warrant;
- (c) the person to be arrested takes flight to avoid arrest;
- (d) the peace officer or other person using the force believes on reasonable grounds that the force is necessary for the purpose of protecting the peace officer, the person lawfully assisting the peace officer or any other person from imminent or future death or grievous bodily harm; and
- (e) the flight cannot be prevented by reasonable means in a less violent manner.

Hence, when the police encounter a subject who is presenting a substantial threat to the officer or the public and no lesser options are available to prevent such a threat, an officer is justified in neutralizing the threat through the means of lethal force. Such responses rely heavily on the officer's perceptions and interpretations of these situational factors and subject behaviour.

Officer perceptions are central to the current research, as well as the use of symbolic interactionism as a theoretical framework (discussed in the latter portion of the chapter). Perceptions vary from officer to officer which assists in explaining why two officers may respond differently in dealing with the same situation and subject, even when provided with corresponding information. Some individual characteristics that will influence an officer's perceptions and risk assessment are their "size/strength/overall fitness, personal experience, skill/ability/training, fears/confidence, gender, fatigue, injuries, critical incident stress symptoms, cultural background, sight/vision" (Royal Canadian Mounted Police 2009a). As an example, a smaller statured officer with little background in martial arts would likely perceive and respond differently to a large assaultive subject, than would a bigger officer who has a background in hand-to-hand

combat. These perceptions also change from one point in time to another. For example, as fatigue sets in during a physical struggle an officer's perceived abilities, risk and fears, as well as the effects of critical incident stress will likely vary, causing the officer's perception of the threat and their response to adjust accordingly. Lastly, tactical considerations are another component of an officer's risk assessment and are typically factors such as the availability of back-up officers and equipment, cover and concealment, and the ability to tactically reposition.

Police officers have many different intervention options when responding to an incident. First and foremost, the officers use their presence on the scene and communication techniques in attempts to deescalate situations. Canadian research conducted by Hall and Votova (2013) finds that 99.9% of police public contacts are resolved in this manner. When incidents escalate, use of force options include physical control techniques such pressure points, come-alongs, joint locks, takedowns, stuns and strikes and vascular neck restraint, followed by intermediate weapons such as oleoresin capicum (OC) spray, baton, the conducted energy weapon, extended range impact weapons (beanbag rounds), police service dogs and as a last resort lethal force (Royal Canadian Mounted Police, 2009). Hall and Votova's (2013) study identified that the majority of use of force encounters involve lower levels of force such as physical control techniques. However, research also indicates that officer's attempts to subdue a suspect with bodily force such as punches, kicks, take-downs, wrestling, and joint locks have shown the greatest likelihood of officer injury (Smith et al., 2010). This is of particular concern as physical control techniques are considered to be the lowest levels of force and are used most frequently by officers. The following section will discuss the role of use of

force reporting as this element is important for building upon current police and public safety research, as well as informing future policy and training.

2.1.3 Reporting, Oversight & Accountability

Hoffman et al. (2004) concluded that there is an “interrelation between the observed behaviors and the officer's response is by his or her perception and their tactical considerations. An officer's perception is his or her reality”. However, with the authority to use force, there is an “expectation that the individual police officers and their law enforcement organizations will be openly and publicly accountable for any use of force” (Hoffman, Lawrence, and Brown 2004) or for the intervention strategies that the officer elects to use to manage a situation. For such a situation, an officer may not necessarily be judged by what they believed, but instead “measured against what a reasonable, trained, prudent peace officer would do faced with a similar set of circumstances” (Royal Canadian Mounted Police 2009a). Therefore, police officers must be able to explain to an “investigator, a judge, a jury or any court of inquiry that what they did at any given moment of time when applying use of force was reasonable and necessary based on the totality of the circumstances” (Royal Canadian Mounted Police 2009b). As such, officers are required to complete use of force reports where they use “legal articulation [which] is the process by which an officer can explain clearly, concisely, and effectively the events that occurred before, during, and after an intervention” (Royal Canadian Mounted Police 2009a). Within these use of force reports the officer is expected in plain language to paint a verbal picture of their “perceptions at the time of the event, and what those perceptions meant to [them]” (Royal Canadian Mounted Police 2009a). For the RCMP, the standardized method of capturing legal articulation around the use of force is achieved

through the completion of Subject Behaviour/Officer Response (SB/OR) reports. These reports serve not only for court, oversight and accountability purposes, but provide the agency with the ability to conduct statistical and trends analysis to provide evidence based decision-making for policy, training and the procurement of equipment (Royal Canadian Mounted Police 2009b). These types of reports provide information related to rates of effectiveness, injury and in-custody deaths in use of force encounters and will be elaborated upon in the following section.

2.1.4 Injury, Effectiveness and In-Custody Deaths

It is important to identify some baselines rates of effectiveness and injury rates for the current research. However, the literature is lacking a comprehensive and standardized method for tracking the effectiveness and injury rates of use of force intervention options. This can be explained by the fact that both of these measures are subjective in nature and consequently, results are limited and varied. In one of the largest U.S studies by Alpert and Dunham (2010) which consisted of nine years of data and included 24,380 police-public encounters involving all levels of force, they found that 39% resulted in subject injury and 14% in officer injury. This is consistent with other American research such as Smith et al.'s (2010) study which found subject injury rates from various reporting agencies ranged from 17% to 64% and officer injury ranging between 10% and 20%. However, it has been noted that the majority of these injuries are “relatively minor, typically consisting of bruises, abrasions, and muscle strains and sprains” (Smith et al. 2010:425). Findings of Canadian research support this, with 20% of use of force resulting in officer injury, while only 9% require medical treatment (Hall and Butler 2008). Similarly, subject injury was documented in 42% of use of force encounters, with merely

15% requiring medical treatment (Hall and Butler 2008). Thus, both American and Canadian research has shown that subject and officer injuries commonly occur during use of force encounters but that these injuries are typically minor in nature.

In the United States, the use of physical force such as “arm/wrist lock, take down, block, punch or kick, striking or wrestling” (Alpert and Dunham 2000:42) has been identified within the literature as the most injurious police intervention in which 49% and 21% result in subject and officer injury, respectively (Alpert and Dunham 2010). Accordingly, physical force represented 70% of total subject injuries and 90% of all officer injuries (Alpert and Dunham 2010). Canadian research has shown differing results with 67% of physical control techniques resulting in subject injury (18% requiring treatment). However, Canadian officer injury rates are consistent with the American rates, with 22% resulting in officer injury, of which 6% required treatment (Hall and Butler 2008). Alpert and Dunham (2010) demonstrated a 22% subject injury rate for OC spray (13% of all subject injuries) and 14% rate of officer injury (25% of total officer injuries) in the U.S. Canadian research demonstrates similar but slightly lower rates for OC spray with 18% resulting in subject injury (4% requiring treating) and 11% in officer injury, none of which required treatment (Hall and Butler 2008). Furthermore, Alpert and Dunham’s (2010) American study presented a 25% subject injury rate for the CEW (14% of all subject injuries) and an officer injury rate of 8%, which was 13% of all officer injuries (Alpert and Dunham 2010). Canadian research demonstrates rates almost double those found in the American study, with the CEW causing subject injury in 55% of deployments (13% requiring treatment) and 17% ending in officer injury, of which 3% required treatment (Hall and Butler 2008). The Canadian research also provided injury

rates for the baton which caused injury in 61% of subjects and 29% of officers which treatment required in approximately half of all injuries. Lastly, Hall and Butler (2008) reported on the vascular neck restraint, and while there were only 17 uses of the technique in their study, 47% resulted in injury to the subject, though only one (6%) subject required treatment, while 23% resulted in officer injury with no officer requiring treatment. These results clearly indicate that both officer and subject injury are more likely sustained when physical control or hands-on tactics are employed during an encounter. These results are further supported in a study by Smith et al. (2010) where the use of physical force was found to increase the odds of subject injury by 54% while the odds of officer injury were three times higher. This study also demonstrated that the use of the CEW and OC spray was associated with significant (approximately 70%) decrease in the odds of subject injury, though the use of OC spray demonstrated a significant increase in the odds of officer injury” (Smith et al. 2010).

Most lacking in the literature is research surrounding the effectiveness of use of force intervention options. ‘Effectiveness’ in these incidents would typically be defined as de-escalating a situation, gaining the compliance of a subject and/or assisting in the control of a subject. Overall, Alpert and Dunham (2010) found the use of OC spray was effective between 85%-98% of the time. Similar results were found in a review of the use of OC spray by Queensland Police in Australia (Crime and Misconduct Commission 2005). In one American study, the CEW was found to be effective 85% of the time as it “achieved its primary objective: to successfully incapacitate a combative suspect without serious injury to the officer or suspect (White and Ready 2007:183). Similarly, in their 2009 annual report, the RCMP identified an 82% effectiveness rate for CEW

deployments, defining ‘effectiveness’ as a deployment that “resulted in control and/or de-escalation of the subject’s behavior.” (Royal Canadian Mounted Police 2010a). In a U.S. study by Mesloh, Henych and Wolf (2008), they rated effectiveness by whether additional force was required after the intervention. As such, chemical agents (e.g., OC spray) were 64% effective, CEW 69%, physical techniques ranging from 16%-41% and impact weapons (e.g. baton) 45% effective in that no further force was required (Mesloh, Henych, and Wolf 2008). These Canadian and international figures again demonstrate the benefits of intervention options like OC spray and the CEW which provide officers with greater time and distance from the subject, resulting in fewer injuries than the use of physical force. The varying methods of rating effectiveness; however, demonstrate definitional issues with regards to this subjective measure.

The most tragic outcome of any police encounter is the loss of life. While one lost life is too many, it is important to provide context around the prevalence of officer and subject fatalities. Canada and the U.S. do not provide comprehensive in-custody death data like those that can be found in the UK and Australia. However, in Campbell’s (2007:3) report on in-custody deaths (I-CD), he noted that “over the period from 2002 to 2006, a total of 80 persons died in RCMP custody, or an average of approximately 16 I-CD incidents per year”. From the approximately 200,000 prisoners processed annually by the RCMP, the in-custody death rate can be calculated at 0.008% or one in every 12,500 deemed to be in RCMP custody (Campbell 2007). Based on the RCMP policing approximately 20% of the Canadian population, this would provide an I-CD rate of approximately 0.00025 or one in every 400,000 people. It should be noted however that the RCMP’s broad definition of in-custody deaths includes: when a death occurs in police

custody for any reason and of which the leading cause was reported to be an overdose; the police are attempting to gain care, control or custody of the subject; a subject who dies after release if the arrest or custody was deemed a factor; or if a member's intervention may have been a factor in the death (Campbell 2007). In contrast, Antonowicz and Winterdyk (2014) who looked at deaths specifically in police custodial settings in Alberta, Ontario and BC, reported only 49 deaths in the ten year period of 2000 to 2009. In the UK, between 1998/99 and 2008/09 there were a total of 333 deaths defined as "those arrested or otherwise detained by the police and those which occur while a person is being arrested or taken into detention...[and] may have taken place on police, private or medical premises, in a public place, or in a police car or other vehicle" (Independent Police Complaints Commission 2011:2) providing an average of 30 deaths per year. Over the same period, Australia had 377 deaths "occurring in police institutional settings, such as cells, watchhouses or divisional vans, as well as deaths occurring in police custody-related operations, such as motor vehicle pursuits, sieges, raids and shootings" (Lyneham and Chan 2013:78) for an average of 34 deaths per year. To provide greater context, the average populations during this time period significantly differed across the three countries: 61 million in the UK; 32 million in Canada; and 21 million in Australia (The World Bank 2014). These population sizes provide I-CD rates of 0.00005% or 1 in 2 million for the UK and 0.00016 or 1 in every 600,000 for Australia which demonstrates quite a large disparity. If the aforementioned RCMP I-CD rates from 2002-2006 were utilized (one in every 400,000 people), then Canada would fall on the higher end of the I-CD spectrum compared to international rates. However, limited comparisons can be drawn to Canada due to the lack of data available, approximation of

the population, as well as definitional inconsistencies of I-CD. Moreover, to further contextualize these rates, in Canada one in 17,000 people (0.0058%) will die in a traffic accident and 1 in 57,000 (0.0017%) from homicide (Perreault 2013; Transport Canada 2013). Therefore, Canadian I-CD rates are substantially lower than traffic accident fatalities and homicides.

Within the RCMP study population, 19 (24%) of the 80 deaths were from officer-involved shootings (Campbell 2007). This use of lethal force resulting in death by police in Canada is not an overly frequent occurrence as there has been an average of 12 fatal police shooting deaths per year between the period of 1999 to 2009 (Parent 2011). During the ten year period from 2000 to 2009, there was a total of 68 officer fatalities in the line of duty or approximately 7 per year, of which an average of two per year were officers that were murdered (Dunn 2010; ODMP 2014). In the RCMP study population, 18 (22.5%) of the RCMP's deaths from 2002 to 2006 were deemed to be cases of ExDS and considered sudden and unexpected (Campbell 2007). Similarly, of the coroner's inquests ordered in BC between 2002 and 2010, 23 (15%) of 156 deaths were associated to "restraint/Excited Delirium" (BC Ministry of Justice 2013a). In relation to police use of force, Hall and Votova (2013:37) have noted the "true real world proportion of police use of force events that end with sudden, unexpected in custody death can be anticipated to be between 0.005% and 0.1% of police use of force, or a maximum of one tenth of one percent of police use of force". Due to the staggered and varied data collection periods at the numerous sites in Hall and Votova's (2013) study, it is not possible from the details provided to determine the sudden and unexpected in-custody death rate estimate for the Canadian population.

2.2 Excited Delirium Syndrome (ExDS)

2.2.1 Background



Figure 4 - Word Cloud of ExDS Literature

That a new disease would be manifested at this advanced day, in the calendar of medical history, is not without many precedents. That such should occur in the great family of maladies involving the nervous system, would be the least improbable, when we reflect how less than all others these have been studied, comprehended and treated, until within a comparatively recent period. (Bell 1849:99)

A chronic form of Excited Delirium Syndrome was first described by Dr. Luther Bell, a Superintendent at an Insane Asylum in 1849. His interest was piqued in these cases as they were “not unfrequently presented, and of the gravest moment, but of which [he] had no previous experience, and the authorities offered no distinct recognition” (Bell 1849:97). Bell (1849:99) further stated that with the continued discovery of other

“maladies involving the nervous system....that there is no improbability of new entries being made in the catalogues of nosology under the more exact observation and closer pathological deductions of our times”. Bell had seen 40 such cases in which subjects suffered of “fever and delirium” in which they displayed blind fury, attacking anyone that approached and resulting in a “struggle of utmost desperation, irrespective of the number or strength of those who may be endeavoring to restrain him” (Bell 1849:101). Of these cases, at least three quarters resulted in death while the others recovered completely. Although the onset was often by a sudden outbreak, the death of the individual was usually more chronic, occurring after a week of mental and physical deterioration. The condition was later coined by Kraines (1934:29) as “Bell’s Mania” noting similar diagnoses such as “typhomania, acute delirious mania (manic-depressive psychosis), delirium grave, acute delirium, specific febrile delirium, and collapse delirium” in which subjects displayed “exceedingly great overactivity; marked sleeplessness; great push of speech with statements that are disconnected at times by reason of the rapidity of flow; disconnected and poorly systematized delusions; transient hallucinations that border on illusions; appearance of confusion”. These chronic forms of ExDS disappeared with the introduction of anti-psychotics in the mid-1900s (DiMaio and DiMaio 2004). It reemerged however, in an acute form, present for only a few hours, over the past few decades. This could be indicative of its link to stimulant use such as cocaine and methamphetamine and the rise in the prevalence and use of those drugs (DiMaio and DiMaio 2004; DiMaio and DiMaio 2009; Menaker et al. 2011; Rutenber et al. 1997). With ExDS so closely linked to stimulant use, “a recent trend in use of synthetic stimulant drugs commonly known as ‘bath salts,’ ...[which] has been associated with an

alarming increase in psychiatric and medical complications presenting to law enforcement and hospital emergency departments (EDs)” (Penders, Gestring, and Vilensky 2012:647), we can only expect to see a rise in the number of cases of ExDS. It could also be associated to psychiatric deinstitutionalization which began in Canada in the 1950s “with a shift of care from public mental hospitals to community mental health services” (Morrow, Dagg, and Pederson 2008:2). The impact of deinstitutionalization, particularly on individuals suffering from schizophrenia has had adverse effects, principally around offending and substance use (Wallace, Mullen, and Burgess 2004).

Described in various forms throughout the medical literature, Excited Delirium was first coined in by Wetli and Fishbain (1985:873), describing “the acute onset of an intense paranoia, followed by bizarre and violent behavior necessitating forcible restraint...frequently accompanied by unexpected strength and hyperthermia” in seven cases of recreational cocaine users. It is considered a syndrome because it consists of a collection of indicators of a medical disorder which are commonly presented together; however its cause is largely unknown (IACP National Law Enforcement Policy Center 2014). Kroll et al. (2009:434) delineate a syndrome as an “aggregate of signs and symptoms that define a medical condition. Not all persons with a certain syndrome have all the same signs and symptoms. Not all cases of a syndrome result from the same cause”. Despite its historical reference, ExDS remains controversial and can be likened to Sudden Infant Death Syndrome, which similarly labels a cluster of features and has a diagnosis of exclusion which is done through a process of elimination (Ranson 2012). ExDS has not been included in the APA’s Diagnostic Statistical Manual (DSM) (American Psychiatric Association 2000) or the WHO’s International Classification of

Disease (ICD) (World Health Organization 2008). This could be largely due to the fact that much of the research has focused on fatal cases and that subjects who experience these acute states would not typically encounter psychiatrists or doctors. Also, the DSM-IV (2000:xx) states that any “new diagnoses should be included in the system only after research has established that they should be included rather than being included to stimulate that research”. This is a limitation acknowledged by Hall et al. (2013:103) in that “there is not a succinct case definition of excited delirium syndrome at the present time, in part because there has not been prospective documentation of the frequency with which features occur alone and in combination in the diverse cohort of individuals who interact with police”. Lawrence (2006) has noted several difficulties with conducting this research and diagnosis ExDS as “people experiencing ED often arrive with few, if any patient records, (medical) informants are either non-existent or are untrained lay persons who lack an appreciation of the significance of the information they may or may not have, and talking with the patient during the event is essentially impossible”. This demonstrates the limitations and challenges of conducting prospective research on ExDS which in turn makes it difficult to establish this syndrome in the DSM and ICD.

Additionally, as Jutel (2011a:18) states, “for a problem to be counted as a condition, it must first be identified as ‘the same as’ or different from’ another; if different, the distinction between the two must be clear, or at least rational”. Some in the medical community consider that Excited Delirium is already successfully encompassed by accepted classifications such as Manic Excitement, Delirium of Mixed Origin, Delirium (drug induced), Delirium (induced by drugs), Agitation, Psychomotor Excitement, Psychomotor Agitation and Abnormal Excitement (American College of

Emergency Physicians Excited Delirium Task Force 2009; Kutcher et al. 2009; US Department of Justice 2011; Vilke et al. 2012b). This is because as the DSM-IV (2000) identifies that:

...there is no assumption that each category of mental disorder is a completely discrete entity with absolute boundaries dividing it from other mental disorders or from no mental disorder. There is also no assumption that all individuals described as having the same mental disorder are alike in all important ways. The clinician using DSM-IV should therefore consider that individuals sharing a diagnosis are likely to be heterogeneous even in regard to the defining features of the diagnosis and that boundary cases will be difficult to diagnose in any but a probabilistic fashion. (p. xxii)

Therefore, despite the presence of unique features of ExDS from this perspective certain practitioners see no need for ExDS' inclusion as there is the necessary leeway to attribute these symptoms to another diagnosis, despite the presence of unique features of ExDS.

The American College of Emergency Physicians' (ACEP) White Paper Report (2009:6) on ExDS states that "this issue of semantics does not indicate that ExDS does not exist", merely that others have just not come to use that specific terminology yet. Recognition of the term however, by the part of the medical community that encounters these subjects most frequently, is gaining increased support. As Ranson (2012:670) states, this includes "medical practitioners who are directly confronted by patients with the appropriate cluster of symptoms and signs on a regular basis as part of their routine practice".

Consequently, in 2009, ACEP concluded that, "it is the consensus of the Task Force that Excited Delirium is a unique syndrome which may be identified by the presence of a distinctive group of clinical and behavioural characteristics that can be recognized in the pre-mortem state (American College of Emergency Physicians Excited Delirium Task Force 2009:4). It is these distinguishing behavioural characteristics that allow first

responders to recognize this medical emergency. Additionally, the National Association of Medical Examiners, who are also likely to encounter these subjects, also recognizes Excited Delirium Syndrome as a discrete diagnostic entity (Vilke, Payne-James, and Karch 2012). However, the lack of formal unique recognition for Excited Delirium from the APA and WHO has served to support criticism that it is simply a diagnosis made up by law enforcement “as a way of deflecting the investigation of such deaths away from the actions of law enforcement personnel” (Ranson 2012:667). The contentious use of the conducted energy weapon (CEW), a tool that is often used to control these subjects, has also contributed to the controversy surrounding this debate.

2.2.2 Canadian Context & Controversy

In late 2007, the Canadian debate over Excited Delirium Syndrome was brought to the forefront with the death of Robert Dziekanski at the Vancouver Airport and the resulting inquiry by Justice Thomas Braidwood from 2008-2010. Justice Braidwood concluded in his Phase I report that “it is not helpful to blame resulting deaths on ‘Excited Delirium’, since this conveniently avoids having to examine the underlying medical condition or conditions that actually caused death, let alone examining whether use of the conducted energy weapon and/or subsequent measures to physically restrain the subject contributed to those causes of death” (Braidwood 2010:15). Additionally, Justice Braidwood stated that the cluster of behaviours associated with Excited Delirium Syndrome is not a medical condition or a diagnosis and that when dealing with subjects who are emotionally disturbed, “the worst possible response is to aggravate or escalate the crisis, such as by deploying a conducted energy weapon and/or using force to physically restrain the subject...except in some extreme circumstances, however rare”

(Braidwood 2010:309). Consequently, these conclusions have led to significant scrutiny of the police as members of the public, media and government agencies including police oversight agencies have adopted a similar viewpoint towards ExDS and the use of force towards these subjects.

Given the controversy surrounding the CEW, then RCMP Commissioner, William Elliott, ordered “an independent review of the policy decisions involved in adoption and deployment of the CEW, the validity and reliability of information used to make these decisions, and the adequacy of the operational procedures, training practices and accountability mechanisms developed” (Kiedrowski 2008:4). As a result, the Ottawa based Compliance Strategy Group produced *An Independent Review of the Adoption and Use of the Conducted Energy Weapon by the Royal Canadian Mounted Police*. A portion of this report addressed Excited Delirium Syndrome and made the recommendation that:

[t]he application of the notion ‘Excited Delirium’ and kindred terms such as ‘agitated delirium’ should be restricted to medical domains such as emergency- room medicine, forensic pathology and coroners’ reports; for the time being, all reference to these notions should be removed from policy protocols and training manuals and lectures; and, an expert panel should be established to determine whether the term Excited Delirium, or an equivalent such as ‘acute behavioural disorder’ or ‘acute behavioural disturbance’, should be used in future operational manuals and training materials. (Kiedrowski 2008:13)

These accounts by Justice Braidwood and the Compliance Strategy Group fail to recognize the realities of policing, role of the police and how officers use this term operationally. First, the police are often requested to attend scenes because these subjects are violent and a threat to themselves and others. As a result, these subjects need to be controlled to stop their behaviour, maintain public safety and ensure that they receive the necessary medical attention. Second, not all cases of ExDS result in death and thus, it is

important to recognize subjects suffering from this syndrome and develop intervention strategies that promote both police and public safety. Third, they fail to recognize that the use of this term by officers is not for the purpose of diagnosing a medical condition, mental illness or explain a medical cause of death, which is the responsibility of physicians, psychiatrists, forensic pathologists and coroners. Instead, the use of the term “Excited Delirium” by officers is for the purpose of recognizing and identifying a medically high-risk situation using symbolic language that is commonly understood by first responders and allows for a coordinated and appropriate response. This would be similar to an officer, based on their perceptions, situational factors, and the subject’s behaviours, assessing (not “diagnosing”) that a subject might be suffering from depression, delusions and diabetic shock, etc. This assessment would then assist the officer in responding appropriately using de-escalation techniques and ensuring that the subject receives necessary medical attention. Lastly, these recommendations fail to recognize a significant and increasing body of research in support of Excited Delirium Syndrome which has been spearheaded by the medical community.

However, as a result of the independent review’s recommendation, then Commissioner William Elliott asked for the term Excited Delirium to be removed from RCMP policy with the rationale that “RCMP members should not be expected to make what amounts to [a] medical diagnoses when responding to a situation and determining the appropriate use of force option required” (Commission for Public Complaints Against the Royal Canadian Mounted Police 2009:31). Consequently, conducted energy weapon policy was amended on April 29, 2010 replacing the term “Excited Delirium”, as well as its’ associated definition and indicators with “acutely agitated or delirious person” and a

hybrid definition created by the RCMP using material from *An Independent Review of the Adoption and Use of the Conducted Energy Weapon by the Royal Canadian Mounted Police* report and the American College of Emergency Physicians *White Paper report on Excited Delirium Syndrome* (Royal Canadian Mounted Police 2010b).

Over the past couple years, Excited Delirium Syndrome and its association as a medically high-risk situation has made its re-emergence into training. This is due to the fact that despite the findings by Justice Braidwood and the Compliance Strategy Group first responders continue to encounter and deal with subjects who demonstrate features best described by the body of research on ExDS. Since it is the role of the police to ensure public safety, there is a continuing operational need to standardize the recognition and response to these medically high-risk situations. As such, the indicators of ExDS are now also being tracked within the RCMP's use of force reporting database which allows for increased research in this area which can then be used to inform training. Correspondingly, the use of the term "Excited Delirium Syndrome" has recently been approved for re-introduction into RCMP operational policy.

2.2.3 ExDS Definitions

Due to its lack of standardized recognition in the medical community, the literature provides several varying definitions of the syndrome. As such, it is important to present the key definitions and examine its evolution in perspective. Further to Wetli and Fishbain's 1985 definition, in a review of eleven restrained subjects who suddenly died, O'Halloran and Lewman (1993:292) characterized ExDS as "constant, purposeless, often violent activity coupled with incoherent or meaningless speech and hallucinations with paranoid delusions...such can be dangerous and may die of acute exhaustive mania [and]

hyperthermia is often part of this syndrome”. Subsequently, Farnham and Kennedy (1997:1107) defined ExDS as a “state of mental and physiological arousal, agitation, hyperpyrexia with epiphora, and hostility [where the] observers typically emphasize the extreme sweating, bizarre behavior and speech, and the subject's extraordinary strength and endurance when struggling, apparently without fatigue”. Morrison and Sadler (2001:46) paraphrased this previous definition as “a state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, hostility, exceptional strength and endurance without apparent fatigue”. Di Maio and Di Maio defined ExDS as “delirium that involves combative and/or violent behavior” (2009:347) and which involves “the sudden death of an individual, during or following an episode which often includes a struggle with police and the use of physical restraint and in which an autopsy fails to reveal evidence of sufficient trauma or natural disease to explain the death” (2004:1). Mash et al. (2009:13) defined ExDS as “one of several terms that describe a syndrome characterized by delirium and agitation, combativeness, unexpected strength and elevated body temperature”. Lastly, in a comprehensive review of the literature in an effort to define ExDS, Vilke et al. (2012b:7) concluded that it is a real syndrome with “uncertain, likely multiple, etiologies...characterized by delirium, agitation, acidosis, and hyperadrenergic autonomic dysfunction, typically in the setting of acute-on-chronic drug abuse or serious mental illness”. In summary, these definitions focus on the severity of: psychological and physiological excitation; combativeness; strength, endurance and hyperthermia. Much of these definitions and their associated research provide the underlying assumption that ExDS results solely in fatal outcomes.

2.2.4 Fatal ExDS Research

A recent estimate by Wecht et al. (2010:101) has approximated that there are between 50 and 125 deaths associated with ExDS each year in the United States; while the National Institute of Justice has projected this to be closer to 250 (US Department of Justice 2011). Research in the area of ExDS has typically focused on the retrospective review of these in-custody deaths, or fatal cases of excited delirium. This research has concentrated on identifying causal or risk factors, determining an association with police use of force and restraint, as well as providing behavioural indicators (Grant et al. 2009; Mash et al. 2009; O'Halloran and Lewman 1993; Pollanen et al. 1998; Ross 1998; Rutenber et al. 1997; Rutenber, McAnally, and Wetli 1999; Stratton et al. 2001). These eight² predominantly American studies reviewed larger samples, yielding a total sample of 300 subjects whose deaths were documented as excited delirium or who presented characteristics associated with excited delirium. The majority of the articles included only descriptive statistics from which the most salient characteristics for law enforcement will be summarized and discussed in Table 1 through Table 5.

Table 1 presents the demographic and physical characteristics of the subjects. It demonstrates that most subjects are male (94.7%) (Grant et al. 2009; Mash et al. 2009; Pollanen et al. 1998; Ross 1998; Rutenber, McAnally, and Wetli 1999; Stratton et al. 2001) with a mean age of 33.3 (Grant et al. 2009; Mash et al. 2009; Ross 1998; Rutenber, McAnally, and Wetli 1999; Stratton et al. 2001). The average male height is 179 cm (5'9") (Mash et al. 2009; Ross 1998; Stratton et al. 2001) with a weight of the 208 pounds (Mash et al. 2009; Ross 1998; Stratton et al. 2001) and BMI of 29 (Mash et

² Two studies by Rutenber et al. used the same study population with different control groups. As a result, Rutenber et al. (1997) will only be used as a supplement to Rutenber et al. (1999).

al. 2009; Ruttenber, McAnally, and Wetli 1999; Stratton et al. 2001). This identifies that these subjects are generally overweight (25-29.9 BMI) bordering on obese, which is associated to an increased risk of developing health problems (Health Canada 2012). Both the size of the subjects and the increased potential of the health issues can be risk factors for law enforcement intervention. Furthermore, race is divided almost equally between Caucasian and African American (Grant et al. 2009; Mash et al. 2009; Ross 1998; Ruttenber, McAnally, and Wetli 1999; Stratton et al. 2001).

Table 1 - Demographics and Physical Characteristics

		Article(s) (N)	Article(s) (%)	Article	Total (N)	Total (%)	Mean
Sample Size		7	100%	1,2,3,4,5,6,7	300	100.0%	
Gender	Male	7	100%	1,2,3,4,5,6,7	284	94.7%	
	Female	7	100%	1,2,3,4,5,6,7	14	5.3%	
Age	Male	6	86%	1,2,3,4,5,7	262		33.3
	Female	4	57%	1,3,4,7	15		32.1
Weight (pounds)	Male	3	43%	1,3,7	158		208.1
	Female	3	43%	1,3,7	11		140.9
Height (cm)	Male	3	43%	1,3,7	158		179.1
	Female	3	43%	1,3,7	11		158.2
BMI	Male	3	43%	1,3,4	153		29.0
	Female	3	43%	1,3,4	13		26.1
Race	African American	5	71%	1,2,3,4,7	114	43.4%	
	Hispanic	2	29%	1,3	28	10.6%	
	East Asian	1	14%	2	1	0.4%	
	Caucasian	5	61%	1,2,3,4,7	120	45.6%	

¹Stratton, Samuel J., Christopher Rogers, Karen Brickett and Ginger Grunzinski. 2001. "Factors associated with sudden death of individuals requiring restraint for excited delirium." *American Journal of Emergency Medicine* 19(3):187-191.

²Grant, Jamie R., Pamela E. Southall, Joan Mealey, Shauna R. Scott and David R. Fowler. 2009. "Excited delirium deaths in custody: past and present." *The American Journal of Forensic Medicine and Pathology* 30(1):1-5.

³Mash, Deborah C., Linda Duque, John Pablo, Yujing Qin, Nikhil Adi, W. L. Hearn, Bruce A. Hyma, Steven B. Karch, Henrik Druid and Charles V. Wetli. 2009. "Brain biomarkers for identifying excited delirium as a cause of sudden death." *Forensic Science International* 190(1-3):e13-e19.

⁴Ruttenber, James A., Heath B. McAnally and Charles V. Wetli. 1999. "Cocaine-associated rhabdomyolysis and excited delirium: different stages of the same syndrome." *The American Journal of Forensic Medicine and Pathology* 20(2):120-127.

⁵O'Halloran, Ronald L. and Larry V. Lewman. 1993. "Restraint asphyxiation in excited delirium." *The American Journal of Forensic Medicine and Pathology* 14(4):289-295.

⁶Pollanen, Michael S., David A. Chiasson, James T. Cairns and James G. Young. 1998. "Unexpected death related to restraint for excited delirium: A retrospective study of deaths in police custody and in the community." *CMAJ* 158(12):1603-1607.

⁷Ross, Darrell L. 1998. "Factors associated with excited delirium deaths in police custody." *Modern Pathology: An Official Journal of the United States and Canadian Academy of Pathology, Inc* 11(11):1127-1137.

Table 2 demonstrates that almost nine out of ten of these subjects were under the influence of some sort of substance (Grant et al. 2009; Mash et al. 2009; O'Halloran and Lewman 1993; Stratton et al. 2001). Stimulants, particularly cocaine, were the most prevalent (Grant et al. 2009; Mash et al. 2009; Pollanen et al. 1998; Ross 1998; Ruttenber, McAnally, and Wetli 1999; Stratton et al. 2001), with smoking (crack cocaine) being the most common route of administration (Mash et al. 2009; Ross 1998; Ruttenber, McAnally, and Wetli 1999). As alcohol is a depressant, it is logical that there is a much lower prevalence in these subjects (28%), though the majority of these were combined with stimulants (Mash et al. 2009; Ross 1998; Ruttenber et al. 1997; Stratton et al. 2001). In contrast, Hall and Votova's (2013) study of 4699 subjects on whom force was used, 61% were suspected of being intoxicated by alcohol. Comparing these results appears to indicate alcohol as a protective factor of ExDS and could, to some extent, be used by law enforcement to rule out this syndrome as it appears to inhibit these overactive behaviours. It should also be noted that 11% of this sample of fatal cases of ExDS were found not to have drugs or alcohol in their system. This reinforces the fact that drugs are not a prerequisite to excited delirium, which can be brought on by other means such as psychiatric illness (see Table 3).

Table 2 - Substance Use and Toxicology

	Article(s) (N)	Article(s) (%)	Article	Total (n)	Total (%)
Sample Size	7	100%	1,2,3,4,5,6,7	300	100.0%
Drugs	4	57%	1,2,3,5	142	88.9%
Stimulants	2	29%	1,2	99	91.7%
Cocaine	6	83%	1,3,4,5,6,7	205	79.2%
Smoking	3	43%	3,4,7	77	44.3%
Intranasal	3	43%	3,4,7	48	23.9%
Intravenous	3	43%	3,4,7	31	16.8%
Amphetamine	4	57%	1,3,5,7	22	9.8%
Alcohol	4	57%	1,3,7,8*	64	28.1%
Other drugs than cocaine	4	57%	1,3,7,8*	47	28.3%
None	4	57%	1,2,3,5	18	11.1%

¹Stratton, Samuel J., Christopher Rogers, Karen Brickett and Ginger Grunzinski. 2001. "Factors associated with sudden death of individuals requiring restraint for excited delirium." *American Journal of Emergency Medicine* 19(3):187-191.

²Grant, Jamie R., Pamela E. Southall, Joan Mealey, Shauna R. Scott and David R. Fowler. 2009. "Excited delirium deaths in custody: past and present." *The American Journal of Forensic Medicine and Pathology* 30(1):1-5.

³Mash, Deborah C., Linda Duque, John Pablo, Yujing Qin, Nikhil Adi, W. L. Hearn, Bruce A. Hyma, Steven B. Karch, Henrik Druid and Charles V. Wetli. 2009. "Brain biomarkers for identifying excited delirium as a cause of sudden death." *Forensic Science International* 190(1-3):e13-e19.

⁴Ruttenber, James A., Heath B. McAnally and Charles V. Wetli. 1999. "Cocaine-associated rhabdomyolysis and excited delirium: different stages of the same syndrome." *The American Journal of Forensic Medicine and Pathology* 20(2):120-127.

⁵O'Halloran, Ronald L. and Larry V. Lewman. 1993. "Restraint asphyxiation in excited delirium." *The American Journal of Forensic Medicine and Pathology* 14(4):289-295.

⁶Pollanen, Michael S., David A. Chiasson, James T. Cairns and James G. Young. 1998. "Unexpected death related to restraint for excited delirium: A retrospective study of deaths in police custody and in the community." *CMAJ* 158(12):1603-1607.

⁷Ross, Darrell L. 1998. "Factors associated with excited delirium deaths in police custody." *Modern Pathology: An Official Journal of the United States and Canadian Academy of Pathology, Inc* 11(11):1127-1137.

⁸Ruttenber, James A., Janet Lawler-Heavner, Min Yin, Charles V. Wetli, W. L. Hearn and Deborah C. Mash. 1997. "Fatal Excited Delirium Following Cocaine Use: Epidemiologic Findings Provide New Evidence for Mechanisms of Cocaine Toxicity." *Journal of Forensic Sciences* 42(1):25-31.

*Two studies by Ruttenber et al. used the same study population with different control groups. As a result, Ruttenber et al. (1997) will only be used as a supplement to Ruttenber et al. (1999).

Table 3 indicates other characteristics that were frequently discussed throughout the articles. First, two studies noted that approximately 31.6% suffered from seizures prior to death (Mash et al. 2009; Ross 1998; Ruttenber, McAnally, and Wetli 1999). Second, the mean body temperature of 53 (59%) subjects from one study was noted at 105°F (Mash et al. 2009) and 104°F (Ross 1998) in a second, while 38 of the 39 (97%)

subjects in a third study were classified as having hyperthermia (Ruttenber, McAnally, and Wetli 1999). Stratton et al. (2001:191) noted the inability of the “reliable assessment for the presence of hyperthermia as a potential factor for sudden death” as a limitation in the study, but also noted that others have found that “those who die from restrained excited delirium are invariably hyperthermic”. Much of the research indicates hyperthermia as an important indicator of ExDS; however, as mentioned above, there are obvious difficulties in attaining a consistent and accurate measure of this due to time constraints or involved diagnostics of post-mortem brain samples for biomarkers (Mash et al. 2009). This may be why observable characteristics, such as “hot to the touch” and “sweating profusely” have been used instead by researchers to measure this criterion (Hall et al. 2009; Hall et al. 2013; Hall and Votova 2013). Lastly, psychiatric illness is noted to be present in almost half of the subjects in two of the studies and demonstrates cases where the onset of ExDS is not triggered by the use of stimulants (O'Halloran and Lewman 1993; Pollanen et al. 1998).

Table 3 - Other Subject Characteristics

	Article(s) (N)	Article(s) (%)	Article	Total (n)	Total (%)
Sample Size	7	100%	1,2,3,4,5,6,7	300	100.0%
Seizures	3	43%	3,4,7	61	31.6%
Hyperthermia	3	43%	3,4,7		
Psychiatric Illness	2	29%	5,6	15	46.8%

¹Stratton, Samuel J., Christopher Rogers, Karen Brickett and Ginger Grunzinski. 2001. "Factors associated with sudden death of individuals requiring restraint for excited delirium." *American Journal of Emergency Medicine* 19(3):187-191.

²Grant, Jamie R., Pamela E. Southall, Joan Mealey, Shauna R. Scott and David R. Fowler. 2009. "Excited delirium deaths in custody: past and present." *The American Journal of Forensic Medicine and Pathology* 30(1):1-5.

³Mash, Deborah C., Linda Duque, John Pablo, Yujing Qin, Nikhil Adi, W. L. Hearn, Bruce A. Hyma, Steven B. Karch, Henrik Druid and Charles V. Wetli. 2009. "Brain biomarkers for identifying excited delirium as a cause of sudden death." *Forensic Science International* 190(1-3):e13-e19.

⁴Ruttenber, James A., Heath B. McAnally and Charles V. Wetli. 1999. "Cocaine-associated rhabdomyolysis and excited delirium: different stages of the same syndrome." *The American Journal of Forensic Medicine and Pathology* 20(2):120-127.

⁵O'Halloran, Ronald L. and Larry V. Lewman. 1993. "Restraint asphyxiation in excited delirium." *The American Journal of Forensic Medicine and Pathology* 14(4):289-295.

⁶Pollanen, Michael S., David A. Chiasson, James T. Cairns and James G. Young. 1998. "Unexpected death related to restraint for excited delirium: A retrospective study of deaths in police custody and in the community." *CMAJ* 158(12):1603-1607.

⁷Ross, Darrell L. 1998. "Factors associated with excited delirium deaths in police custody." *Modern Pathology: An Official Journal of the United States and Canadian Academy of Pathology, Inc* 11(11):1127-1137.

Table 4 looks at the type of police use of force and restraint. Due to the agitated, violent and erratic state displayed by these subjects, the police are almost invariably involved. In one study that looked at fatal excited delirium within custodial settings, law enforcement represented 66% of the cases (Grant et al. 2009). It is also not surprising that many, if not all, involved some sort of forceful struggle, although only two articles have specifically reported on this (O'Halloran and Lewman 1993; Stratton et al. 2001). Both OC spray and the CEW were reported in 57% of the articles. This presented a rate of OC spray use at 13.7% (Mash et al. 2009; Pollanen et al. 1998; Ross 1998; Stratton et al. 2001). Similarly, 16.7% of these incidents involved the use of the CEW (Mash et al. 2009; O'Halloran and Lewman 1993; Ross 1998; Stratton et al. 2001). Furthermore, restraints were noted in almost all articles at a rate of 88.3% (Grant et al. 2009; Mash et al. 2009; Pollanen et al. 1998; Ross 1998; Stratton et al. 2001), with just over a quarter being hobbled (Mash et al. 2009; Ross 1998; Stratton et al. 2001), which involves the restraint of both wrists and ankles and almost all subjects (94%) being in the prone position or lying face down (Pollanen et al. 1998; Rutenber, McAnally, and Wetli 1999; Stratton et al. 2001). There is much discussion in this area over positional/restraint asphyxiation with some in support of it as a cause of death (O'Halloran and Lewman 1993). A recent study however has found that while prone positioning was commonly used, it was not associated with fatalities following the use of force (Hall et al. 2012).

Table 4 - Police Use of Force and Restraint

		Article(s) (N)	Article(s) (%)	Article	Total (n)	Total (%)
Sample Size		7	100%	1,2,3,4,5,6,7	300	100.0%
Use of Force	Forceful Struggle	2	29%	1,5	29	100.0%
	OC Spray	4	57%	1,3,6,7	26	13.7%
	CEW/Taser Probe & Push Stun	4	57%	1,3,5,7	30	16.7%
Restraint	Restraints used	5	71%	1,2,3,6,7	204	88.3%
	Hobble	3	43%	1,3,7	47	27.9%
	Prone	3	43%	1,4,6	47	94.1%

¹Stratton, Samuel J., Christopher Rogers, Karen Brickett and Ginger Grunzinski. 2001. "Factors associated with sudden death of individuals requiring restraint for excited delirium." *American Journal of Emergency Medicine* 19(3):187-191.

²Grant, Jamie R., Pamela E. Southall, Joan Mealey, Shauna R. Scott and David R. Fowler. 2009. "Excited delirium deaths in custody: past and present." *The American Journal of Forensic Medicine and Pathology* 30(1):1-5.

³Mash, Deborah C., Linda Duque, John Pablo, Yujing Qin, Nikhil Adi, W. L. Hearn, Bruce A. Hyma, Steven B. Karch, Henrik Druid and Charles V. Wetli. 2009. "Brain biomarkers for identifying excited delirium as a cause of sudden death." *Forensic Science International* 190(1-3):e13-e19.

⁴Ruttenber, James A., Heath B. McAnally and Charles V. Wetli. 1999. "Cocaine-associated rhabdomyolysis and excited delirium: different stages of the same syndrome." *The American Journal of Forensic Medicine and Pathology* 20(2):120-127.

⁵O'Halloran, Ronald L. and Larry V. Lewman. 1993. "Restraint asphyxiation in excited delirium." *The American Journal of Forensic Medicine and Pathology* 14(4):289-295.

⁶Pollanen, Michael S., David A. Chiasson, James T. Cairns and James G. Young. 1998. "Unexpected death related to restraint for excited delirium: A retrospective study of deaths in police custody and in the community." *CMAJ* 158(12):1603-1607.

⁷Ross, Darrell L. 1998. "Factors associated with excited delirium deaths in police custody." *Modern Pathology: An Official Journal of the United States and Canadian Academy of Pathology, Inc* 11(11):1127-1137.

Table 5 looks into the circumstances of these sudden and unexpected in-custody deaths. Two studies noted that in all cases the subject during or after a struggle and/or restraint abruptly became tranquil or stopped struggling preceding death (Pollanen et al. 1998; Stratton et al. 2001). Moreover, in both of these studies almost all of the subjects were unable to be resuscitated (Pollanen et al. 1998; Stratton et al. 2001). This sudden lapse into unconsciousness should serve as an immediate alarm to responding personnel and indicate the need for post-restraint/struggle care. Survival time was reported in three articles, showing that 49.7% of subjects survived less than one hour and 79% survived

less than 6 hours (Ross 1998; Rutenber, McAnally, and Wetli 1999). Two thirds of these subjects died in police custody (Pollanen et al. 1998; Ross 1998; Rutenber, McAnally, and Wetli 1999); of which approximately a third were during transport to the hospital (Mash et al. 2009; Ross 1998), a third on scene (Mash et al. 2009; Ross 1998) and a third in the hospital (Mash et al. 2009; Ross 1998; Rutenber et al. 1997). These factors all support the need for law enforcement officers to make all attempts to ensure medical services are on-scene and available to provide immediate attention following the struggle/restraint of the subject (American College of Emergency Physicians Excited Delirium Task Force 2009). Lastly, the main causes of death are varied but delirium and cocaine are two of the key factors involved (Grant et al. 2009; Mash et al. 2009; O'Halloran and Lewman 1993; Ross 1998).

Table 5 - Circumstances of Death

		Article(s) (N)	Article(s) (%)	Article	Total (n)	Total (%)
Sample Size		7	100%	1,2,3,4,5,6,7	300	100.0%
Suddenly lapsed into tranquility shortly after restraint / Cessation of struggle against restraint and onset of shallow laboured breathing		2	29%	1,6	39	100.0%
Survival Time:	<1h	3	43%	3,4,7	104	49.7%
	1-6h	3	43%	3,4,7	62	29.4%
Location of Death	Emergency room/hospital	3	43%	3,7,8*	77	36.7%
	At scene	2	29%	3,7	57	37.9%
	EMS Transport	2	29%	3,7	18	12.1%
	Police Transport	2	29%	3,7	31	20.3%
	Police Custody	3	43%	4,6,7	95	67.9%
Cause of Death:	Excited Delirium	1	14%	2	18	43.9%
	Drug Intoxication	1	14%	2	16	39.0%
	Cocaine Excited Delirium	2	29%	3,5	33	32.7%
	Acute Cocaine Toxicity	3	43%	3,5,7	67	41.3%
	Cocaine Psychosis	1	14%	3	10	11.1%
	Cocaine Delirium	1	14%	5	2	18.2%
	Drugged Excited Delirium	1	14%	5	1	9.1%
	Positional Asphyxia During Restraint for Excited Delirium	1	14%	7	12	20%

¹Stratton, Samuel J., Christopher Rogers, Karen Brickett and Ginger Grunzinski. 2001. "Factors associated with sudden death of individuals requiring restraint for excited delirium." *American Journal of Emergency Medicine* 19(3):187-191.

²Grant, Jamie R., Pamela E. Southall, Joan Mealey, Shauna R. Scott and David R. Fowler. 2009. "Excited delirium deaths in custody: past and present." *The American Journal of Forensic Medicine and Pathology* 30(1):1-5.

³Mash, Deborah C., Linda Duque, John Pablo, Yujing Qin, Nikhil Adi, W. L. Hearn, Bruce A. Hyma, Steven B. Karch, Henrik Druid and Charles V. Wetli. 2009. "Brain biomarkers for identifying excited delirium as a cause of sudden death." *Forensic Science International* 190(1-3):e13-e19.

⁴Ruttenber, James A., Heath B. McAnally and Charles V. Wetli. 1999. "Cocaine-associated rhabdomyolysis and excited delirium: different stages of the same syndrome." *The American Journal of Forensic Medicine and Pathology* 20(2):120-127.

⁵O'Halloran, Ronald L. and Larry V. Lewman. 1993. "Restraint asphyxiation in excited delirium." *The American Journal of Forensic Medicine and Pathology* 14(4):289-295.

⁶Pollanen, Michael S., David A. Chiasson, James T. Cairns and James G. Young. 1998. "Unexpected death related to restraint for excited delirium: A retrospective study of deaths in police custody and in the community." CMAJ 158(12):1603-1607.

⁷Ross, Darrell L. 1998. "Factors associated with excited delirium deaths in police custody." Modern Pathology: An Official Journal of the United States and Canadian Academy of Pathology, Inc 11(11):1127-1137.

⁸Ruttenber, James A., Janet Lawler-Heavner, Min Yin, Charles V. Wetli, W. L. Hearn and Deborah C. Mash. 1997. "Fatal Excited Delirium Following Cocaine Use: Epidemiologic Findings Provide New Evidence for Mechanisms of Cocaine Toxicity." Journal of Forensic Sciences 42(1):25-31.

*Two studies by Ruttenber et al. used the same study population with different control groups. As a result, Ruttenber et al. (1997) will only be used as a supplement to Ruttenber et al. (1999).

Therefore, the moderate sample of fatal cases ExDS compiled from several studies has shown that overall cases are typically males in their early 30s who are stimulant users and/or suffer from psychiatric illness. These encounters usually involve a forceful struggle and prone restraint, though the use of intermediate weapons such as OC Spray and the CEW are minimal. Finally, death generally occurs in police custody either during or shortly after a struggle and is regularly attributed to a combination of drugs and delirium. With fatal cases of ExDS discussed, the following section will examine features of ExDS and the literature on non-fatal case of ExDS.

2.2.5 ExDS Features & Non-Fatal ExDS Research

A significant amount of the literature has focused on identifying features or indicators of ExDS. Vilke et al. (2012b) conducted a comprehensive review of the literature on ExDS, identifying multiple common features of ExDS. The features were listed by the National Institute of Justice (US Department of Justice 2011:29) as:

- Extremely aggressive or violent behavior
- Constant or near constant physical activity
- Does not respond to police presence
- Attracted to/destructive of glass/reflective [surfaces]
- Attracted to bright lights/loud sounds
- Naked/inadequately clothed
- Attempted "self-cooling" or hot to touch
- Rapid breathing

- Profuse sweating
- Keening (unintelligible animal-like noises)
- Insensitive to/extremely tolerant of pain
- Excessive strength (out of proportion)
- Does not tire despite heavy exertion

While most research on ExDS has focused on fatal cases, current Canadian research conducted by Dr. Christine Hall et al. has refined a list of features of ExDS to allow police officers to document prospective cases of ExDS (Hall and Butler 2008; Hall et al. 2009; Hall and Votova 2013; Hall et al. 2013). This refined list includes the ten features: “pain tolerance, constant/near constant physical activity, not responding to police presence, superhuman strength, rapid breathing, not tiring despite heavy physical exertion, naked/inappropriately clothed, sweating profusely, hot to the touch, and attraction to/destruction of glass/reflective surfaces” (Hall et al. 2013:102). A case with six or more of these features present, would “describe an individual who is highly abnormal, and who is in a state that could only be described as a medical emergency” (Hall and Votova 2013:35) or a probable case of ExDS.

The exact incidence rate of ExDS is largely unknown since only the more serious cases involving fatalities are typically recorded (IACP National Law Enforcement Policy Center 2014). It has been estimated that deaths occur in about “eight to 14 percent of those who experience the syndrome” (US Department of Justice 2011:11); however, research by Dr. Hall has been able to determine a much larger cohort of non-fatal cases than fatal cases. In their sample of 4599 subjects, 108 (2.3%) exhibited six or more concomitant features of ExDS (Hall and Votova 2013). This indicates 1 in 43 use of force events and 1 in 25,000 police public interactions involves a probable case of ExDS (Hall and Votova 2013). In a subset of this population, the most common features of ExDS

were pain tolerance, constant or near constant activity and a lack of responsivity to police presence (Hall et al. 2013). In addition, it was found that in subjects with three or more features, the odds of drug intoxication and mental illness were significantly higher, while the odds of the alcohol intoxication was lower, but not significantly (Hall et al. 2013). This follows logic as alcohol is a depressant of the central nervous system and hence, does not increase the likelihood of the excited features common in these subjects. However, it is unknown at what point stimulants might override the depressant effects of alcohol when mixed (Hall et al. 2013). These increased rates of drugs and mental illness, as well as reduced rates of alcohol intoxication corresponds with the findings in fatal cases of ExDS (Grant et al. 2009; Mash et al. 2009; O'Halloran and Lewman 1993; Pollanen et al. 1998; Ross 1998; Ruttenber et al. 1997; Ruttenber, McAnally, and Wetli 1999; Stratton et al. 2001). Moreover, consistent with fatal cases of ExDS, issues with thermoregulation were present in non-fatal cases as a significantly greater number of subjects (i.e., three or more) were described as hot to the touch compared to the control group (Hall et al. 2013). This result continues to emphasize thermoregulation and its link to excess dopamine which is an important factor in ExDS, often caused by chronic stimulant use. While Hall et al. (2013) found a greater presence of this key feature (i.e., hyperthermia), a cluster analysis was unable to determine if a specific combination of features was found in the entire target population. However, these authors believed that a cluster of features was unable to be pinpointed due to the presence of multiple underlying pathologies (Hall et al. 2013).

In Hall and Votova's (2013) cohort, there was only one sudden and unexpected death in the study population, in which the subject displayed all ten features of ExDS.

From this, the authors concluded that the “true proportion of individuals with 3 or more features of excited delirium who die suddenly and unexpectedly following police use of force lies between as low as 0.005% and high as 1%” (Hall and Votova 2013:37).

However, since there was only a single death in their study, they were unable to determine if any elements of force or restraint were predictive of sudden and unexpected death (Hall and Votova 2013). Therefore a review of literature indicates that there is even less known about non-fatal ExDS than fatal ExDS. However, with a succinct list of features now developed and prospective data being collected more broadly on subjects displaying features, the body of knowledge in this area will likely increase rapidly. As another line of inquiry into ExDS, the following section will examine the recommendations from Canadian inquests to deaths associated to this syndrome.

2.2.6 Canadian Case Studies & Recommendations

In Canada, generally when an individual dies in the custody of the police, a coroner’s inquest is mandatory (BC Ministry of Justice 2013b). An inquest is a “public hearing designed to focus public attention on the circumstances of a death through an objective examination of facts” (Ministry of Community Safety and Correctional Services 2014). The jury is made up of five people who determine the circumstances surrounding an individual's death, as well as make recommendations to address public concern over the death, create awareness and prevent similar deaths from occurring in the future (BC Ministry of Justice 2013b; Ministry of Community Safety and Correctional Services 2014). In Canada, the number of sudden in-custody deaths related to ExDS is difficult to estimate as not all coroners’ inquiry reports are accessible or disseminated in a standardized manner. As a result, it is problematic to determine if some

provinces/territories either have fewer ExDS deaths or just do not relate them to ExDS. Moreover, while 23 (15%) of 156 coroners' inquests in BC from 2002 to 2010 were associated to "restraint/Excited Delirium", few of these inquest reports were found to be accessible online (BC Ministry of Justice 2013a). From an online search and through CANLII, dozens of inquest reports were located that referenced the cause of death as ExDS or made recommendations. However, the majority of these inquest reports were from Ontario. Appendix A outlines the reference and/or recommendations from 33 separate inquiries and is followed with a brief summary of these recommendations.

The majority of the inquiries made recommendations that training be provided that focuses on awareness, recognition, identification as a medical emergency, not just for police officers, but for all first responders and emergency dispatchers (BC Ministry of Public Safety and Solicitor General 2009; BC Ministry of Public Safety and Solicitor General 2011a; BC Ministry of Public Safety and Solicitor General 2011b; Office of the Chief Coroner 1999; Office of the Chief Coroner 2004a; Office of the Chief Coroner 2004b; Office of the Chief Coroner 2005a; Office of the Chief Coroner 2005b; Office of the Chief Coroner 2005c; Office of the Chief Coroner 2007; Office of the Chief Coroner 2008a; Office of the Chief Coroner 2008e; Office of the Chief Coroner 2010; Office of the Chief Coroner 2011a; Office of the Chief Coroner 2011b; Office of the Chief Coroner 2013; Province of Alberta 2007a; Province of Alberta 2011). Furthermore, these inquests recommended that this training be conducted on a continual basis (refresher training) through in-service training, as well as at police colleges (BC Ministry of Public Safety and Solicitor General 2009; Office of the Chief Coroner 1999; Office of the Chief Coroner 2005a; Office of the Chief Coroner 2008b; Office of the Chief Coroner 2010;

Office of the Chief Coroner 2011b; Province of Alberta 2011). This training should also include scenario-based training developed from real-life scenarios (Office of the Chief Coroner 2005a; Office of the Chief Coroner 2008a; Office of the Chief Coroner 2010; Office of the Chief Coroner 2011a; Province of Alberta 2011). It was also suggested that a screening checklist or aide memoire be developed and provided to officers to assist with this training (Office of the Chief Coroner 2013). Several inquiries recommended education on the risk of prone positioning (Office of the Chief Coroner 1998; Office of the Chief Coroner 2003; Office of the Chief Coroner 2004a; Office of the Chief Coroner 2005a; Office of the Chief Coroner 2007; Office of the Chief Coroner 2008b; Office of the Chief Coroner 2012); while a couple suggested different handcuffing/restraint techniques to avoid this position (Office of the Chief Coroner 2007; Office of the Chief Coroner 2008b).

There is also a focus on the coordination and response protocols for first responders to ensure rapid intervention (Office of the Chief Coroner 1999; Office of the Chief Coroner 2007; Office of the Chief Coroner 2008b; Office of the Chief Coroner 2011b; Province of Alberta 2007a; Province of Alberta 2007b). To ensure coordinated response, recommendations were made around developing a dispatch code (Office of the Chief Coroner 2008b) and common terminology for all first responders (Office of the Chief Coroner 2005b; Province of Alberta 2011). Moreover, recommendations to implement tactical paramedics (Office of the Chief Coroner 2005b; Office of the Chief Coroner 2008b; Office of the Chief Coroner 2011b) and the study of chemical restraint (i.e., sedatives) at the scene for early intervention were suggested (Office of the Chief Coroner 2005b).

Lastly, there was a significant focus on the need for research by government agencies including the Canadian Institutes of Health Research (CIHR), the Canadian Police Research Centre (CPRC) and the National Research Council (NRC) (Office of the Chief Coroner 2000; Office of the Chief Coroner 2006; Office of the Chief Coroner 2007; Office of the Chief Coroner 2008b; Office of the Chief Coroner 2008c; Office of the Chief Coroner 2008d; Office of the Chief Coroner 2011b) and that any new research literature on ExDS be distributed to first responders (Office of the Chief Coroner 2009; Office of the Chief Coroner 2011b; Province of Alberta 2007b). It was also recommended that there be standardized collection of data on ExDS by first responders and that a national report on this data be published (Province of Alberta 2011).

2.2.7 Etiology and Pathophysiology

Police when suddenly confronted with psychotic, violent persons, set into motion an escalation of the use of force continuum, and death may occur despite the appropriate application of sublethal control techniques. The violent nature of the conflict between police and excited delirium victims, often witnessed by citizens and sometimes the news media, may lead to accusations of excessive use of force and community outrage. If death occurs while police officers are trying to restrain the victims, the police are assumed to be responsible with subsequent civil litigation against the municipality, the police department, and the individual police officers to be expected. The tendency to confuse proximity with causality, become greater when the necropsy fails to disclose an anatomic cause of death. (Mash et al. 2009:18)

While death in fatal cases of ExDS is a result of “either respiratory arrest or fatal cardiac dysrrhythmia” (Takeuchi, Ahern, and Henderson 2011:79), the explanations and etiologies for ExDS are diverse, numerous and interrelated (Vilke et al. 2012b). DiMaio and DiMaio spent three chapters of their book presenting explanations for the deaths of these subjects in which “an autopsy fails to reveal evidence of sufficient trauma or natural disease to explain the death” (DiMaio and DiMaio 2004:1). Traditionally, explanations of

these deaths were associated with positional or restraint asphyxia and the use of neck restraints. Research on restraint and positioning however, has failed to support these assumptions (Chan et al. 1997; Hall et al. 2012; Michalewicz et al. 2007; Savaser et al. 2013). Research by Hall and Butler (2007:1) found that while no method of restraint is free of risk, “there is not medical reason to routinely expect grievous bodily harm or death following the correct application of the vascular neck restraint in the general population by professional police officers with standardized training and technique”. Furthermore, recent research has concluded that the vascular neck restraint which is used by police is a “safe and effective force intervention” (Mitchell et al. 2012:401). The use of the CEW has also come to be blamed for these deaths; however, a recent expert panel led by Justice Goudge (2013:viii) found that “while fatal complications are biologically plausible, they would be extremely rare” and that “sudden in-custody death resulting from a use-of-force event typically involves a complicated scenario that includes multiple factors, all of which can potentially contribute to a sudden unexpected death” (Goudge et al. 2013:ix). Therefore, the causes of death in fatal cases of ExDS are contested within the literature.

It does appear to be the consensus in the literature that ExDS is typically onset by mental illness and/or substance use, particularly chronic use of stimulants such as cocaine and methamphetamine (Vilke et al. 2012b). However, a post-mortem toxicological analysis of cocaine related ExDS deaths has noted that the “blood level of cocaine....[were] similar to levels found in recreational cocaine users and lower than levels found in people who died from cocaine intoxication” (Pollanen et al. 1998:1603). Similar findings were presented in an earlier study by Rutenber et al. (1997). This

indicates a different mechanism of death in ExDS than a drug overdose. Instead, ExDS has been described as “The Perfect Storm” in which there is a “confluence of events caused by psychoactive stimulant abuse” (US Department of Justice 2011:18). First, prior chronic drug use may predispose individuals to sudden cardiac death in the event of physical stress as a result of a concentric enlargement of the heart and scar tissue in the heart (US Department of Justice 2011). Second, the prevalence of stimulant use in cases of ExDS gives rise to the dopamine hypothesis in which these individuals suffer from a dopamine transporter dysregulation and are unable to regulate the reuptake of this neurotransmitter (Hall et al. 2013; Mash et al. 2009; Vilke et al. 2012b; Wetli 2006). This dopamine dysregulation is linked to psychosis and is also believed to affect thermoregulation causing the hyperthermic state common with ExDS (Hall et al. 2013; Howes and Kapur 2009; Mash et al. 2009; Vilke et al. 2012b; Wetli 2006). This, along with an excess of the other two catecholamines in the brain, epinephrine (adrenaline) and norephinerine, which “prepare[s] the body for the fight or flight response by increasing the heart rate, blood pressure, and glucose levels” (IACP National Law Enforcement Policy Center 2014:3) creates a dangerous convergence. The resulting effect of this catecholamine surge is the manifestation of the commonly displayed features of ExDS (e.g., superhuman strength, pain tolerance, extreme endurance) and can also potentially trigger a lethal syndrome called stress cardiomyopathy (Goudge et al. 2013).

DiMaio and DiMaio (2004) found subjects which had a history of mental illness who died from ExDS almost always had a history of schizophrenia or bipolar disease. This psychiatric etiology of ExDS provides further support for the dopamine hypothesis which is central to explaining schizophrenia (Howes and Kapur 2009; Vilke et al. 2012b).

Vilke et al. (2012b) have also found that fatal cases of ExDS frequently cite abrupt cessation of psychotherapeutic medications which are used to regulate dopamine dysregulation in these individuals. In addition, norepinephrine and epinephrine levels in subject with schizophrenia are elevated, which is consistent with the onset of ExDS (US Department of Justice 2011).

Lastly, physiological factors and stress associated with constant movement and a prolonged physical struggle also likely plays a role in ExDS fatalities. Ho et al. (2010) conducted a study where they simulated physical resistance and fleeing which led to increased acidosis (too much acid in bodily fluid) and catecholamines, concluding that as contributing or causal mechanisms in sudden deaths. Vilke et al. (2012b) have also noted that acidosis appears to contribute to cardiovascular collapse in fatal cases of ExDS.

DiMaio and DiMaio (2004) have indicated a “period of peril” in which Dimsdale et al. (1984:632) found a spike in both epinephrine and norepinephrine following strenuous exercise and “suggest[s] a possible mechanism for an increased risk of cardiac arrhythmias and ischemia during the cool-down period”. Moreover, Dr. Brosseau Murray is cited as stating that individuals with a “higher degree of chronic stress (with long term higher levels of catecholamines) tend to have higher mortality rates during acute episodes of severe stress” (US Department of Justice 2011:17). Excessive strenuous movement can also cause rhabdomyolysis, which is where “muscle fibers break down releasing chemicals, namely myoglobin, into the blood that are harmful to the kidneys” (IACP National Law Enforcement Policy Center 2014:3) and can lead to renal failure (Ruttenber, McAnally, and Wetli 1999).

Goudge et al. (2013:43) concluded in their comprehensive review of the medical and physiological impact of the CEW, that “sudden in-custody deaths resulting from use-of-force events are complicated scenarios that may involve various genetic, behavioural, and environmental factors, all of which can potentially contribute to death ...mak[ing] it difficult to isolate the contribution of any single factor”. The presence or combination of chronic and acute drug use, mental illness, physical exertion, underlying genetic predispositions and their associated adverse effects which have been discussed, all seem to play a role in precipitating sudden death in cases of ExDS. This is consistent with Goudge et al.’s (2013:46) statement that a “combination of emotional stress, extreme agitation, physical exertion, drug intoxication, and less-lethal weapons may culminate in a fatal cardiac event”. This complex and convergent relationship is exemplified in the following diagram (Figure 5).

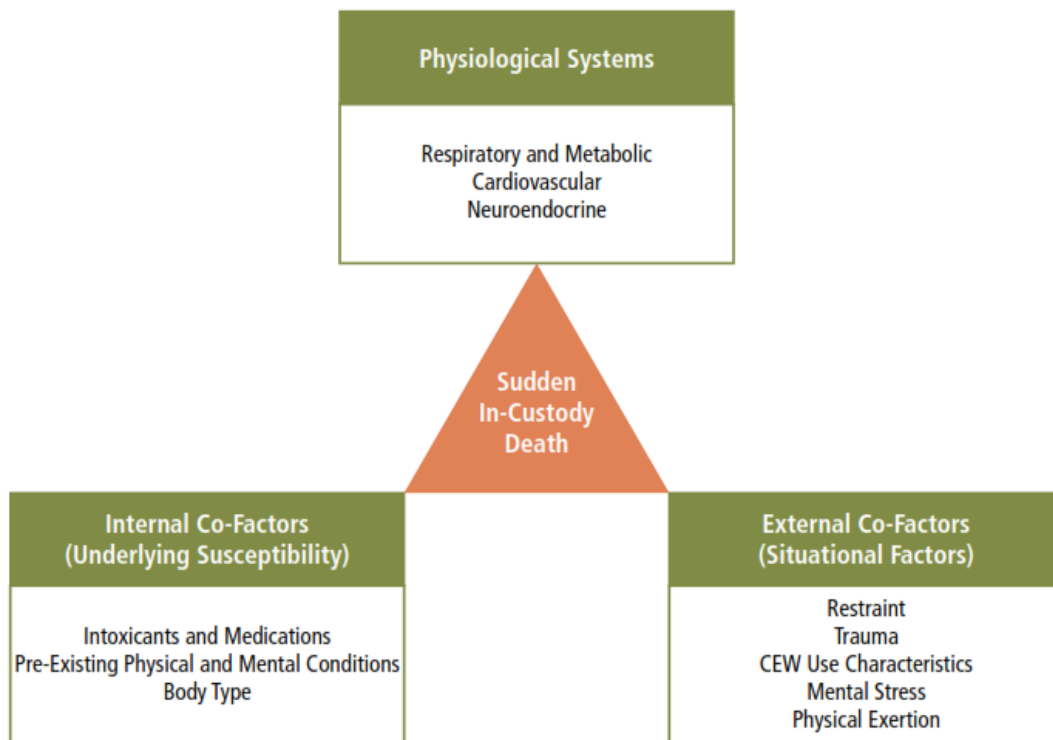


Figure 5 Potential Factors Associated with Sudden In-Custody Death (Goudge et al. 2013)

While these critical situations are made up of a multitude of factors; prevention and intervention strategies can be implemented to reduce the potential for fatal outcomes.

These strategies will be discussed in the following section.

2.2.8 Prevention and Intervention Strategies

ExDS is a medical problem masquerading as a police call. S/Sgt. (ret.) Joel Johnston (as cited in US Department of Justice 2011:26)

ExDS is a medical emergency and as such, it is important that first responders recognize, respond and intervene in these situations accordingly. Training and policy that emphasize prevention and intervention and provide guidelines are integral in ensuring that the police and other emergency services personnel, including dispatchers, provide a coordinated and efficient response (IACP National Law Enforcement Policy Center 2014). From a comprehensive review of the literature, Vilke et al. (2012a:120) found there was a “broad consensus” that early medical intervention of subjects suffering from ExDS should include “rapid control, aggressive sedation, hydration, monitoring and transport [to a medical facility]”.

First, using the common features of ExDS, as soon as it is suspected or identified that an individual is suffering from ExDS, it is pertinent that Emergency Medical Services (EMS) and police backup are immediately dispatched to the scene. In Canada, it is important that all police responses are developed and implemented in accordance with the principles of the National Use of Force Framework and/or Incident Management/ Intervention Model. As such, based on these principals including tactical feasibility and a continuous risk assessment, officers should attempt to de-escalate and contain the subject until backup and EMS arrives. Furthermore, containment and de-escalation will minimize both the subject’s amount of stress and exertion (Vilke et al. 2012a). However, since one

of the principle features of ExDS is a lack of response to police presence, it is recognized that attempts to de-escalate are often not an effective means of gaining a subject's compliance in many cases (IACP National Law Enforcement Policy Center 2014). In cases where these attempts are not successful, “physical restraint *must* [emphasis added] be used in order to bring the person under control and to administer necessary medication treatments (Kutcher et al. 2009: 13). The IACP (2014) note that due to the elevated threshold for pain demonstrated by many of these subjects, pain compliance techniques such as OC spray, the CEW and impact weapons, are normally ineffective. In waiting for backup, this will allow the opportunity for a coordinated multiple-member response to restrain the subject and should expedite control and subsequent medical treatment. Members should anticipate that subjects who are in a state of ExDS may generate substantial resistance for a prolonged period of time. Consequently, it has been recommended that “judicious restraint of the patient will prevent ongoing use of the large thigh and arm muscles, which consume oxygen and contribute to acidebase disturbances” (Vilke et al. 2012a:120) and catecholamine surge (American College of Emergency Physicians Excited Delirium Task Force 2009). Thus, it is important that control is rapid to reduce the amount of struggle which could aggravate the situation and increase the likelihood of death (IACP National Law Enforcement Policy Center 2014; Kutcher et al. 2009).

Kutcher et al. (2009:18) determined that the type of restraint should be “the least restrictive means of bringing the subject under control in the shortest period of time”. This can include the utilization biomechanics such as leverage and muscle misalignment (Force Science Institute 2007). These techniques avoid the use of unnecessary or

excessive weight or compression to the chest, neck, or head and will circumvent restriction of breathing (IACP National Law Enforcement Policy Center 2014). In addition, multiple handcuff techniques also known as creating a ‘daisy chain’ or ‘chain-link’ can be used. These techniques are easier to apply as they do not require the subject’s hands to be behind their back and also allow supine positioning for monitoring and transport on a stretcher (Force Science Institute 2007). Images of these techniques are displayed in Appendix B. As soon as possible, a member should continuously monitor the subject’s vitals and face to assess their airway, breathing, and circulation (ABCs) (DiMaio and DiMaio 2004; IACP National Law Enforcement Policy Center 2014; Kutcher et al. 2009). Sudden tranquility or shallow breathing indicate a substantial deterioration of the subject’s condition (DiMaio and DiMaio 2004; IACP National Law Enforcement Policy Center 2014; Kutcher et al. 2009). Once restrained, the subject should be rolled to a side-lying or face-up position (DiMaio and DiMaio 2004; Kutcher et al. 2009). Subsequently, the subject should be immediately transported to the hospital for medical treatment and observation (IACP National Law Enforcement Policy Center 2014; US Department of Justice 2011). These response measures are summarized in the quick reference card (Figure 6) which is to serve as an aide-memoire for first responders.

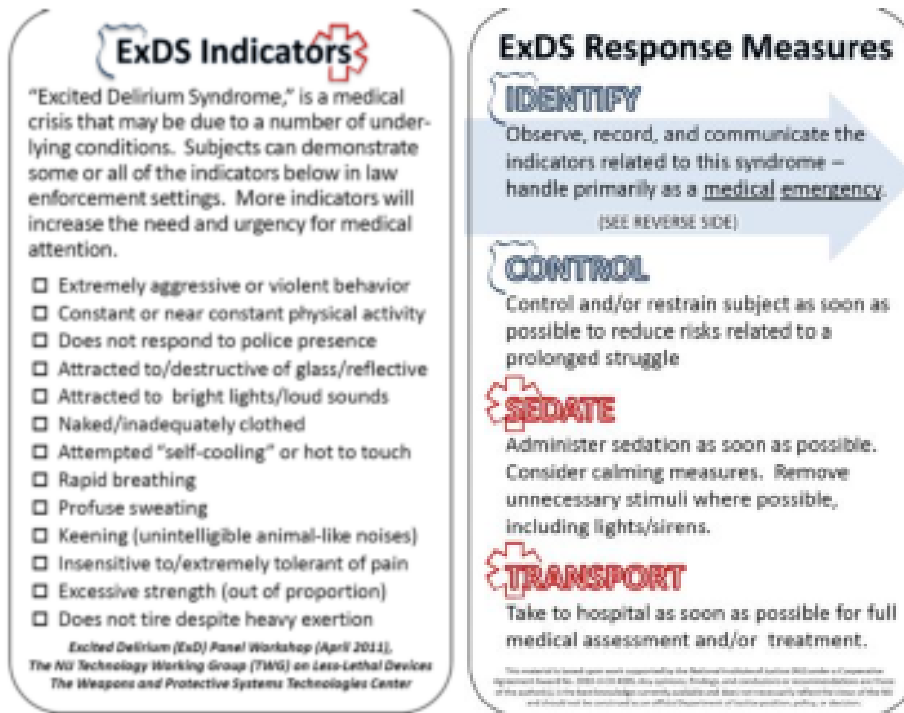


Figure 6 Quick Reference Card (US Department of Justice 2011)

From a medical perspective, it is suggested that treatment protocols include: “rapid sedation, followed closely by external cooling, intravenous (IV) fluids, monitoring, and treatment of potential medical complications” (Takeuchi, Ahern, and Henderson 2011:80). Vilke et al. (2012a) identify three classes of sedatives for individuals suffering from ExDS: benzodiazepines, antipsychotics or ketamine (a dissociative agent). However, these three classes of sedatives vary widely in the time they take to first be administered, as well as the time they take to sedate subjects. For example, benzodiazepines require at least 10-15 minutes for sedation while ketamine, which can be administered by IV or intramuscularly takes effect within 30 seconds and 3-4 minutes respectively (Takeuchi, Ahern, and Henderson 2011). However, due to the acute and rapidly unfolding nature of ExDS, there are no experimental trials of these sedatives, with the risks and benefits being extrapolated from other patient populations (Vilke et al. 2012a). Therefore, it is unclear which sedatives are the most effective and align directly

with the aforementioned medical treatment protocols. For rehydration, IV fluids should be administered, including sodium bicarbonate to address acidosis (American College of Emergency Physicians Excited Delirium Task Force 2009; US Department of Justice 2011). Lastly, to address the hyperthermic state, external cooling methods can include “cooled IV fluids or ice packs, disrobing, misting, cool area, water [and] fans” (Vilke et al. 2012a:120). While subjects suffering from ExDS clearly present medical emergencies and challenges to first responders, early recognition and appropriate resourcing which includes EMS, as well as interventions can greatly improve the subject’s outcome. Interventions comprise appropriate tactics to reduce a struggle and facilitate immediate monitoring of vitals. This section concludes the review of the literature on ExDS and will now delve into the theoretical approach that will be used for this research.

2.3 Theoretical Framework

Research on Excited Delirium Syndrome is typically produced from the medical perspective, thus there is little in the way of socio-theoretical approaches to the analysis. Additionally, much of the sociological research in the area of police and use of force takes a macro level theoretical approach which places greater emphasis on structural issues. This approach is not appropriate for the line of inquiry in the current research. Instead, it is important that a micro level theory is used, which deals with individual interaction and is more consistent with police officer’s approach to the use of force. As such, symbolic interactionism will be used as the theoretical basis for this research. Specifically, Blumer’s (1986:2) tenets that: 1) “human beings act toward things on the basis of the meaning that the things have for them,” 2) “the meaning of such things is derived from, or arises out of, the social interaction that one has with one’s fellows,” and

3) “these meanings are handled in and modified through, an interpretative process used by the person in dealing with the things he encounters,” provide the basis upon which the data will be analyzed in this study. This perspective and its principles, have significant parallels to the principals of the IMIM and an officer’s risk assessment; allowing for significant application of the theory. Use of force is not based merely on an officer’s response to the subject’s behavior; but on the totality of the situation and the officer’s continuous risk assessment which is influenced primarily by the officer’s perceptions, interpretation and assignment of meaning. These concepts are also easily interrelated to the role of law enforcement policy and training as a delivery mechanism for meaning and the opportunity to enhance empathy and understanding, or taking on “the role of the other” (Mead 2009:254). While training received at police colleges provides officers with the fundamentals through training on risk assessments, mental health, intervention and de-escalation, they often rely on their operational experience to guide their actions in novel situations. This is particularly true in the case of policing, where officers face a variety of dynamic, dangerous and stressful situations daily, as well as when dealing with subjects suffering from ExDS who demonstrate extreme behaviours that an officer might never have encountered before. In addition, the elements of self-concept and role will provide insight into how officers' view themselves and their expected role in society, as well as how they portray themselves and their encounters within report narratives.

Since the key debates around ExDS focus primarily on interaction, interpretation and meaning, symbolic interactionism will provide a robust lens for engaging and illuminating this line of inquiry. This theoretical framework can also assist in uncovering why the term is accepted by some segments of society, but not others and demonstrate the

context in which ExDS is being used and how/what type of meaning is attributed to it and the resulting actions. The police do not use, nor are they expected to use, ExDS as a medical diagnosis. However, due to contention in the medical community and a segment of society surrounding the legitimacy of ExDS and its consideration by some as a contested diagnosis, it is important that the literature on the sociology of diagnosis and the medicalization of deviance be examined. This will provide a more critical and balanced view of the debate around ExDS and identify potential adverse effects to the opposing standpoints on this syndrome. By thoroughly examining both perspectives, a greater degree of reflexivity can be achieved throughout the research process and potential areas of concern such as bias can be addressed within this current research.

2.3.1 Symbolic Interactionism

Past is massive; the present is a split second. (Charon 2009:127)

As Blumer (1986:7) states, “human society consists of people engaging in action”. In psychology, human action is associated to individualized factors such as stimuli, attitudes, motives, perception and cognition; while sociology relies on societal influences like social status, structures, culture, norms and values, as well as group affiliation to explain conduct (Blumer 1986:3). However, these theoretical perspectives in isolation tend to omit the importance of both social interaction and individual experience together. Symbolic interaction is a social psychology theory that “seek[s] out everyday situations and explore[s] people’s definitions of them, how people make and take roles, and how they form and enact individual and social action” (Hewitt and Shulman 2009:116) . That is, as Charon (2009:29) states, to understand human action, “we must focus on social interaction, human thinking, definition of the situation, the present, and

the active nature of the human being”. This perspective is based on the viewpoint that the entirety of our lives is a constant social interaction which builds on itself. This leads us to actively creating and defining the world we live in and thus causing us to act the way we do. It is the cumulative experience from childhood that develops definitions and meaning which assist in handling future interactions; however, individuals are “confronted continuously with unexpected and novel events” (Hewitt and Shulman 2009:121). In these novel situations and circumstances, people will “reach into their stock of individual skills and socially acquired knowledge for general principles” (Hewitt and Shulman 2009:28) to help them respond appropriately to what they are facing. When individuals are interacting with others, this process becomes even more dynamic and interrelated as there is an additional need to take into account each other’s actions or potential actions which will then also be used to direct one’s conduct (Blumer 1986:8). This is an “interpretative process” in which first, an individual “indicates to himself the things toward which he is acting” and second, “by virtue of this process of communication with himself, interpretation becomes of a matter of handling meaning” (Blumer 1986:5). The interpretive process, meaning and action are also influenced by an individual’s perception. If I perceive a situation or individual to be dangerous, my interpretation, attribution of meaning to objects and actions will change in accordance with these perceptions. As Charon (2009) puts it:

[a] perspective is an angle on reality, a place where the individual stands as he or she looks at and tries to understand reality. An angle will always limit what one sees, since other angles – many of which may also be accurate – cannot be considered at the same time. (p. 3)

Thus, while perception is a person’s reality, these realities differ from one to another.

Lastly, emotions are also included in this interrelated equation. Feelings such as fear, stress, hate and empathy “are associated with physical sensations and they are physiological responses to situations” (Hewitt and Shulman 2009:57), thus impacting conduct. In summary, meaning is developed from prior knowledge and experience gained from social interactions. Though this will guide action, it does not dictate the response, as the interpretative process is also impacted by in-the-moment perceptions which may confirm, re-shape or repudiate this meaning. Furthermore, because actions and meaning are developed through an individual’s own social interactions, they will often be consistent with others in society but also will vary from person-to-person, time and place.

A central notion of symbolic interactionism is meaning, as it is seen that “conduct is predicated on meaning” (Hewitt and Shulman 2009:26). Meaning is understood as a social product that emerges and is formed through continuous social interactions and thus, is never fixed or absolute (Blumer 1986; Hewitt and Shulman 2009). As Hewitt and Shulman (2009:118) eloquently put it, “as events do or do not occur as expected, a past is created, and the meaning of the present is transformed”. Meaning is attributed to objects including those that are physical, social (e.g. language, symbols) or abstract (e.g. anger, fear) (Blumer 1986). To learn the meaning of an object, it entails labelling it, as well as determining how yourself and others act or will act towards it (Blumer 1986; Hewitt and Shulman 2009). Thus, Hewitt and Shulman (2009:123) conclude that “objects do not merely exist; they exist by virtue of people’s defining efforts”.

Social interaction, defining of objects and transmitting meaning relies heavily on the use of symbols. The most fundamental and powerful set of symbols is the human language and communication such as body language and gestures. The vital piece of

communication is that “the symbol should arouse in one’s own self what it arouses in other individual” (Mead 2009:149), also labelled by Mead as a “significant symbol”. Hewitt and Schulman (2009:8) exemplify this mutually agreed upon and shared social meaning in the use of the word “fire” in which: “the word creates, both in the crowd and in the one who shouts it, a certain attitude – a readiness to act in a particular way, images of conduct appropriate to the situation, plans of action”. Not only do symbols allow people to act on, define and redefine situations and objects, it also provides the opportunity to create and define new words to meet emerging needs (Hewitt and Shulman 2009:39). This is most prevalent in the new social media trend in which blogging, tweeting and selfies have been recognized as capturing new actions. Thus, symbols which are central to this theoretical perspective are arbitrary, socially created and have a shared meaning.

As humans, we live in a named world in which “people cannot act toward that which they cannot name” (Hewitt and Shulman 2009:27). From the time we are children, we are taught the importance of labelling objects which enables us to attribute meaning and determine how we will act towards that object. According to Charon (2009):

...through calling something a name we have identified it, marked it out and distinguished it, and we are able to store it for later application. We can recognize similar objects and call them by that name. Naming an object allows us to apply the name to another situation without the object’s immediate physical presence. (p. 63)

However, Becker (1963:9) has noted the pitfalls of labelling, particularly of deviance, as “social groups create deviance by making the rules whose infraction constitutes deviance, and by applying those rules to particular people and labelling them as outsiders”. This is seen as a method of social control in which those who have power create, define and

label groups, individuals and behaviours deemed to be undesirable or changeable (Hewitt and Shulman 2009). When a person deviates from the set norm or acts strangely, there is a disruption in the appearance of order and control, threatening the state and dominant power relations. It is then that agents of social control or tools/mechanisms of the state such as the police are responsible for enforcing the collective ideals. Again, these labels and definitions of what is undesirable are variable, with society continually and collectively redefining what constitutes deviance. As Blumer (1971) postulates:

...social problems are not the result of an intrinsic malfunctioning of a society but are the result of a process of definition in which a given condition is picked out and identified as a social problem. A social problem does not exist for a society unless it is recognized by that society to exist. (p. 301)

This is demonstrated by the more contemporary emphasis on social ‘problems’ such as impaired driving, immigration, terrorism, child abuse/labor and bullying which have been deemed by society to require public and government action. With regards to child abuse “this violence has been a consistent historical reality – it is the societal reaction to this violence that has changed in identifying this violence now as a social problem” (Hewitt and Shulman 2009:22). And while most would agree that these are important issues, sensationalist and sloganizing techniques are often used by the media, institutions and those in power, to create moral panic amongst the public (Glassner 1999). Consequently, the harm and prevalence of certain issues are overestimated and more problematic and far-reaching issues such as structural violence (e.g., poverty, world hunger) are ignored. In contrast, historically deviant views of homosexuality and mental health issues have shifted with social action to become embraced and normalized. Additionally, Merton (1968:477) warns of the self-fulfilling prophecy in which these socially created labels and

“false definition of the situation evok[e] a new behavior which makes the originally false conception come true”. In this case, negative labelling and stereotyping can create undesirable behaviours in individuals that previously did not exist, thus reinforcing the stigmatizing label. Therefore, labels can have both positive and negative affects either by generating awareness/acceptance or stigmatizing individuals and as such, the application of these labels and the labelling process (i.e., societal attribution of meaning) needs to be viewed critically.

Other important elements of symbolic interactionism is the self – how do I view myself; role-taking – how does another individual see me; generalized other – how do I look to society; and roles, which allow individuals to situate themselves in situations. First, the self is the ability for an individual to see themselves from the outside as an object. By taking an outsider's perspective one conducts their “actions toward others on the basis of the kind of object he is to himself” (Blumer 1986:12). Mead (2009) states that;

[t]he self is something which has a development; it is not initially there, at birth, but arises in the process of social experience and activity, that is, develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process. (p.135)

Meaning that, individuals gain a sense of self by observing the reactions others have towards them throughout their daily social interactions. Self as an object involves self-talk in which people interact with themselves and recognize their own emotions (Blumer 1986). This recognition of emotions allows one to “label them, control them, hide them, direct them, use them to achieve goals, and even try to alter them...there is a control that the [individual] exercises over his or her emotions, actions that take place in relation to

self.” (Charon 2009:132). How one might conceptualize oneself is also influenced by the following: social identity in which they exist in society at large; personal identity they have built throughout a lifetime; and role which is a “cluster of duties, rights and obligations associated with a particular social position” (Hewitt and Shulman 2009:50). These elements organize and structure how one performs in particular situations. For a police officer, this role is to maintain order and public safety, thus when an individual is on duty, they will look at themselves in this way and perform accordingly. This self-concept is similarly seen to be influenced by Cooley’s (1902:152) looking glass self where he presents three principal elements of the self: “the imagination of our appearance to the other person; the imagination of his judgment of that appearance, and some sort of self-feeling, such as pride or mortification”. Such that people define themselves based on how they imagine others around them perceived them. Furthermore, looking at oneself as an object also allows one to “anticipate their own conduct, visualize themselves as a part of their own acts in relation to other people’s acts” (Hewitt and Shulman 2009:45). Role making is acting in accord with these performance frameworks and views of oneself. Role taking is the act of empathy in which one “imaginatively occupies the role of another and looks at self and situation from that vantage point in order to engage in role making” (Hewitt and Shulman 2009:53). Similarly, Charon (2009:66) states that taking the role of the other “allows us to understand others, to clearly communicate with them, to influence them, to sympathize with them”. These are fundamental principles and techniques taught to police officers (e.g., mental health and crisis intervention/de-escalation training) and used throughout the course of their daily operational duties. One does not just take into account self and other individuals with whom they are interacting,

but also as Mead (2009:154) coins it “the generalized other” or society at large. This is particularly relevant to policing where citizen-video, scrutiny and oversight are continually increasing and are resulting in the “internalization of self-control by the police officer results from the potential for the public’s gaze to be focused on that officer” (Brown 2013:265). It is this self-communication, self-perception and self-control that greatly influence how we interact with others (Charon 2009:78)

2.3.2 Sociology of Diagnosis & Medicalization of Deviance

There is considerable debate in medical circles as to the scientific validity of such a “diagnosis” but there appears to be some medical and therapeutic value in clustering the relevant signs and symptoms under such a label. At the same time, using such a term in relation to deaths associated with circumstances where the individuals are restrained could be seen as a way of deflecting the investigation of such deaths away from the actions of law enforcement personnel. (Ranson 2012:667)

Diagnosis is the culmination of “concepts that bind the biological, the technological, the social, the political, and the lived” (Jutel 2011a:13). It is a legitimating force which validates whether “medical attention is warranted, justifies treatment, and consolidates an identity” (Jutel 2011a:98). Much of the debate on diagnosis is to “the degree of ‘reality’ in phenomena-are social problems objectively real, or are they created by purposive action by social labelers and problem finders” (Brown 1995:35). Based on academic and medical literature, as well as police accounts and video footage it is quite clear that the cluster of behavioural and physiological features associated to ExDS identify a medically high-risk situation. While some of these features may be quite subjective (e.g., superhuman strength), for the most part lay consensus would likely be reached on such observable indicators. ExDS as a linguistic framework that labels, describes and associates meaning to this cluster of features, much like all illnesses,

diagnoses and syndromes, has been socially constructed. As Conrad and Schneider (1980:30) state, “illness and disease are human constructions; they do not exist without someone proposing, describing, and recognizing them” and they “represent human judgments of conditions that exist in the natural world, they are essentially....products of our own creation” (Conrad and Schneider 1980:31). Social construction diverges from the traditional positivist view which purports that knowledge can objectively be observed and measured. Constructivists warn that “even statistics purporting to provide evidence for prevalence of the condition are suspect, since such statistics are also a form of construction, and ought to receive no more credence than other claims” (Brown 1995:35). From a social constructionists and symbolic interactionist perspective Hewitt and Shulman (2009:23) explain that “it makes no sense to say that depression is ‘real’ or ‘not real’...it does make sense to say that people have carved out the idea of depression as they have sought to cope with what appears to be a widespread human affliction”. However, as Anaïs (2014:51) cautions, such forms of social construction allows stakeholders such a physicians and law enforcement to “recalibrate their schemes of classification to accommodate changes in the enactment of excited delirium...stabiliz[ing] excited delirium as a medical condition and defin[ing] new possibilities for human existence at the moment that human life has ceased”. Thus, social constructionists support the previous argument that official recognition of this syndrome could be utilized to justify professional misconduct.

Let us first examine “delirium” as an example of social construction of diagnosis as it is closely related to ExDS and includes substance intoxication delirium. This is one of the diagnoses which some the medical community already consider as covering off

ExDS (American College of Emergency Physicians Excited Delirium Task Force 2009; Kutcher et al. 2009; US Department of Justice 2011; Vilke et al. 2012b). Further, as delirium is included in the DSM it has been considered by medical experts as a legitimate and real diagnosis. The essential feature of a delirium as described by the APA's DSM-IV (2000) as a:

...*disturbance* of consciousness that is accompanied by a *change* in cognition that *cannot be better accounted for* by a preexisting or evolving dementia. The disturbance develops over a short period of time, *usually* hours to days, and *tends* to fluctuate during the course of the day. There is *evidence* from the history, physical examination, or laboratory tests that the delirium is a direct physiological consequence of a general medical condition, Substance Intoxication or Withdrawal, use of a medication, or toxin exposure, or a Combination of these factors. (p.124; emphasis mine)

As Conrad and Schneider (1980:30) have posited “the pathologist sees the disease, the physician sees only signs and symptoms of illness and infer disease”. As such, delirium takes a previously unknown group of signs or symptoms related to consciousness and cognition, summarizes and labels them, thus creating a new diagnosis of an underlying pathophysiology. This case definition demonstrates the broad and subjective nature of such a diagnosis with terms such as “disturbance”, “change”, “cannot be better accounted for” “usually”, “tends” and “evidence”; while providing multiple etiologies for causation. While attempting to clarify some terms further, three criteria are listed for this diagnosis, there is still much left open to interpretation, with:

- A. The disturbance in consciousness is manifested by a reduced clarity of awareness of the environment. The ability to focus, sustain, or shift attention is impaired (Criterion A).
- B. There is an accompanying change in cognition (which may include memory impairment, disorientation, or language disturbance) or development of a perceptual disturbance (Criterion B).

- C. The disturbance develops over a short period of time and tends to fluctuate during the course of the day (Criterion C).

To this end, ExDS is very similar as it has presentable features which are not accounted for by other diagnoses and is caused by numerous etiologies. However, it differs in that it is an acute and rare syndrome. Furthermore, the DSM (2000) warns of cultural and educational limitations of a diagnosis of delirium, in that:

[c]ultural and educational background should be taken into consideration in the evaluation of an individual's mental capacity. Individuals from certain backgrounds may not be familiar with the information used in certain tests of general knowledge (e.g., names of presidents, geographical knowledge), memory (e.g., date of birth in cultures that do not routinely celebrate birthdays), and orientation (e.g., sense of placement and location may be conceptualized differently in some cultures). (p.124)

These limitations provide the greatest evidence for social construction as the diagnostic processes created for diagnosis can be misapplied to cultures and educational backgrounds that differ from the society or context in which the diagnosis was created.

Now that the nature of social construction of diagnosis has been established, it is important to examine how and why a diagnosis is created. First, for a condition to become a diagnosis, “it must be perceived as visible and undesirable/problematic and perceived to be related to the field of medicine” (Jutel 2011a:3). As Brown (1995:39) indicates “diagnosis locates the parameters of normality and abnormality, demarcates the professional and institutional boundaries of the social control and treatment system, and authorizes medicine to label and deal with people on behalf of the society at large”. These demarcations of norms are very much based on the society in which they are created. For example, dyslexia would not be considered problematic in an illiterate society (Jutel 2011a). For determining why a diagnosis has come to be, Brown (1995) poses several key questions:

Why did a condition get identified at a certain point in time? Why was action taken or not taken? Who benefits, or at least avoids trouble, by identification and action? How did the divergent perspectives on the phenomenon merge or clash? How does the person's experience of the illness affect the course of the disease, as well as the social outcome of the illness? (p.37)

The answers to these questions can help elucidate what social, political and economic forces may have played a role in its creation, particularly since “a diagnosis can vindicate and blame, can legitimise or stigmatise” (Jutel 2011b:797). With regards to depression, Hewitt and Shulman (2009:23) assert that “a variety of individuals and social groups – sufferers, healers, insurance companies, do-gooders, and government regulators – have created the concept”. Of particular concern would be where industry has a stake in creating and exploiting diagnosis for financial gain. As Conrad and Schneider (1980:276) present, “medicalization increases with economic profitability” and diagnosis provides a seemingly legitimate cover to hide certain agendas. On the topic of ExDS, Jutel (2011b:798) stresses specifically that it is an “example of how a social locus of causation may be shifted onto pathophysiology”. While the overall intent of ExDS by all intents and purposes appears to be the improvement of police and public safety, with a critical lens, such questions would give credence to Ranson (2012) who states that acceptance of ExDS:

[c]ould give rise to the notion that law-enforcement officials are simply attempting to categorise the death as being the result of natural disease perhaps accompanied by self-administration of stimulant drugs rather than having anything directly to do with the conduct of police officers during the arrest or the various forms of force they employed to achieve it. Such a viewpoint would be attractive to the manufacturers of less lethal products as well. (p.670)

This standpoint on less lethal technology (e.g., CEW, OC Spray, beanbag rounds) is further supported as research on ExDS has been affiliated with TASER International

(American College of Emergency Physicians Excited Delirium Task Force 2009; Ho et al. 2010; Kroll et al. 2009; US Department of Justice 2011; Vilke et al. 2012b). As Justice Braidwood (2010) indicated:

Dr. Ho disclosed that he is an independent, expert medical consultant to TASER International, Inc. He owns shares in TASER, provides consultative advice to TASER upon request for which he received, in 2008, compensation totaling \$61,000. He has also received remuneration from TASER for his testimony or his giving of depositions in six court cases (plus this Commission of Inquiry) on behalf of TASER. (p.302)

Furthermore, the Canadian Association of Chiefs of Police (CACP) has had research on ExDS conducted on their behalf (Manojlovic et al. 2005). Even the current research for this thesis is affiliated with a law enforcement agency. As Hewitt and Shulman (2009:183) emphasize, “what people ‘know’ is influenced by people and organizations that have vested interests in having others perceive the world in a particular way”. Other important forces that play a role in the recognition and promotion of diagnosis include lay activism, as well as moral panics which typically occur “during times of rapid social change and involve an exaggeration or fabrication of risks, the use of disaster analogies, and the projection of societal anxieties onto a stigmatized group” (Campos et al. 2006:58). This perspective is of particular relevance to ExDS as the increase in stimulant use, deinstitutionalization and less lethal technologies. This has resulted in fluctuating attribution and blame on pathophysiology, as well as on various police intervention options (e.g., positional asphyxia, conducted energy weapon, OC spray, and vascular neck restraint).

Debates between what is medical, criminal, deviant and/or a social (ab)norm is nothing new and has been demonstrated in cases of alcoholism, drug abuse, child abuse,

homosexuality, attention deficit/hyperactive disorder, just to name a few. Jutel (2011a:3) states that “diagnosis provides a cultural expression of what a given society is prepared to accept as normal and what it feels should be treated”. As such, we see and will continue to see a process of criminalization, de-criminalization, medicalization and de-medicalization as society deems fit. Conrad and Schneider have proposed (1980:266) a five step theory of a sequential model of the medicalization of deviance which includes:

1. definition of a behavior as deviant;
2. prospecting: medical discovery;
3. claims-making: medical and nonmedical interests;
4. legitimacy: securing medical turf; and
5. institutionalization of a medical deviance designation

From this, it would appear that currently, ExDS rests primarily at step four, though some organizations such as ACEP and NAME have institutionalized it as a unique syndrome. The benefits of such medicalization as Conrad and Schneider (1980:32) suggest are that “the social responses to crime and illness are different. Criminals are punished with the goal of altering their behavior in the direction of conventionality while sick people are treated with the goal of altering the conditions that prevent their conventionality”. Thus by taking this medicalization approach to issues such as alcoholism, it increases tolerance and compassion while allowing for a certain level of legitimization or justification of deviance (Conrad and Schneider 1980). Becker (1963) has warned of the adverse stigmatizing effects of labelling, this would not be the case for an acute state such as ExDS, as not enough time would have lapsed between the official labelling process to cause the subject to redefine themselves. However, this labeling of disease may in fact play an important contribution to the individual experience in cases of ExDS, as it may

help in explaining to someone why they became so violent and destructive, substantially breaking from social norms.

Lastly, as ExDS is considered by some to be a contested diagnosis, this concept will be discussed. Jutel (2011a:88) explains that “whether a disease is contested or not will depend on the degree to which lay people and medicine agree on the nature of a particular condition”. Examples of such illnesses include chronic fatigue syndrome, fibromyalgia, dementia, alcoholism, obesity and sudden infant death syndrome. Another example would be Post-Traumatic Stress Disorder (PTSD) which was previously contested, but has now become widely accepted entering the DSM III in 1980. This was a “discovery of what was present but previously unseen” (Jutel 2011a:88), but was only accomplished through determined and recurrent attempts. Dumit (2006:577) proposes five characteristics of contested diagnoses:

1. They are chronic conditions;
2. They are “biomental”: their nature and existence are contested as to whether they are primarily mental, psychiatric, or biological. They are causally undetermined: their etiology is likewise contested as to social, genetic, toxic and personal possibilities;
3. They are therapeutically diverse;
4. They have fuzzy boundaries and are each crosslinked to other emergent illnesses as subsets, mistaken diagnosis, and comorbid conditions; and
5. They are legally explosive: each condition is caught up in court battles, administrative categorization and legislative maneuvering.

While ExDS is neither chronic nor therapeutically diverse, it does fit into the other three categories as it would be considered biomental with various and unknown etiologies and comorbidities, further due to its association with sudden in-custody death and the use of force, it is legally volatile.

While labelling and association of meaning with diagnosis is a necessity for recognition, identification, intervention and treatment, it is important to be aware and critical of how and why diagnoses are created and used. This perspective will inform the analysis of data, particularly the qualitative inquiry as it will provide insight and context as to how and why ExDS as a descriptor of behaviors is being used. The key to this inquiry will be to determine if ExDS is being used by officers to justify actions or to identify and prevent a medical emergency.

2.4 Conclusion

*What's in a name? That which we call a rose
By any other name would smell as sweet.* (Shakespeare, 1898)

A death by any other name would be just as tragic. While law enforcement officers might only encounter a probable case of ExDS once in every 25,000 police public interactions (Hall and Votova 2013), the potential for a sudden in-custody death (I-CD) is the worst-case scenario for police officers; not only due to the loss of life, but also because of the resulting investigations, inquests, inquiries, litigation, as well as mental and emotional trauma and strain. The review of the literature has shown that ExDS has clear and serious implications for law enforcement which must be addressed. While there are many risk factors and a multitude of etiologies for ExDS, there are also prevention and intervention strategies that can be employed within these dynamic and rapidly unfolding events to diminish adverse outcomes. One of the largest gaps in the literature is that, aside from the work of Dr. Hall and her associates, there is little prospective research on ExDS which has served to limit its recognition in the medical community.

From the theoretical perspectives analyzed, is Excited Delirium Syndrome socially constructed? Yes, but no more than every other diagnosis, illness and syndrome

in existence. There is a cluster of features which, from a review of sudden and unexpected in-custody deaths, indicates that these subjects are suffering from a medical emergency. This requires labelling and association of meaning (e.g., medical emergency) so that appropriate action such as recognition, identification, intervention and treatment can occur. While Justice Braidwood (2010:15) was correct in saying that an “officer’s challenge is not to make a medical diagnosis”, regardless of the label associated with these individuals, these individuals are at risk of death. As such, it is important for first responders (e.g. law enforcement officers, dispatchers, paramedics) to have a standardized and concise label with which meaning (regardless of its status as a medical diagnosis since officers are not expected to diagnose subjects) can be assigned. With this, roles can be defined and officers can respond appropriately to what S/Sgt. (ret.) Joel Johnston refers to as a “medical problem masquerading as a police call.” (as cited in US Department of Justice 2011:26). By not accepting ExDS as a legitimate syndrome, we risk further criminalizing (despite their actions being typically classified as criminal and violent in nature) someone who is suffering from a medical emergency. If this is not to be considered a medical emergency as ExDS implies, police will respond accordingly, unaware that they may be escalating or perpetuating the problem.

Was this syndrome created by the police to cover up excessive use of force? From the review of the literature, it would appear not, as research in this area comes predominantly from the medical community and is supported by those that come in most frequent contact (e.g., ACEP and NAME) with these subjects. While incidents involving ExDS often involve the police due to their violent and criminal nature, these encounters are not exclusive to law enforcement and have been noted in many other settings outside

of policing. Furthermore, the varying historical causes attributed to these deaths and associated with police use of force such as intervention options (e.g., physical force, positional asphyxia, CEW, OC spray, vascular neck restraint) do not appear to be supported by the medical literature and seem to play a limited role in the myriad of other factors involved in these encounters. Without the acceptance ExDS and its research-based foundation, law enforcement agencies are limited in their ability to increase awareness and improve training, policy and response protocols. This will ultimately hinder the goal of preventing future cases of sudden in-custody death.

Data and Methods

2.5 Data

The secondary data used for this research was collected through the Subject Behaviour/Officer Response (SB/OR) database of the Royal Canadian Mounted Police (RCMP). This database contains records of incidents where a police officer employed force and is used to assist officers in articulating their actions for court. As a result, all information is self-reported by the officer and is based on their perceptions at the time of the incident. Multiple reports are required if more than one officer used force during an incident and reports can include multiple subjects and/or multiple use of force events. Events are captured for differing intervention options used (e.g., both the OC spray and baton were used), to document an escalation or de-escalation in the use of an intervention option (e.g., CEW was used in stun mode, then in probe mode), or a temporal break between the use of an intervention option (e.g., OC spray used when the subject was first encountered and again once in cells). These reports serve not only for court, oversight and accountability purposes, but provide the agency with the ability to conduct statistical

and trends analysis to provide evidence based decision-making for policy, training and the procurement of equipment (Royal Canadian Mounted Police 2009b).

The data was released through a Research Application and Undertaking as outlined in section 8(2)(j) of the Privacy Act (Department of Justice 1985b:6) which states:

Disclosure of personal information

8. (1) Personal information under the control of a government institution shall not, without the consent of the individual to whom it relates, be disclosed by the institution except in accordance with this section.

Where personal information may be disclosed

(2) Subject to any other Act of Parliament, personal information under the control of a government institution may be disclosed

(j) to any person or body for research or statistical purposes if the head of the government institution

(i) is satisfied that the purpose for which the information is disclosed cannot reasonably be accomplished unless the information is provided in a form that would identify the individual to whom it relates, and

(ii) obtains from the person or body a written undertaking that no subsequent disclosure of the information will be made in a form that could reasonably be expected to identify the individual to whom it relates;

As such, as part of the conditions for release, the data utilized within this paper was vetted of personal information and the identifiers necessary for matching records (e.g., file number, officer ID numbers) were randomly recoded to ensure anonymity. This anonymized data received the required approval before being released. The use of the data for the current research was also approved by Carleton University's Research Ethics Board (Project #13069 13-1422).

2.6 Sample

The data used for this research came from an extract of the SB/OR database taken in May, 2014. The data was converted to a dataset in IBM SPSS Statistics for Windows,

Version 22.0 which is a statistical package for the social sciences (IBM Corp 2013). The data parameters for the study included the two year period of January 1, 2012 to December 31, 2013. Since reporting of the lowest level of force, physical control soft (e.g. joint locks, come-along techniques, handcuffing), is only required if it resulted in an injury, this level of force was excluded from the study to ensure consistency. Furthermore, only applications of force and not use of interventions as deterrent (draw and display) were included. For a major police incident such as a death or serious injury, other investigative and reporting processes are initiated; meaning an SB/OR report for these incidents may not be completed until the investigative process is concluded. These investigations can be lengthy and as a result, such incidents during this time period may not appear in the dataset.

The quantitative research data includes 5244 SB/OR reports by 2893 officers for approximately 4731 incidents. These reports contain 5962 use of force events on approximately 4799 subjects. Moreover, the study population includes 73 probable cases of ExDS. This is a similar study population and subpopulation to that of the only other prospective research on ExDS, which collected data from seven agencies over a seven year period (Hall and Votova 2013). For the purpose of this research, probable cases of Excited Delirium Syndrome will be defined as the presence of six or more of the following ten features as this “describe[s] an individual who is highly abnormal, and who is in a state that could only be described as a medical emergency” (Hall and Votova 2013:35). The ten features used by the RCMP vary slightly from recent research in the area and thus, there may be some limitations on the data and comparisons that can be drawn from it (refer to Table 6).

Table 6 - Comparison of ExDS Features Captured

RCMP (2011) adapted from (Hall et al. 2009)	(Hall et al. 2013)
<ul style="list-style-type: none"> • pain tolerance • constant/near constant activity • not responsive to police presence • superhuman strength • rapid breathing • doesn't fatigue • naked/inappropriately clothed • sweating profusely • tactile hyperthermia • glass attraction/destruction 	<ul style="list-style-type: none"> • pain tolerance • constant/near constant physical activity • not responding to police presence • superhuman strength • rapid breathing • not tiring despite heavy physical exertion • naked/inappropriately clothed • sweating profusely • hot to the touch • attraction to/destruction of glass/reflective surfaces

A category of three to five indicators will also be included for comparison and to ensure consistency with similar studies (Hall et al. 2009; Hall et al. 2013). An eleventh indicator “violent behavior” was not included as Hall et al. (2013:104) states:

The majority, 66% of the total cohort, demonstrated violence or extreme aggression at the time of the use of force encounter. Since violent events are not anticipated to be unique to individuals in a state of excited delirium and two thirds of the cohort was described to be violent at the time of the interaction, including individuals with no features of excited delirium, we believe that the presence of violence will not serve as a potential discriminator between subjects suffering from Excited Delirium Syndrome and those who are not.

Thus, "violent behaviour" is common amongst use of force encounters and not necessarily considered indicative of ExDS. Furthermore, these ten features of ExDS in the current study population are only available to be checked off if the officers indicated in the report that they perceived the subject to be emotionally disturbed.

For the qualitative inquiry, due to the limits on attaining more data and restricted to the currently available dataset, theoretical sampling for this research was conducted at

the onset. To do this, reports including eight or more features of ExDS were selected to create a partial sample of probable cases of ExDs. Additionally, a text search for the term “Excited Delirium” was performed to include reports where the term was used in the officers’ narrative portions. This yielded a sample of 43 reports with the following sub-samples: 9 reports with 8 or more features of ExDS and Excited Delirium not referenced; 17 reports with less than 6 features of ExDs and Excited Delirium referenced; and 17 reports with 6 or more features of ExDs and Excited Delirium referenced. All narrative sections of the reports were used including: “Known History”; “Description of Subject Behaviour”; “Communication”; “Risk Assessment & Description of Event”; and “Incident Summary”. The following section will discuss the research design that will be employed to maximize the strengths and limit the weaknesses of both the qualitative sample and quantitative study population.

2.7 Research Design

Epistemological purity doesn’t get research done. (Onwuegbuzie and Leech 2005:377)

The data obtained for this study provides a large study population with close-ended questions for quantitative analysis and a smaller sample of open-ended narratives for qualitative inquiry; both having strengths and weaknesses. The following sections will provide a background on mixed methods research, discussing the benefits and limitations of each individual method, as well as debates on combining the two. This will provide the necessary rationale to support the choice of this pluralistic research design.

2.7.1 Mixed Methods

Mixed methods research is the combination of both qualitative and quantitative research methods, and is recognized by some as the third methodological paradigm

(Creswell and Plano Clark 2007; Johnson, Onwuegbuzie, and Turner 2007; Kral, Links, and Bergmans 2011). The formative period of mixed methods began in the 1950s, with researchers showing an initial interest in using more than one method in a study (Creswell and Plano Clark 2007). Due to the blending of methodological paradigms throughout the 1970s and 1980s, there was debate over the compatibility of mixed methods research between purists, situationalists and pragmatists (Creswell and Plano Clark 2007; Johnson, Onwuegbuzie, and Turner 2007). Although this debate still continues, methods and designs for mixed method studies have been developed and since the early 2000s, there has been a movement to designate mixed methods as a separate research design and the third methodological approach (Creswell and Plano Clark 2007). Through the examination of how other researchers have defined mixed methods, Johnson et al. (2007:123) came up with their own general definition:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

This definition recognizes both qualitative and quantitative methods individually, but presents mixed methods as a more powerful, complete and balanced approach, which is based in the philosophy of pragmatism. It is this philosophy that allows the researcher the flexibility to answer their research question by using the strengths of each method at any stage of the research process. Through this triangulation, mixed methods research can produce the most robust and valid findings, that are theoretically, epistemologically and academically inclusive. The following will discuss this method in relation to its practical and theoretical considerations surrounding epistemological compatibility, objectivity,

validity, generalization and reflexivity, which are integral to this sociological research study.

2.7.1.1 Epistemological & Ontological Compatibility

By first discussing the issues of epistemological and ontological compatibility in mixed methods research a greater understanding of the choice of this methodology can be garnered. In Flyvbjerg's (2001) book *Making Social Science Matter*, he presents a war of the worlds between the social and natural sciences, contemporaneous with a civil war raging within the social sciences between epistemological and methodological purists. Onwuegbuzie and Leach (2005:113) suggest that traditionally this divisive debate would have taken place between "extremes Plato (quantitative research) and the Sophists (qualitative research)". In modern day however, it wages on between positivist (quantitative) and interpretivist (qualitative) purists. The former believe that "social observation should be treated as entities in much the same way that physical scientists treat physical phenomena", while the latter argue for the "superiority of constructivism, idealism, relativism, humanism, hermeneutics, and, sometimes, postmodernism" (Johnson and Onwuegbuzie 2004:14). Meaning that, positivists believe social science research can be scientific, concrete and objective whereas, interpretivists argue that reality is socially constructed and as such, is inherently subjective and subscribe to more of a symbolic interactionist approach. Furthermore, quantitative purists delineate that inquiry should be emotionally detached with results that are open to context free generalizations. In contrast, qualitative purists postulate that generalizations are neither desirable nor possible as the "subjective knower is the only source of reality" (Johnson and Onwuegbuzie 2004:14). This internal philosophical war has led to the incompatibility

thesis which purports that “qualitative and quantitative research paradigms, including their associated methods, cannot and should not be mixed” (Johnson and Onwuegbuzie 2004:14). This however indicates a faulty conception that epistemology dictates methods according to pragmatists who support mixed method research (Onwuegbuzie and Leech 2005).

With the standpoint that “epistemological purity doesn’t get research done” (Onwuegbuzie and Leech 2005:377), mixed methods with its philosophy of pragmatism (e.g., focus on practicality and best-suited method(s) to solve real-world issues) offers a middle ground that “attempts to consider multiple viewpoints, perspectives, positions, and standpoints” (Onwuegbuzie and Leech 2005:113). As such, pragmatists believe that the epistemological, ontological and methodological pluralism and flexibility offered by mixed methods research is essential to social science research "that matters". Thus, this paper will use mixed methods for its current line of inquiry as this approach coincides most strongly with its aims.

2.7.1.2 Objectivity

Quantitative research methods have positivistic underpinnings in that “the essence of science is objective verification, and that their methods are objective” (Onwuegbuzie and Leech 2005:377). This is said to “free us from distortion, bias, and error in intellectual inquiry” and can be achieved through the use of a “specific sequence of activities as definitive of ‘the scientific method’” (Hawkesworth 2006:78). However, it is unlikely that this scientific method employed by the social sciences can explain an objective reality and emulate the natural sciences (Flyvbjerg 2001). The positivistic view

within the social sciences is predominantly found within quantitative purists who assert that “social science inquiry should be objective” (Johnson and Onwuegbuzie 2004:14).

The simplistic assumptions of positivists posit that scientific method can be used regardless of social context and that any well-trained researcher can employ this technique and provide results from the data that are hard and absolute (Hawkesworth 2006). These views however, have numerous critiques from both epistemological and methodological standpoints. Firstly, these assumptions postulate that an objective reality exists and can accurately be explained using quantitative method. This perspective opposes those held by post-positivists who believe that, while there is an objective truth, it can only be known imperfectly, as well as constructivists who do not believe in a universal truth and emphasize subjectivity over objectivity. Second, positivistic views of the scientific method fail to acknowledge the subjectivity that was used in developing these “objective” instruments. This is accentuated by Onwuegbuzie and Leech’s (2005:377) formula that “SUBJECTIVITY + OBJECTIVITY = SUBJECTIVITY”. From the feminist perspective, it is also argued that the male construction of these “objective” methods has made them exceedingly androcentric, as well as that under the guise of objectivity and neutrality, these methods perpetuate inequality and objectification (Fawcett and Hearn 2004; Hawkesworth 2006). Lastly, with regards to the low predictive power typically encountered in quantitative social research, Onwuegbuzie and Leech (2005:378) suggest that these positivistic techniques are “no more inherently scientific than are the procedures utilized by interpretivists”.

Kral et al. (2011:238) argue that these opposing positivist and interpretivist epistemological perspective are “often framed as objective and subjective frames and

methods, reflect[ing] the two academic cultures of science and the humanities”. While Flyvbjerg (2001:139) states that, “‘objectivity’ in phronetic research is not ‘contemplation without interest’ but employment of ‘a variety of perspectives affective interpretations in the service of knowledge’”, which emphasizes the importance of taking a pragmatic, across-methods approach. By mixing methods and becoming a pragmatic researcher who understands and appreciates multiple “opposing” perspectives, it moves quantitative methods towards a post-positivistic perspective while blending it with interpretivist understanding. With this, the focus shifts away from objectivity and looks towards the importance of validity.

2.7.1.3 Validity

In both qualitative and quantitative research methods there are numerous verification techniques that can be used to ensure validity of the research process and results (Onwuegbuzie and Leech 2005). As an example, these techniques can include case-control and randomized sampling in the quantitative research and prolonged engagement and reflexivity in qualitative. When used mono-methodologically, these techniques can only be applied within-method, however, when mixed methods are used, these techniques can be used both within and across-methods which can serve to further improve the study through convergent and discriminant validity (Kral, Links, and Bergmans 2011). With pragmatic researchers’ enhanced understanding and appreciation of the strengths of these techniques, it provides them the flexibility to choose whether quantitative, qualitative or a mix of both is most appropriate to study a certain topic. It also permits the ability to incorporate these techniques into methods in which they might not traditionally be used, such as reflexivity in quantitative research.

Across-method techniques can be applied to both research design and result outcomes. Kral et al. (2011) propose five design methods which include sequential, triangulation, embedded, exploratory and explanatory. These designs use the strengths of each method to assist in either the interpretation of data, location of a subpopulation, further development of the data, providing context and/or adding generalizability; all of which further legitimizes the research. Brannen (2005) identifies four possible result outcomes from these mixed method designs; corroboration, elaboration, complementarity and contradiction. These outcomes have obvious strengths, and though some might see contradiction of results as a weakness, it is believed that this will assist in uncovering methodological shortcomings and oversights in the current areas of study. This type of discovery is one of the greatest strengths of mixed methods research. Further, by incorporating both methods into research, it elicits dialogue and debate from a greater audience of purists, situationalists and pragmatists alike. This necessary discussion will serve to advance mixed methods research and the social sciences. In support of this stance on mixing methods to improve validity, Flyvbjerg (2001:87) emphasizes the importance of depth and breadth, stating that “both approaches are necessary for a sound development of social science”. While the discussion in this section has predominantly addressed internal validity, the next section sets out to explore external validity in social science research.

2.7.1.4 Generalizability

Flyvbjerg (2001) suggests that the social sciences will never be able to develop explanatory and predictive theory or “hard” theory such those provided by the natural sciences. The fairly low predictive power found in even the most rigorous quantitative

studies would seem to support this ideal. However, this is to be expected in social research where one must contend with individual free will, experiences and knowledge. With that being said, Flyvbjerg (2001) proposes that a “soft” theory or prediction which tests propositions and hypotheses through case studies seems to be much more appropriate for social inquiry. In using the methods discussed in the previous section, mixed methods can facilitate and validate soft generalizations, specifically through corroboration of results across-methods. Although qualitative findings “may be generalized to other settings or contexts”, research samples cannot usually be generalized to the parent population (Brannen 2005:175). As a result, generalizability, which has typically been seen as a weakness of qualitative research, can be bolstered as “quantitative data can facilitate the assessment of generalizability of the qualitative data” (Johnson, Onwuegbuzie, and Turner 2007:115). Similarly, shortcomings of quantitative research can be reduced through context and “the power of a good example” (Flyvbjerg 2001:77), grounding the research in the data. Explanatory research design can be particularly useful in locating these “good”, typical, extreme, critical or paradigmatic cases, and reducing the risk of verification bias. Moreover, bringing nuance and context to quantitative data will provide consumers with context-dependent knowledge, which will achieve higher levels in the learning process (Flyvbjerg 2001).

2.7.1.5 Reflexivity

By masking itself with the scientific method and claims of objectivity, quantitative research has attempted to shield itself to the critiques of trustworthiness and “anything goes” approach in interpretive research (Onwuegbuzie and Leech 2005). However, just as qualitative methods can benefit from the generalizability of quantitative

methods; quantitative methods can benefit from reflexivity commonly found in qualitative research. Despite claims of objectivity, subjective decisions are made throughout all stages of quantitative research, including selecting a research question, measurement, statistical techniques and interpretation of results. Additionally, the scientific method commonly employed by quantitative researchers is very androcentric (Hawkesworth 2006). As a result, these methods, along with other “neglected factors such as the interpersonal and institutional contexts of research, as well as ontological and epistemological assumptions embedded within data analysis methods and how they are used” (Mauthner and Doucet 2003:418) can substantially influence the research process and findings. As such, a pragmatic researcher armed with the skills from differing approaches can utilize reflexivity as a “project of examining how the researcher and intersubjective elements impact on and transform research” (Gough and Finlay 2003:4). This will serve to moderate the power imbalances and avoid the perpetuation of inequality by “continually monitor[ing] and audit[ing] the research process” (Gough and Finlay 2003:4). In mixed methods research, reflexivity will prove particularly important to recognize, mediate and utilize competing epistemological, ontological and methodological assumptions.

2.7.2 Conclusion

The epistemological aspect of this research design is particularly salient for this research on ExDS as the theoretical and methodological foundation being used would traditionally conflict. From a positivist standpoint, ExDS relies upon observable phenomena (e.g., behavioural features) which can be measured; despite also being somewhat subjective in nature (e.g., pain tolerance, superhuman strength, tactile

hyperthermia). Conversely, from a constructivist perspective these behaviours have been socially constructed into a syndrome that labels and describes a medically high-risk situation. A mixed methods approach would take into account both of these viewpoints to compare and contrast the resulting analysis. Furthermore, the positivist underpinning is exemplified through the measures and outcome variables which have been recorded in legal documents in a concrete and authoritative manner. However, these measures of effectiveness, injury and situational factors such as subject influences, weapons and emotionally disturbed are very subjective in nature. Additionally, the research data is self-reported by the individual officers and based on the individual officers' previous knowledge, experience and perceptions at the time of the incident; not confirmation after the fact. This retrospective account may also be impacted by the effects of critical incident stress. Though these factors may limit the "objectivity" of a positivist method of investigation, they demonstrate the importance of a constructivist perspective in which "an officer's perception is his or her reality" (Hoffman, Lawrence, and Brown 2004) though it may not be others' reality.

Additionally, to inform law enforcement training and policy, a degree of generalizability, validity and objectivity must be established. However, context and a nuanced understanding are particularly important to the area of use of force and training. It is also important that I employ reflexivity throughout the research process because while this data provides an important perspective from the viewpoint of the officer, it also represents a partial or one-sided account of the incident; thus the data will be biased. Moreover, since I am affiliated with a law enforcement agency, it will be important for me to remain cognizant and reflective of how this positioning may bias the research.

Meeting these diverse research needs cannot be achieved through mono-methodology. A one-sided approach would blunt the analytic potential of this data. From a qualitative perspective, it would provide broad but shallow results which lack a true understanding of the issues at hand and leave biases unchecked. Conversely, delivering a nuanced qualitative analysis that lacks generalizability and predictive power is equally limiting. While both qualitative and quantitative methods have their merits, understanding use of force encounters requires both context and extrapolation to adequately reflect the minutiae of these complex situations while providing the necessary generalizability to guide policy and training. As such, a mixed methods approach will be taken for this research to combine the strengths of each method and diminish their individual weaknesses.

In conclusion, this research design will seek to increase the current study's validity by triangulating or merging the results to make the findings more robust and meaningful. Quantitative methods will be used to test the four hypotheses, as well as to assist in determining which intervention options are most effective for controlling these subjects with the least amount of struggle and present the lowest risk of subject and officer injury. Quantitative measures will also be used to identify a sample for the qualitative inquiry. The qualitative inquiry will then be used to answer six contextual research questions. The results of these inquiries will then be used to corroborate, elaborate, complement and/or contradict each other. The following section will outline the quantitative methods that will be used as part of this mixed methods approach.

2.8 Quantitative Methods

The quantitative analysis will use a case-control study design in which “the outcome is known, and the data that have already been collected are reviewed to determine whether any characteristics impacted the development of the outcome” (Bush 2011:160) . The analysis includes five main sections. First, descriptive statistics will be used to analyze prevalence of demographics, the features of ExDS and rates of comorbidities, risk factors, intervention options and outcome variables. Second, based on a review of the literature, important comorbidities (i.e., drugs and alcohol) and risk factors (i.e., a struggle going to the ground, violent behaviour and perceived possession of a weapon) will be tested to determine their relationship with the presence of features of ExDS and to determine whether these variables should be controlled for throughout the analysis of the outcome variables. Third, it will be determined which intervention options are used most frequently on subjects presenting features of ExDS. Fourth, the four hypotheses (Section 1.1) will be tested to determine the effect of the presence of features of ExDS on outcome variables (i.e., number of use of force events applied, use of force effectiveness, subject injury and officer injury). Lastly, these same outcome variables will be tested in relation to the presence of features of ExDS and the specific intervention options used. The following will provide greater details around the methods that will be used.

2.8.1 Analytic strategy

Before analysis could be conducted, several steps needed to be taken to prepare the data. The data from the SB/OR reports was first converted to IBM SPSS Statistics for Windows, Version 22.0 which is a statistical package for the social sciences (IBM Corp

2013). It should be noted that an SB/OR report is required for each officer that employed force during an incident, thus some incidents may have multiple reports. Additionally, each report may include multiple subjects dealt with during an incident and/or multiple use of force events for differing interventions used on the subject(s) during the incident. As a result, each use of force event represents a unique case in SPSS and multiple reports could refer to the same subject. Since this study predominantly conducts analysis at the subject level, various duplicate checks and data merges were conducted to confirm each subject was only represented once. This ensured that the assumption of independence of observation could be met (Bush 2011; Glidden, Shiboski, and McCulloch 2011; Menard 2002).

Although this research included the entire study population, bootstrapping was used for many of the descriptive statistics relating to the study population and subpopulation rates to provide robust estimates of confidence intervals. This statistical technique was employed to maintain consistency and allow for the comparison of results with similar research from the medical perspective (Hall and Votova 2013; Hall et al. 2013) as well as to facilitate extrapolation of these results to Canadian jurisdictions outside of those policed by the RCMP. With most of the data being recorded through the use of drop-down menus and checkboxes, responses were constrained and hence, no outliers were observed. Additionally, as the variables used in this analysis were mandatory for completion of the SB/OR report, no missing data was observed.

When merging report data for an individual subject, the highest value indicated across reports was selected (i.e., number of police officers on scene, number of features of ExDS, subject behaviour) and any perception of comorbidities or risk factors across

reports was selected (i.e., perceived presence of drugs and/or alcohol, a struggle going to the ground, perceived possession of weapon). Dummy variables were then created for the feature of ExDS displayed by the subject (see 2.6 for aggregate categories), subject behaviour (i.e., aggregating cooperative and resistant behaviours due to low count in the target population) and perceived presence of drugs and/or alcohol. Intervention options were dichotomized (Yes/No) as to whether or not they were applied. Additionally, for the outcome variables, the sum of use of force events that were applied and events that were effective were calculated to create ordinal count variables. Bush (2011:231) states that count data is whenever the “outcome is counted in whole numbers” and is commonly used in public health. Lastly, whether the use of force was ineffective, resulted in subject injury and resulted in officer injury was dichotomized into whether “one or more events” resulted in one of these outcomes.

For the analysis of the outcome variables (i.e., effectiveness, subject injury and officer injury) as it relates to the intervention options used, the original data without merging was used. This was done because the outcomes are specific to the intervention option used. Each use of force option was then individually analyzed to determine the association between the presence of features of ExDS and each of the outcome variables. Due to granularity of this portion of the analysis and the smaller size of the target population, there were zero counts and problems of complete separation. This resulted in inefficient parameter estimates. However, researchers such as Menard (2002:79) have proposed a solution to this by “recoding the categorical independent variables in a meaningful way (either by collapsing categories or by eliminating the problem

category)”. Thus, categories of ExDS (3-5 features and 6 or more features) were collapsed.

The standardized reporting system used to capture the data was developed primarily to assist police officers in articulating their actions for court, not for advanced statistical analysis. As a result, questions are generally responded to with dichotomous “yes”/“no”, checkboxes or ordinal variables with few categories, instead of likert scale type response which would provide more nuanced results. Thus, the assumptions of normality, linearity and homoscedasticity required for an ordinary least squares (OLS) technique, such as multiple linear regression, as well as the advanced statistical technique, structural equation modelling could not be met (Berry 1993; Kline 2012; Menard 2002; Pedhazur 1997). Therefore, binary logistic regression was chosen as the appropriate technique for the analysis of dichotomous data with Poisson regression selected for the analysis of count variables. Both techniques allowed for multiple independent variables to be included in the model. Including multiple predictors, provided estimates that were adjusted/controlled for the effects of all the variables in the model, providing the unique effect of each variable tested. Furthermore, these techniques provides a greater understanding of the relationships between the variables and avoid any confounding effects (Bush 2011). The following sections will provide an overview of these analytic techniques and their assumptions.

2.8.1.1 Logistic Regression

Logistic regression is a statistical technique used to predict the probability of an outcome. The dependent variable must be categorical, though this study will only be using binary logistic regression to analyze dichotomous variables. This technique can be

used with nominal, ordinal and continuous independent variables. Other assumptions include the following: absence of multicollinearity; independence of observation; and linearity between the logit and independent variable (Healey and Prus 2012). A logit is the natural log of the odds and is calculated using the formula in Figure 7.

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_K x_K.$$

Figure 7 - Logistic Regression Model (Bush 2011:210)

While logits are difficult to interpret, odds ratios can be calculated by exponentiating the β by the base of the natural logarithm (i.e., 2.718), which is represented by e^β (Healey and Prus 2012). For interpretation, an odds ratio of 1 indicates there are equal odds of an outcome between groups when the independent variable increases by one unit. An odds ratio greater than 1 means there is a higher odds of an outcome, while an odds ratio less than 1 means there is a decreased odds of an outcome when the independent variable increases one unit. A 95% confidence interval that includes 1 indicates that the results are not significant at the $p < .05$ level.

2.8.1.2 Poisson Regression

Coxe, West, and Aiken (2009:121) present count data as the “number of occurrences of a behavior in a fixed period of time” (i.e., number of use of force events applied to a subject in an encounter). This type of data will be analyzed using Poisson regression. The primary assumption of Poisson regression is that the dependent variable represents a count and comes from a Poisson distribution (Bush 2011). This violates the ordinary least squares (OLS) assumption of normality in that the “conditional distributions of count variables also tend to be positively skewed and kurtotic, with many

low-count observations and no observations below zero” (Coxe, West, and Aiken 2009:130). Furthermore, this also violates the assumption in OLS of homoscedasticity. As a result, the use of OLS regression on count data would produce “undesirable results including biased standard errors and significance tests” (Coxe, West, and Aiken 2009:121). The other main assumption of Poisson regression is that the population mean (μ) defines both the sample mean and variance, denoting that they are all approximately the same (Bush 2011; Coxe, West, and Aiken 2009). Figure 8 provides the formula used for Poisson regression.

$$\ln(\mu) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_K x_K$$

Figure 8 - Poisson Regression Model (Bush 2011:249)

Similar to logistic regression parameter estimates (β) are presented as the natural log of rates between categories. By exponentiating the parameter estimates by the base of the natural logarithm a rate ratio will be provided. Bush (2011:246) explains that a rate ratio is the “ratio of two rates”. Therefore, a rate ratio of 1 means there are equal rates of an outcome between groups when the independent variable increases one unit. A rate ratio greater than 1 means there is a higher rate of an outcome, while a rate ratio less than 1 means there is a decreased rate of an outcome in a group when the independent variable increases one unit. A 95% confidence interval that includes 1 indicates that the results are not significant at the $p < .05$ level.

Lastly, Poisson regression provides a formula (Figure 9) that allows for subjects to have an equal weight despite having varying exposure (t).

$$\ln(\mu/t) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_K x_K,$$

Figure 9 - Poisson Regression Model with Offset Variable (Bush 2011:249)

This enables the number of use of force events applied to a subject to be used as an offset variable to account for the increased struggles associated with ExDS (i.e. the number of ineffective applications of force relative to the total number of applications of force on the subject). Thus, this quantitative method is the most appropriate for the data being analyzed. The qualitative method that will be used in the latter part of this mixed methods research will be discussed next.

2.9 Qualitative Methods

The qualitative inquiry will include text analysis which will be used to determine what meaning police officers attribute to “Excited Delirium”. This will assist in evaluating if police officers are using the term ExDS to identify a medically high risk situation or for other reasons. The sub-samples (as discussed in 2.6) will provide further opportunity to compare and contrast what meaning is attributed to these subjects and why. This may also determine the role that policy and training have on this attribution of meaning, as well as officer’s perceptions and actions. This analytic approach will be used to identify key concepts presented in these encounters and develop a storyline or case study to assist with understanding the issue. The qualitative results will be used to elucidate quantitative findings, particularly around risk factors, the features of ExDS and their predictability of a medical emergency, intervention techniques, as well as injury and effectiveness related to intervention options. Findings of the text analysis will provide further areas of inquiry for quantitative analysis. The results from these differing methodological perspectives will then be compared and contrasted to corroborate,

elaborate, complement and/or contradict one another and subsequently, provide more robust overall findings (Brannen 2005).

2.9.1 Extant Text

The extant or pre-existing text used for this probe will provide insight into the viewpoint of these officers, aligning with the theoretical lens adopted by this study (i.e., symbolic interactionism). This methodology is particularly useful since in use of force encounters “an officer’s perception is his or her reality” (Hoffman, Lawrence, and Brown 2004) and these perceptions are based on the individual officer’s knowledge, experience and perceptions at the time of the incident; not confirmation after the fact. This perspective will be critical in determining how officers’ interpret, attribute meaning and act in these situations.

However, Charmaz (2006) has identified that extant text has some serious limitations, such as the context under which the reports are completed. Officers complete these reports as a mandatory requirement to articulate their actions in court, as well as to provide oversight and accountability. Although they are completed for court proceedings, “texts do not stand as objective facts although they often represent what their authors assumed were objective facts” (Charmaz 2006:35). As such, the data is only from the officer’s perspective and based on their interpretation of the incident. It is a retrospective account which may also be impacted by the effects of critical incident stress. While this will provide a nuanced account of these incidents, these narratives will be biased, representing only a partial or one-sided account of the incident. Consequently, they only represent/privilege the dominant voices of police officers instead of subjects, victims or bystanders and may emphasize or omit particular details. In light of this, it will be

important to remain reflexive of the limitations of the data throughout the course of this research. The following will discuss the method of grounded theory that will be used for the extant text analysis.

2.9.2 Analytic Strategy: Grounded Theory

The qualitative inquiry takes a grounded theory approach which, according to Strauss and Corbin (1998:13), “allows the theory to emerge from the data...[as] analysis is the interplay between researchers and data...[and] procedures provide some standardization and rigor to the process”. Thus, grounded theory allows for findings to emerge from the data but also provides a structured, yet flexible process, to guide the researcher. This process includes Strauss, Corbin and Charmaz's three primary elements to theory building: (1) “initial and advanced coding”, (2) “memo-writing” and (3) “theoretical sampling” (Boychuk Duchscher and Morgan 2004:608). To begin this process, due to the limits on attaining additional data, theoretical sampling for this research was conducted at the onset. This provided three sub-samples: 1) reports including eight or more features of ExDS; 2) reports including eight or more features and referenced “Excited Delirium”; and 3) reports that referenced “Excited Delirium” and had less than eight features of ExDS. The reports were printed and categorized into their respective sub-samples.

The first review of the data involved initial coding. This included line by line coding in the margins of the reports and a constant comparative method (Charmaz 2006). These codes were considered “provisional and tentative, rendering a multitude of codes that will later be collapsed, reorganized, and reordered into a more representative whole” (Boychuk Duchscher and Morgan 2004:608). “In vivo” codes or codes that “serve as

symbolic markers of participants' speech and meanings" (Charmaz 2006:55) were used to discover the use of symbolic language (e.g., Excited Delirium, Risk Assessment) used by officers (Annells 1996; Blumer 1986; Charmaz 2006). Early memos were written at the end of the initial coding to identify key themes and concepts that appeared in the data. This was done to assist with the second review of the reports which used focused coding. Focused codes are "more directed, selective and conceptual than word-by-word, line-by-line, and incident-by-incident coding" (Charmaz 2006:57). Furthermore, these codes were used to synthesize large amounts of data from the initial coding, deciding which are the most salient and which categories or concepts should be aggregated (Charmaz 2006).

For the third review, the data was entered into NVivo, qualitative software used to "to manage, shape and make sense of unstructured information" (QSR International 2014). Concepts were then created as nodes and axial coding or "coding that relates categories to subcategories, specifies the properties and dimensions of a category, and reassembles the data....fractured during initial coding to give coherence to the emerging analysis" (Charmaz 2006:60). Once axial coding was completed, memos were written for each of the core categories. Due to the limitations of theoretical sampling, the data was classified in order to assist in the development of emerging theory (Charmaz 2006). This included identifying reports that were completed by different officers for the same incident (e.g., where multiple officers used force on the same subject) for comparison. Additional classifications were created through personal memos to help determine whether I interpreted the subject as a probable case of ExDS based on the officer's narrative, whether the officers had received training that discussed ExDS and the writing style of the officer (i.e., first or third person). Finally, through the use of advanced

memos, these classifications were compared and analyzed for differences (Charmaz 2006). This comparison was facilitated with node and classification tables in NVivo. The following section will summarize this research's overall methodological approach.

2.10 Conclusion

In summary, the use of pluralistic research design will include the triangulation of results from both qualitative (e.g., grounded theory) and quantitative (e.g. multiple regression) methods. The results of these lines of inquiry can then be used to corroborate, elaborate, complement and/or contradict the other. This will provide the depth and breadth required to inform law enforcement training and policy in the area of use of force and medically-high risk situations. The following section will discuss the results of the quantitative analysis.

3 Chapter: Quantitative Analysis

The quantitative analysis will include five main sections. First, descriptive statistics will be used to analyze prevalence of demographics, the features of ExDS and rates of comorbidities, risk factors, intervention options and outcome variables. Second, based on a review of the literature, important comorbidities (i.e., drugs and alcohol) and risk factors (i.e., a struggle going to the ground, violent subject behaviours and perceived possession of a weapon) will be tested to determine their relationship with the presence of features of ExDS and to determine whether these variables should be controlled for throughout the analysis of the outcome variables. Third, this analysis will determine which intervention options are used most frequently on subjects presenting features of ExDS. Fourth, the four hypotheses (Section 1.1) will be tested to determine the effect of the presence of features of ExDS on outcome variables (i.e., number of use of force

events applied, use of force effectiveness, subject injury and officer injury). Lastly, these same outcome variables will be tested in relation to the presence of features of ExDS and the specific intervention options used. Since the theoretical framework of symbolic interactionism focuses on individual perceptions, interpretations, association of meaning and action, it is more appropriate for the qualitative inquiry. Quantitative data by nature is inert of individual symbolic meaning and as such has limited application from this theoretical approach. Thus the use of this micro-sociological theory will be reserved for the following chapter.

3.1 Descriptive Statistics

Table 7 indicates a study population of 4799 subjects on which the police applied force. The number of RCMP occurrences during this time period was approximately 5.4 million, indicating a 0.09% use of force rate or that force is applied in approximately one in every 1125 occurrences. Additionally, with the approximate population size policed by the RCMP during this time at 7 million (20% of Canadian population), this presents a use of force rate of 0.03% or force is applied to approximately one in every 2913 individuals. These rates are lower than the 0.14% of over 3.5 million police public interactions involving the use of force (Hall and Votova 2013), as well as the unpublished results of a meta-analysis I conducted on the 20 largest municipal police forces which found a rate of 0.168% of calls for service (Baldwin 2013). This is likely a result of the diverse geographical range policed by the RCMP, while other studies only included larger metropolitan areas.

Of this study population, 73 (1.5%) or 1 in every 66 use of force encounters have been identified as probable cases of Excited Delirium Syndrome or someone “in a state

that could only be described as a medical emergency” (Hall and Votova 2013:35) as they displayed six or more features. This represents a one in every 74,000 police occurrences and a population rate of 0.001% or one in 96,000. The prevalence rate of 1.5% of use of force encounters is similar to the 2.3% prevalence rate reported by Hall and Votova (2013) of subjects that exhibited six or more concomitant features of ExDS during use of force events. Furthermore, 9.2% of subjects in this study population displayed three or more features of ExDS, while Hall and Votova (2013) found a rate of 12%. Possible reasons for this slightly lower prevalence rates are discussed with the results of Table 9. Subjects not perceived to be emotionally disturbed and/or who display less than three features of ExDS will be used as the reference group.

Table 7 - Prevalence of Subjects Displaying Features of Excited Delirium Syndrome

				Bootstrap for Percent ^a	
				95% Confidence	
		Frequency	Percent	Lower	Upper
Excited Delirium Syndrome	Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	73	1.5	1.2	1.9
	Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS	368	7.7	6.9	8.5
	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	4358	90.8	90.0	91.6
	Total	4799	100.0	100.0	100.0

a. Bootstrap results are based on 1000 bootstrap samples

Table 8 demonstrates that subjects displaying six or more features of ExDS tend to be predominantly males (95.9%) with a mean age of 30 ($SD = 9$). A one-way between subjects ANOVA was conducted to compare subject age of the reference group, subjects who displayed three to five features of ExDS and those that presented six or more. This

did not indicate a significant difference in age at the $p < .05$ level for the three categories [$F(2, 4796) = 4.87, p = 0.615$]. Studies on fatal cases of ExDS have shown consistent results in that 94.7% subjects are male (Grant et al. 2009; Mash et al. 2009; Pollanen et al. 1998; Ross 1998; Ruttenber, McAnally, and Wetli 1999; Stratton et al. 2001) with a slightly higher mean age of 33.3 (Grant et al. 2009; Mash et al. 2009; Ross 1998; Ruttenber, McAnally, and Wetli 1999; Stratton et al. 2001).

The target population tends to have a lower rate of alcohol use on its own and a higher rate of drugs and poly-substance use which is also supported by other research (Hall et al. 2013). Furthermore, individuals displaying six or more features also demonstrate a higher rate of a struggle going to the ground (89%), more serious levels of subject behaviour (79.5%) and being perceived to be in possession of a weapon (50.7%) compared to the reference group. This indicates a substantially greater risk to officers in ExDS situations versus non-ExDS situations. A one-way between subjects ANOVA was conducted to compare the number of members on scene amongst the three categories. This analysis determined that there was a significant effect at the $p < .05$ level for the three conditions [$F(2, 4796) = 12.596, p < 0.001$]. Post hoc comparisons using the Tukey HSD test indicated that the mean number of members on scene for subjects displaying six or more features of ExDS ($M = 3.44, SD = 3.4$) was significantly different than the reference group ($M = 2.59, SD = 2.14$). However, subjects who displayed six or more features of ExDS did not significantly differ from subjects who presented three to five features ($M = 3.05, SD = 2.46$). This indicates that there are generally more police officers on scene during incidents involving probable cases of ExDS. It is suggestive that either more officers are being dispatched or requested to attend these scenes due to the

higher risk involved; a prolonged struggle which enables more officers to get to the scene during this time; and/or that these incidents are more prevalent in populous areas (where there is a greater frequency of mental health and drug abuse issues) in which more officers are available.

A one-way between subjects ANOVA was conducted to compare the number of force events applied to the subjects amongst the three categories. This analysis determined there was a significant effect at the $p < .05$ level for the three conditions [$F(2, 4796) = 65.117, p < 0.001$]. Post hoc comparisons using the Tukey HSD test indicated that the mean number of force events applied to subjects displaying six or more features of ExDS ($M = 1.81, SD = 1.32$) was significantly different than the reference group ($M = 1.21, SD = 0.58$) and subjects who presented three to five features ($M = 1.50, SD = 0.93$). As a result of the increased number of interventions applied to subjects displaying six or more features of ExDS, they have a higher rate for all of the use of force intervention types listed. Lastly, use of force on these subjects has a lower rate of effectiveness and higher rate in resulting in officer injury. Interestingly, the injury rate resulting from the use of force on these subjects is lower than the reference group.

Table 8 - Frequencies

	Excited Delirium Syndrome					
	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group) (N=4358)		Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS (N=368)		Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS (N=73)	
	Column N		Column N		Column N	
	%	Mean	%	Mean	%	Mean
Gender						
Male	90.8%		89.4%		95.9%	
Female	9.2%		10.6%		4.1%	
Subjects Age		31		32		30
Subject Perceived to be Under the Influence of Drugs and/or Alcohol						
No Drugs or Alcohol	23.9%		22.0%		9.6%	
Alcohol (only)	48.4%		19.3%		4.1%	
Drugs (only)	7.9%		19.8%		46.6%	
Drugs and Alcohol	19.7%		38.9%		39.7%	
Number of Police Officers on Scene		2.59		3.05***		3.44***
A Struggle that went to the Ground	71.2%		84.0%		89.0%	
Subject Behaviour						
Cooperative/Resistant	35.7%		18.8%		20.5%	
Assaultive	53.6%		59.5%		58.9%	
Grievous Bodily Harm or Death	10.7%		21.7%		20.5%	
Subject Perceived or Believed to be in Possession of a Weapon	37.0%		42.4%		50.7%	
Intervention Options Applied						
Physical Control - Hard - Stuns and Strikes	35.9%		37.8%		39.7%	
Physical Control - Hard - Takedown	22.8%		23.4%		24.7%	
Physical Control - Hard - Vascular Neck Restraint/Carotid Control	1.3%		5.4%		4.1%	
CEW - Probe Mode	7.1%		12.5%		16.4%	
CEW - Contact Stun	1.7%		4.6%		12.3%	
OC Spray	25.0%		33.2%		27.4%	
Baton	2.4%		8.2%		13.7%	
Number of Use of Force Events Applied to the Subject		1.21		1.5***		1.81**
One or More of the Interventions Ineffective on the Subject	12.9%		29.6%		45.2%	
One or More of the Interventions Injured the Subject	35.5%		29.1%		28.8%	
One or More of the Interventions Injured the Member	14.1%		22.8%		26.0%	

The difference among means were tested by one way Analysis of Variance (ANOVA) followed by Tukey post hoc multiple comparison. *p<.05; **p<.01; ***p<.001 as compared to reference group.

Table 9 indicates that 31% of subjects on which use of force is applied are perceived to be emotionally disturbed which is higher than the 21% reported by Hall and Votova (2013). Of the indicators of Excited Delirium Syndrome, violent behavior is present in more than double the number of subjects than the next highest indicators and 83% of subjects perceived to be emotionally disturbed displayed violent behaviour. These results support the exclusion of this feature, as it would not be unique to ExDS or serve as a distinguishing feature (Hall et al. 2013). The prevalence ordering of these indicators is similar to that presented by Hall and Votova (2013). However, some of the prevalence rates of the features that appear to be the least distinguishing (i.e., no response to police presence and constant physical activity) are much lower, as these indicators can only be selected when a subject is perceived to be emotionally disturbed, while Hall and Votova (2013) capture these features for all subjects. Interestingly though, despite the different methodology of capturing these features, the remaining features (i.e., pain tolerance, rapid breathing, does not fatigue, superhuman strength, sweating profusely, naked-inappropriately clothed and glass attraction-destruction) present very similar rates to those presented by Hall and Votova (2013). This may be indicative that these are more distinguishing features (see Table 11) of ExDS. Tactile hyperthermia was identified much less frequently than expected, since Hall et al.'s (2013) study population of 1269 included 44 individuals which represented a quarter of subjects that displayed three or more features of ExDS. In this study population, only 7 (1.6%) subjects with three more features displayed hyperthermia. This leads to the belief that these lower rates are a result of the clinical language used, instead of more lay terms such as "hot to touch" (Hall et al. 2013), which may be more appropriate and yield more reliable results. Should data

collection methods have been more consistent with those of Hall and Votova (2013) and Hall et al. (2013), the target population of this current study would likely have been larger.

Table 9 - Prevalence of Subjects Perceived to be Emotionally Disturbed and Features of Excited Delirium Syndrome Displayed by Subjects Perceived to be Emotionally Disturbed (N=4799)

			Bootstrap for Percent ^a		
			95% Confidence		
			Frequency	Percent	
			Lower	Upper	
Subject Perceived to be Emotionally Disturbed			1480	30.8	29.5 32.2
Features of Excited Delirium Syndrome	Violent Behaviour	1223	25.5	24.1	26.7
	Pain Tolerance	544	11.3	10.4	12.2
	Not Responsive to Police Presence	523	10.9	10.0	11.8
	Constant-Near Constant Activity	434	9.0	8.1	9.9
	Rapid Breathing	341	7.1	6.4	7.8
	Does not Fatigue	338	7.0	6.3	7.8
	Superhuman Strength	243	5.1	4.4	5.7
	Sweating Profusely	222	4.6	4.0	5.3
	Naked-Inappropriately clothed	153	3.2	2.7	3.7
	Glass Attraction-Destruction	83	1.7	1.4	2.1
	Tactile Hyperthermia	8	0.2	0.1	0.3

a. Bootstrap results are based on 1000 bootstrap samples

Table 10 demonstrates the presence of indicators in probable cases of Excited Delirium Syndrome. Compared to the results in Table 9, both “does not fatigue” and “superhuman strength” have greatly increased their prevalence in this population.

Table 10 - Features of ExDS in Subjects Perceived to be Emotionally Disturbed Displaying 6 or more Features of ExDS (*n*=79)

				Bootstrap for Percent ^a	
				95% Confidence	
		Frequency	Percent	Lower	Upper
Features of Excited	Violent Behaviour	69	94.5	87.7	100.0
Delirium Syndrome	Does not Fatigue	69	94.5	88.9	98.7
	Pain Tolerance	68	93.2	86.5	98.5
	Constant-Near Constant Activity	62	84.9	76.1	93.4
	Rapid Breathing	62	84.9	76.3	92.5
	Superhuman Strength	59	80.8	71.6	89.7
	Not Responsive to Police Presence	54	74.0	63.0	83.7
	Sweating Profusely	52	71.2	60.5	81.7
	Naked-Inappropriately clothed	44	60.3	49.2	71.9
	Glass Attraction-Destruction	19	26.0	16.4	36.8
	Tactile Hyperthermia	6	8.2	2.3	15.5

a. Bootstrap results are based on 1000 bootstrap samples

Table 11 indicates which features are most distinguishing of probable cases of ExDS compared to the reference group (i.e., perceived to be emotionally disturbed) in that they are more frequently displayed when six or more features are present. Consistent with Hall et al. (2013), hyperthermia appears to be the most distinguishing feature while violence is the least. Furthermore, approximately a quarter of those who were naked or inappropriately clothed, sweating profusely, and displaying superhuman strength, were present in subjects displaying six or more indicators.

Table 11 – Distinguishing Features of Probable Cases of ExDS

		Excited Delirium Syndrome			
		Reference Group		Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	
		Count	Row N %	Count	Row N %
Features of Excited Delirium Syndrome	Tactile Hyperthermia	2	25.0%	6	75.0%
	Naked-Inappropriately clothed	109	71.2%	44	28.8%
	Superhuman Strength	184	75.7%	59	24.3%
	Sweating Profusely	170	76.6%	52	23.4%
	Glass Attraction-Destruction	64	77.1%	19	22.9%
	Does not Fatigue	269	79.6%	69	20.4%
	Rapid Breathing	279	81.8%	62	18.2%
	Constant-Near Constant Activity	372	85.7%	62	14.3%
	Pain Tolerance	476	87.5%	68	12.5%
	Not Responsive to Police Presence	469	89.7%	54	10.3%
	Violent Behaviour	1154	94.4%	69	5.6%

Table 12 indicates the number of features of ExDS presented by subjects perceived to be emotionally disturbed. None of the subjects displayed all 10 features of ExDS and only four subjects presented nine. Within subjects that were perceived to be emotionally disturbed (not displayed in table), 29.8% exhibited three or more features of ExDS and 4.9% displayed six or more features of ExDS.

Table 12 - Number of Features of Excited Delirium Syndrome Displayed by Subjects Perceived to be Emotionally Disturbed

			Bootstrap for Percent ^a			
			95% Confidence Interval			
		Frequency	Percent	Lower	Upper	
Number of Features of Excited Delirium Syndrome*	10	0	.0	0.0	0.0	
	9	4	0.1	0.0	0.2	
	8	6	0.1	0.0	0.2	
	7	21	0.4	0.3	0.6	
	6	42	0.9	0.6	1.1	
	5	60	1.3	0.9	1.6	
	4	122	2.5	2.1	3.0	
	3	186	3.9	3.4	4.4	
	2	286	6.0	5.3	6.6	
	1	437	9.1	8.3	9.9	
	0	316	6.6	5.9	7.3	
	Not Applicable**		3319	69.2	67.8	70.5
	Total		4799	100.0	100.0	100.0

a. Bootstrap results are based on 1000 bootstrap samples

*Excludes violent behaviour

**Not perceived to be emotionally disturbed

Table 13 tests the correlations between the number of features of ExDS displayed by the subject and dependent variables of interest. This identifies a significant correlations between the number of features of ExDS displayed by the subject and the number of officers on scene ($r = .08, p = .001$), force events applied to the subject ($r = .20, p < .001$), applications of force that were ineffective ($r = .24, p < .001$), and events that injured the officer ($r = .10, p < .001$). These results indicate that as the number of features increase, there is a positive, although weak, relationship with these dependent variables. Furthermore, this analysis determines that there is not a statistically significant relationship between the number of features of ExDS and events that were effective ($r = -.03, p = .235$) or injured the subject ($r = .03, p = .324$). Thus, despite an increased amount of force used in these encounters, it does not result in an increased risk of injury to the subject, likely because the majority of these applications are ineffective.

Table 13 - Correlations with Number of Features of Excited Delirium Syndrome Displayed by Subjects Perceived to be Emotionally Disturbed

		Number of Features of Excited Delirium Syndrome	
Spearman's rho	Number of Police Officers on Scene	Correlation Coefficient	0.083**
		Sig. (2-tailed)	.001
		N	1480
	Number of Use of Force Events Applied to the Subject	Correlation Coefficient	.195**
		Sig. (2-tailed)	.000
		N	1480
	Number of Events that were Effective	Correlation Coefficient	-.031
		Sig. (2-tailed)	.235
		N	1480
	Number of Events that were Ineffective	Correlation Coefficient	.235**
		Sig. (2-tailed)	.000
		N	1480
	Number of Events that Injured the Subject	Correlation Coefficient	.026
		Sig. (2-tailed)	.324
		N	1480
	Number of Events that Injured the Member	Correlation Coefficient	.104**
		Sig. (2-tailed)	.000
		N	1480

**Correlation is significant at the 0.01 level (2-tailed).

3.2 Comorbidities and Risk Factors

Table 14 examines pertinent factors that impact a member's risk assessment and response to a situation, as well as comorbidities that may onset ExDs. This demonstrates that when a subject is not perceived to be under the influence of drugs, the odds of presenting six or more features of ExDS are significantly reduced compared to the reference group; 66% lower odds for those not perceived to be under the influence of drugs or alcohol and 95% lower odds for those perceived to be under the influence alcohol alone. This analysis supports alcohol as a protective factor against the excited features of this syndrome. Additionally, it indicates that while the odds of a probable case of ExDS are much lower when the subject is not perceived to be on drugs, it supports the

literature in that some cases may still be onset by psychiatric illness alone (O'Halloran and Lewman 1993; Pollanen et al. 1998). In subjects perceived to be under the influence of drugs by the officer, the odds of presenting six or more features of ExDS increases tenfold compared to the reference group. However, when drugs were perceived to be in combination with alcohol, the odds of presenting six or more features were only 2.7 times higher than the reference group. These results are generally consistent with Hall et al.'s (2013) findings, in that subjects with three or more features, the odds of drug intoxication and mental illness were significantly higher. Conversely, while the odds of the alcohol intoxication in their study were lower, this was not statistically significant (Hall et al. 2013). However, direct comparison could not be achieved as the current analysis separated three to five features from six or more features, analyzed the specific perceptions of drugs and alcohol to avoid confounding effects and due to the fact that features of ExDS can only be selected if a subject is perceived to be emotionally disturbed. The increased rates of drugs and mental illness, as well as reduced rates of alcohol intoxication, also corresponds with the findings in fatal cases of ExDS (Grant et al. 2009; Mash et al. 2009; O'Halloran and Lewman 1993; Pollanen et al. 1998; Ross 1998; Rutenber et al. 1997; Rutenber, McAnally, and Wetli 1999; Stratton et al. 2001).

Situational and behavioural factors included in this analysis were violent behaviours by the subject, a struggle going to the ground and perceived weapons. Compared to the reference groups, subjects displaying six or more features of ExDS were just over two times more likely to be violent, while those who displayed three to five features were slightly higher at almost 2.5 times. This is indicative of the violent nature of these encounters which is consistently noted throughout literature on ExDS and one of

the defining, though not distinguishing features of this syndrome. This significant, although modest, increase in violence is also indicative in that the majority (66%) of all force applied in this study population is on subjects displaying violent behaviour. To further add to the risk of dealing with a probable case of ExDS, the odds of a struggle going to the ground are 3.3 times higher. This is consistent with the high rate of forceful struggles in fatal cases of ExDS (O'Halloran and Lewman 1993; Stratton et al. 2001). Likewise, the odds that these subjects are perceived to be in possession of a weapon increased by 75% compared to the reference group. The most prevalent weapon type in these cases were impact (e.g. hammer, shovel, metal bar, piece of wood) and edged weapons which is logical as these subjects are often breaking items and glass which would provide them access to objects that could be classified in these weapon categories. While this is an extremely important risk factor for officers, no such literature on ExDS was found that examined this relationship. As a result of the significant effect of these comorbidities and risk factors (i.e., perceived subject influences, subject behavior, a struggle that went to the ground and perceived weapons), these variables were controlled for throughout the following inquiry to determine the unique effect of ExDS on the dependant variables.

Table 14 - Odds of Comorbidities and Risk Factors in Subject Perceived to be Emotionally Disturbed and Displaying Features of ExDS

	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	<i>Excited Delirium Syndrome</i>					
		Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS			Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS		
		Unadjusted			Unadjusted		
		OR	OR	95% C.I.	Sig. (p)	OR	95% C.I.
Subject Not Perceived to be Under the Influence of Drugs or Alcohol	1.00	0.90	(0.69 , 1.16)	0.406	0.34	(0.15 , 0.74)	0.006
Subject Perceived to be Under the Influence of Alcohol	1.00	0.25	(0.20 , 0.33)	0.000	0.05	(0.01 , 0.15)	0.000
Subject Perceived to be Under the Influence of Drugs	1.00	2.87	(2.17 , 3.79)	0.000	10.11	(6.30 , 16.22)	0.000
Subject Perceived to be Under the Influence of Drugs and Alcohol	1.00	2.59	(2.07 , 3.23)	0.000	2.68	(1.67 , 4.31)	0.000
Assaultive/Grievous Bodily Harm or Death	1.00	2.41	(1.84 , 3.15)	0.000	2.15	(1.21 , 3.80)	0.009
Struggle that went to the ground	1.00	2.11	(1.59 , 2.81)	0.000	3.28	(1.57 , 6.85)	0.002
Subject Perceived or Believed to be in Possession of a Weapon	1.00	1.25	(1.01 , 1.56)	0.040	1.75	(1.10 , 2.78)	0.018

3.3 Intervention Options

Table 15 examines which intervention options are more likely to be used in encounters with probable cases of ExDS. The results demonstrate that the odds of physical control techniques being used on the subject suffering from ExDS are not significantly different than the reference group. However, the odds of the CEW being applied in contact stun mode are eight times higher and two and half times higher for probe mode for probable cases of ExDS compared to the reference group. The odds of the use of the baton are also significantly higher (six times) than to the reference group. This indicates that while physical control techniques still represent the majority (55%) of all intervention applied to probable cases of ExDS, the CEW for both pain compliance and neuromuscular incapacitation (muscle contraction due to probe deployment), as well as the baton, are being used at a much higher rate in an attempt to control these extreme cases.

Table 15 - Odds of the Application of Intervention Options on Subject Perceived to be Emotionally Disturbed and Displaying Features of ExDS

	Excited Delirium Syndrome						
	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS			Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS		
		Unadjusted			Unadjusted		
		OR	OR	95% C.I.	Sig. (p)	OR	95% C.I.
Physical Control - Hard - Stuns and Strikes	1.00	1.08 (0.87 , 1.35)	0.475	1.18 (0.73 , 1.89)	0.501		
Physical Control - Hard - Takedown	1.00	1.03 (0.80 , 1.33)	0.798	1.11 (0.65 , 1.90)	0.706		
Physical Control - Hard - Vascular Neck Restraint/Carotid Control	1.00	4.34 (2.58 , 7.30)	0.000	3.23 (0.99 , 10.57)	0.052		
CEW - Contact Stun	1.00	2.73 (1.60 , 4.67)	0.000	7.92 (3.80 , 16.50)	0.000		
CEW - Probe Mode	1.00	1.87 (1.35 , 2.60)	0.000	2.58 (1.37 , 4.84)	0.003		
OC Spray	1.00	1.49 (1.18 , 1.87)	0.001	1.13 (0.67 , 1.90)	0.641		
Baton	1.00	3.56 (2.34 , 5.42)	0.000	6.37 (3.18 , 12.75)	0.000		

3.4 Number Use of Force Events

Table 16 uses Poisson regression to test the effects of ExDS on the number of use of force events applied to a subject. This would be indicative of a prolonged struggle, which is typical with these subjects. Probable cases of ExDS indicate a significant unadjusted rate ratio of 1.49, $p < .000$, meaning that compared to the reference group, the rate of use of force events applied to a subject suffering from ExDS is 49% higher. When controlling for subject influences, subject behavior, a struggle that went to the ground and perceived weapons, this rate is reduced to 35%. In the adjusted model, other significant variables that increased the rate of force applied to the subject include the presence of three to five features of ExDS, if the subject was perceived to be under the influence of drugs and alcohol, violent behavior and a struggle going to the ground. In both the adjusted and unadjusted models, the presence of six or more features of ExDS had the largest effect size on the number of use of force events applied to the subject. This demonstrates that the presence of six or more features of ExDS increases the rate of force

being applied and is an indicator of a prolonged struggle or difficulty controlling the subject.

Table 16 - Poisson Regression of Number of Use of Force Events Applied to the Subject

	Number of Use of Force Events Applied to the Subject					
	Unadjusted			Adjusted*		
	RR	95% C.I.	Sig. (p)	RR	95% C.I.	Sig. (p)
Excited Delirium Syndrome						
Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	1.49	(1.26 , 1.77)	0.000	1.35	(1.13 , 1.61)	0.001
Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS	1.24	(1.13 , 1.35)	0.000	1.15	(1.05 , 1.26)	0.003
Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	1.00			1.00		
Subject Influences						
Subject Perceived to be Under the Influence of Drugs and Alcohol	1.14	(1.06 , 1.23)	0.000	1.09	(1.00 , 1.17)	0.037
Subject Perceived to be Under the Influence of Drugs	1.16	(1.05 , 1.27)	0.003	1.08	(0.98 , 1.19)	0.125
Subject Perceived to be Under the Influence of Alcohol	1.02	(0.96 , 1.09)	0.522	1.02	(0.95 , 1.10)	0.527
Subject Not Perceived to be Under the Influence of Drugs or Alcohol (reference)	1.00			1.00		
Subject Behaviour						
Grievous Bodily Harm or Death	1.30	(1.19 , 1.41)	0.000	1.25	(1.14 , 1.36)	0.000
Assaultive	1.17	(1.10 , 1.23)	0.000	1.15	(1.09 , 1.22)	0.000
Cooperative/Resistant (reference)	1.00			1.00		
Struggle That Went to the Ground						
Yes	1.22	(1.15 , 1.29)	0.000	1.20	(1.13 , 1.27)	0.000
No (reference)	1.00			1.00		
Subject Perceived or Believed to be in Possession of a Weapon						
Yes	1.06	(1.01 , 1.12)	0.025	1.06	(1.00 , 1.12)	0.057
No (reference)	1.00			1.00		

*Adjusted all other variables in the model

3.5 Effectiveness

Table 17 uses Poisson regression to test the effects of ExDS on use of force effectiveness. The number of use of force events applied to subject was used as an offset variable to account for the increased struggles associated with ExDS. Probable cases of ExDS indicated a significant unadjusted rate ratio of .05, $p < .000$, meaning that compared to the reference group, the rate of use of force effectiveness is reduced by 95% when applied to a subject suffering from ExDS. When controlling for subject influences, subject behavior, a struggle that went to the ground and the subject perceived to be in possession of a weapon, this rate changes to a 91% reduction in the rate of effectiveness

compared to the reference group. To assist with interpretation, the results can be inverted, showing that the reference group has a rate of effectiveness that is 11 times ($RR = 11.3$, $CI_{95\%} 9.0, 14.2$, $p < .001$) higher than probable cases of ExDS. In the adjusted model, other significant variables that reduced effectiveness include the presence of three to five features of ExDS, subjects perceived to be under the influence of drugs even if combined with alcohol, violent behavior and a struggle that went to the ground. In both the adjusted and unadjusted models, the presence of six or more features of ExDS had the largest effect size on the number of use of force events that were ineffective on the subject. This indicates that officers are at a great disadvantage when dealing with these subjects because their intervention options are often ineffective. This is likely due to prevalent features such as pain tolerance, superhuman strength (e.g., rendering joint locks and other physical control techniques difficult to apply), constant/near constant movement (e.g., causing CEW probes or OC spray to miss the subject), not fatiguing (e.g., resulting in the need to use additional methods to gain control) and profuse sweating (e.g., making the subject slippery, particularly if only partially clothed) which would make it difficult to control the subject.

Table 17 - Poisson Regression of Use of Force Effectiveness (Offset for Number of Use of Force Events Applied to the Subject)

	Number of Events that were Effective**					
	Unadjusted			Adjusted*		
	RR	95% C.I.	Sig. (p)	RR	95% C.I.	Sig. (p)
Excited Delirium Syndrome						
Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	0.05	(0.04 , 0.07)	0.000	0.09	(0.07 , 0.11)	0.000
Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS	0.34	(0.31 , 0.37)	0.000	0.59	(0.53 , 0.66)	0.000
Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	1.00			1.00		
Subject Influences						
Subject Perceived to be Under the Influence of Drugs and Alcohol	0.25	(0.23 , 0.27)	0.000	0.49	(0.45 , 0.53)	0.000
Subject Perceived to be Under the Influence of Drugs	0.64	(0.57 , 0.71)	0.000	0.85	(0.76 , 0.94)	0.002
Subject Perceived to be Under the Influence of Alcohol	1.04	(0.97 , 1.12)	0.238	1.01	(0.94 , 1.09)	0.796
Subject Not Perceived to be Under the Influence of Drugs or Alcohol (reference)	1.00			1.00		
Subject Behaviour						
Grievous Bodily Harm or Death	0.19	(0.18 , 0.21)	0.000	0.30	(0.27 , 0.33)	0.000
Assaultive	0.38	(0.36 , 0.40)	0.000	0.62	(0.58 , 0.66)	0.000
Cooperative/Resistant (reference)	1.00			1.00		
Struggle That Went to the Ground						
Yes	0.31	(0.29 , 0.33)	0.000	0.59	(0.55 , 0.63)	0.000
No (reference)	1.00			1.00		
Subject Perceived or Believed to be in Possession of a Weapon						
Yes	1.16	(1.10 , 1.23)	0.000	0.98	(0.92 , 1.04)	0.487
No (reference)	1.00			1.00		

*Adjusted all other variables in the model

**Offset for Number of Use of Force Events Applied to the Subject

Table 18 also looks at use of force effectiveness using logistic regression. Probable cases of ExDS indicate a significant unadjusted odds ratio of 5.6, $p < .000$. This means that the odds that one or more of the interventions being ineffective on a probable case of ExDS is over 5 ½ times or 458% higher than the reference group. When controlling for subject influences, subject behavior, a struggle that went to the ground and the subject perceived to be in possession of a weapon, the odds changed to 3.7. In the adjusted model, other significant variables that increased ineffectiveness include the presence of three to five features of ExDS, subjects perceived to be under the influence of drugs even if combined with alcohol, violent behavior and a ground struggle. In both the

adjusted and unadjusted models, the presence of six or more features of ExDS had the largest effect size on one or more interventions being ineffective on the subject.

Table 18 - Odds of Use of Force Effectiveness

	One or more of the interventions ineffective on the subject					
	Unadjusted			Adjusted*		
	OR	95% C.I.	Sig. (p)	OR	95% C.I.	Sig. (p)
Excited Delirium Syndrome						
Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	5.58	(3.49 , 8.93)	0.000	3.68	(2.26 , 6.00)	0.000
Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS	2.85	(2.24 , 3.62)	0.000	2.13	(1.66 , 2.74)	0.000
Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	1.00			1.00		
Subject Influences						
Subject Perceived to be Under the Influence of Drugs and Alcohol	1.51	(1.20 , 1.91)	0.000	1.19	(0.93 , 1.51)	0.160
Subject Perceived to be Under the Influence of Drugs	1.97	(1.49 , 2.61)	0.000	1.53	(1.14 , 2.05)	0.004
Subject Perceived to be Under the Influence of Alcohol	0.86	(0.69 , 1.07)	0.175	0.83	(0.66 , 1.04)	0.101
Subject Not Perceived to be Under the Influence of Drugs or Alcohol (reference)	1.00			1.00		
Subject Behaviour						
Grievous Bodily Harm or Death	2.67	(2.05 , 3.46)	0.000	2.37	(1.80 , 3.12)	0.000
Assaultive	1.92	(1.58 , 2.34)	0.000	1.87	(1.52 , 2.29)	0.000
Cooperative/Resistant (reference)	1.00			1.00		
Struggle That Went to the Ground						
Yes	1.68	(1.38 , 2.05)	0.000	1.52	(1.24 , 1.86)	0.000
No (reference)	1.00			1.00		
Subject Perceived or Believed to be in Possession of a Weapon						
Yes	1.10	(0.93 , 1.30)	0.252	1.00	(0.83 , 1.20)	0.983
No (reference)	1.00			1.00		

*Adjusted all other variables in the model

3.6 Subject Injury

Table 19 indicates that despite an increased struggle associated with probable cases of ExDS, while not statistically significant, there is a decrease in the odds of subject injury. This could be indicative of their tolerance to pain or that interventions could not be applied effectively due to features such as superhuman strength, constant/near constant movement, not fatiguing and profuse sweating. The qualitative inquiry will provide greater insight into these findings. The presence of three to five features of ExDS, subjects perceived to be under the influence of drugs and/or alcohol, as well as violent subject behaviours, represents a statistically significant decrease in the odds of injury in

the adjusted model compared to the reference group. The only variables that significantly increased the odds of injury in the adjusted model, was a struggle that went to the ground or if the subject was perceived to be in possession of a weapon. Conversely, subjects presenting a threat of grievous bodily harm or death had significantly decreased odds of injury, which could possibly be explained by the use of interventions that provide greater time and distance for the officers (i.e., OC Spray, CEW in probe mode) and which have lower subject injury rates compared with hands-on techniques. Additionally, subjects perceived to be under the influence of any substance (i.e., drugs and/or alcohol) also demonstrate decreased odds of injury.

Table 19 - Odds of Subject Injury from Use of Force Incident

	One or More of the Interventions Injured the Subject					
	Unadjusted			Adjusted*		
	OR	95% C.I.	Sig. (p)	OR	95% C.I.	Sig. (p)
Excited Delirium Syndrome						
Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	0.73	(0.44 , 1.22)	0.236	0.64	(0.38 , 1.08)	0.093
Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS	0.75	(0.59 , 0.94)	0.014	0.70	(0.55 , 0.89)	0.003
Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	1.00			1.00		
Subject Influences						
Subject Perceived to be Under the Influence of Drugs and Alcohol	0.63	(0.53 , 0.75)	0.000	0.74	(0.62 , 0.89)	0.001
Subject Perceived to be Under the Influence of Drugs	0.78	(0.62 , 0.97)	0.025	0.78	(0.62 , 0.99)	0.039
Subject Perceived to be Under the Influence of Alcohol	0.55	(0.47 , 0.64)	0.000	0.66	(0.56 , 0.77)	0.000
Subject Not Perceived to be Under the Influence of Drugs or Alcohol (reference)	1.00			1.00		
Subject Behaviour						
Grievous Bodily Harm or Death	0.76	(0.62 , 0.92)	0.006	0.66	(0.53 , 0.81)	0.000
Assaultive	0.61	(0.53 , 0.69)	0.000	0.72	(0.63 , 0.83)	0.000
Cooperative/Resistant (reference)	1.00			1.00		
Struggle That Went to the Ground						
Yes	1.59	(1.38 , 1.82)	0.000	1.72	(1.49 , 1.98)	0.000
No (reference)	1.00			1.00		
Subject Perceived or Believed to be in Possession of a Weapon						
Yes	1.89	(1.68 , 2.14)	0.000	1.79	(1.56 , 2.05)	0.000
No (reference)	1.00			1.00		

*Adjusted all other variables in the model

3.7 Officer Injury

Table 20 demonstrates that when applying force to a subject displaying six or more features of ExDS, the odds of officer injury are 2 times or 100% higher than when applying force to the reference group. However, when controlling for subject influences, subject behavior, a struggle that went to the ground and the subject perceived to be in possession of a weapon, the unique effect of ExDS on the odds of officer injury, while still higher than the reference group, was no longer statistically significant. Instead, the odds of officer injury are most significantly increased (almost 4 times higher) when becoming involved in a struggle with the subject that goes to the ground. Other adjusted factors that significantly increased the odds of officer injury were subjects perceived to be under the influence of drugs and alcohol, as well as violent subject behaviours. Interestingly, the perceived possession of weapons actually decreases the likelihood of officer injury. This is likely explained by the use of interventions with greater time and distance being employed in these situations; as these interventions have lower officer injury rates.

Table 20 - Odds of Officer Injury from Use of Force Incident

	One or More of the Interventions Injured the Officer					
	Unadjusted			Adjusted*		
	OR	95% C.I.	Sig. (p)	OR	95% C.I.	Sig. (p)
Excited Delirium Syndrome						
Subject Perceived to be Emotionally Disturbed and Displayed 6 or more Features of ExDS	2.14	(1.26 , 3.63)	0.005	1.47	(0.85 , 2.56)	0.168
Subject Perceived to be Emotionally Disturbed and Displayed 3 to 5 Features of ExDS	1.80	(1.39 , 2.33)	0.000	1.35	(1.03 , 1.77)	0.030
Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	1.00			1.00		
Subject Influences						
Subject Perceived to be Under the Influence of Drugs and Alcohol	1.79	(1.42 , 2.26)	0.000	1.38	(1.08 , 1.76)	0.009
Subject Perceived to be Under the Influence of Drugs	1.51	(1.12 , 2.03)	0.007	1.25	(0.92 , 1.71)	0.160
Subject Perceived to be Under the Influence of Alcohol	1.07	(0.86 , 1.32)	0.555	0.90	(0.72 , 1.13)	0.373
Subject Not Perceived to be Under the Influence of Drugs or Alcohol (reference)	1.00			1.00		
Subject Behaviour						
Grievous Bodily Harm or Death	1.60	(1.21 , 2.12)	0.001	1.76	(1.31 , 2.37)	0.000
Assaultive	1.91	(1.58 , 2.30)	0.000	1.72	(1.41 , 2.09)	0.000
Cooperative/Resistant (reference)	1.00			1.00		
Struggle That Went to the Ground						
Yes	4.10	(3.17 , 5.29)	0.000	3.85	(2.97 , 4.97)	0.000
No (reference)	1.00			1.00		
Subject Perceived or Believed to be in Possession of a Weapon						
Yes	0.70	(0.59 , 0.83)	0.000	0.71	(0.59 , 0.86)	0.000
No (reference)	1.00			1.00		

*Adjusted all other variables in the model

Based on these findings, the following will examine which specific intervention options show the most potential for safely and effectively controlling subjects displaying features of ExDS.

3.8 Interventions Options & Best Practices

Table 21 demonstrates the rates of effectiveness, subject injury and officer injury related to individual intervention options. The specificity of this analysis has divided the study population. To address issues of zero counts and problems of complete separation (as discussed in 2.8.1) three to five features and six or more features were aggregated. The results indicate that when compared to the reference group, all intervention options are less effective on subjects perceived to be emotionally disturbed and presenting three or more features of ExDS. Intervention options identified as most effective on the target

population include takedowns (90%), followed by CEW in probe mode (73%), then vascular neck restraint (72%). These are techniques that would provide a means of restraint by getting the subject to the ground, rendering the subject unconscious or gaining neuromuscular incapacitation. Meanwhile techniques that rely on pain compliance such as the CEW in stun mode (50%) and baton (56%) were the least effective, likely indicative of these subjects' elevated pain tolerance.

The lowest subject injury rates were demonstrated by OC spray (2.6%), vascular neck restraint (8%) and CEW (15%). In contrast stuns and strikes, takedowns and batons had the highest injury rates, ranging from 30-35%, though these rates were consistent with those from the reference group. Lastly, rates of officer injury in the target population were the lowest with interventions that provided greater time and distance such as the CEW in probe mode (1.5%), OC spray (6.4%) and baton (10.4%). Conversely, interventions that required close contact or going to the ground such as stuns and strike (31.5%) and takedowns (27.5%) had the highest officer injury rates. These rates were also higher than those for the reference group.

Considering all three measures (i.e., effectiveness, subject injury and officer injury), these results indicate that the CEW in probe mode is a promising intervention option for dealing with subjects perceived to be emotionally disturbed and displaying three or more features. This intervention option provides both time and distance, as well as immobilization of the subject. Other interventions that demonstrate promise for being effective and safe interventions include the use of OC spray and vascular neck restraint. However, OC spray does not limit mobility and relies on pain compliance which is often not sensed by these subjects, while the vascular neck restraint does not provide time and

distance which can put the officer at greater risk of injury. Stuns and strikes were demonstrated as the least beneficial intervention options available in dealing with these subjects as it was not overly effective and resulted in increased rates of both subject and officer injury. With this, the following sections will test whether the odds of these intervention options on the same outcome variables (i.e., effectiveness, subject injury and officer injury) are significantly different than the reference group.

Table 21 - Intervention Effectiveness and Injury Rates

		Excited Delirium Syndrome			
		Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)		Subject Perceived to be Emotionally Disturbed and Displayed 3 or more Features of ExDS	
		Column N		Column N	
		Count	%	Count	%
Physical Control -	Officer Response Effective	1495	86.3%	155	66.8%
Hard - Stuns and	Response Injured Subject	623	36.0%	80	34.5%
Strikes	Response Injured Officer	334	19.3%	73	31.5%
Physical Control -	Officer Response Effective	1014	93.8%	108	90.0%
Hard - Takedown	Response Injured Subject	373	34.5%	38	31.7%
	Response Injured Officer	214	19.8%	33	27.5%
Physical Control -	Officer Response Effective	52	89.7%	18	72.0%
Hard - Vascular	Response Injured Subject	6	10.3%	2	8.0%
Neck Restraint/	Response Injured Officer	10	17.2%	4	16.0%
CEW - Contact	Officer Response Effective	59	73.8%	13	50.0%
Stun	Response Injured Subject	6	7.5%	5	19.2%
	Response Injured Officer	4	5.0%	4	15.4%
CEW - Probe	Officer Response Effective	246	78.6%	49	73.1%
Mode	Response Injured Subject	43	13.7%	10	14.9%
	Response Injured Officer	8	2.6%	1	1.5%
OC Spray	Officer Response Effective	947	83.1%	99	63.5%
	Response Injured Subject	33	2.9%	4	2.6%
	Response Injured Officer	54	4.7%	10	6.4%
Baton	Officer Response Effective	76	66.7%	27	56.3%
	Response Injured Subject	30	26.3%	15	31.3%
	Response Injured Officer	14	12.3%	5	10.4%

3.8.1 Interventions Options & Best Practices - Effectiveness

Table 22 evaluates how the odds of effectiveness of intervention options differ between the reference group and those perceived to be emotionally disturbed and presenting three or more features of ExDS. No intervention options are shown to be more effective on the target population compared to the reference group. While the CEW in probe mode and vascular neck restraint (VNR) are shown to have two of the higher rates of effectiveness on the target population, the odds of ineffectiveness are still higher (approximately three times) compared to the reference; though this difference for the VNR verged on statistical significance, it was not at the $p < .05$ level. Likewise, takedowns, CEW in contact stun mode and the baton do not indicate statistically significant ($p < .05$) odds ratios, meaning that they are no more or less effective on the target population than on the reference group. Furthermore, the statistically significant odds of both OC spray and stuns and strike being ineffective are approximately three times higher on the target population compared to the reference group.

Table 22 - Odds of an Intervention Option Being Ineffective on a Subject Perceived to be Emotionally Disturbed and Displaying 3 or more Features of ExDS

	<i>Excited Delirium Syndrome</i>			
	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	Subject Perceived to be Emotionally Disturbed and Displayed 3 or more Features of ExDS		
		Unadjusted		
		OR	95% C.I.	Sig. (p)
Physical Control - Hard - Stuns and Strikes	1.00	3.13	(2.31 , 4.25)	0.000
Physical Control - Hard - Takedown	1.00	1.68	(0.88 , 3.21)	0.115
Physical Control - Hard - Vascular Neck Restraint/Carotid Control	1.00	3.37	(1.00 , 11.36)	0.050
CEW - Contact Stun	1.00	1.35	(0.74 , 2.47)	0.332
CEW - Probe Mode	1.00	2.81	(1.12 , 7.02)	0.027
OC Spray	1.00	2.84	(1.98 , 4.07)	0.000
Baton	1.00	1.56	(0.78 , 3.10)	0.210

3.8.2 Interventions Options & Best Practices - Subject Injury

Table 23 examines the relationship between intervention options and subject injury. The results indicate that, compared to the reference group, all intervention options except the CEW in probe mode reduce the odds of injury in the target population; though none of these results were statistically significant at the $p < .05$ level. This could be indicative of the subject's tolerance to pain or that intervention could not be applied effectively due to features such as superhuman strength, constant/near constant movement, not fatiguing and profuse sweating.

Table 23 - Odds of an Intervention Option Injuring a Subject Perceived to be Emotionally Disturbed and Displaying 3 or more Features of ExDS

	<i>Excited Delirium Syndrome</i>			
	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	Subject Perceived to be Emotionally Disturbed and Displayed 3 or more Features of ExDS		
		Unadjusted		
		OR	95% C.I.	Sig. (p)
Physical Control - Hard - Stuns and Strikes	1.00	0.94	(0.70 , 1.25)	0.657
Physical Control - Hard - Takedown	1.00	0.88	(0.59 , 1.32)	0.534
Physical Control - Hard - Vascular Neck Restraint/Carotid Control	1.00	0.75	(0.14 , 4.02)	0.740
CEW - Contact Stun	1.00	1.10	(0.52 , 2.32)	0.799
CEW - Probe Mode	1.00	2.94	(0.81 , 10.58)	0.100
OC Spray	1.00	0.88	(0.31 , 2.52)	0.815
Baton	1.00	1.27	(0.61 , 2.67)	0.522

3.8.3 Interventions Options & Best Practices - Officer Injury

Table 24 inspects whether these intervention options impact the odds of officer injury. The use of stuns and strikes exhibits a statistically significant increase in the odds of officer injury by 92% compared to the reference group. Similarly, the use of takedowns increases the odds of officer injury by 54%. Furthermore, while not statistically significant at the $p < .05$ level, compared to the reference group, the use of the

VNR, CEW in contact stun mode and baton on the target population indicates decreased odds of officer injury while the CEW in probe mode and OC spray demonstrates increased odds.

Table 24 - Odds of Officer Injury Using an Intervention Option on a Subject Perceived to be Emotionally Disturbed and Displaying 3 or more Features of ExDS

	<i>Excited Delirium Syndrome</i>			
	Subject Not Perceived to be Emotionally Disturbed and/or Displayed Less than 3 Features of ExDS (Reference Group)	Subject Perceived to be Emotionally Disturbed and Displayed 3 or more Features of ExDS		
		Unadjusted		
	OR	OR	95% C.I.	Sig. (p)
Physical Control - Hard - Stuns and Strikes	1.00	1.92	(1.42 , 2.60)	0.000
Physical Control - Hard - Takedown	1.00	1.54	(1.00 , 2.36)	0.049
Physical Control - Hard - Vascular Neck Restraint/Carotid Control	1.00	0.91	(0.26 , 3.25)	0.890
CEW - Contact Stun	1.00	0.58	(0.07 , 4.70)	0.608
CEW - Probe Mode	1.00	3.45	(0.80 , 14.95)	0.097
OC Spray	1.00	1.38	(0.69 , 2.76)	0.369
Baton	1.00	0.83	(0.28 , 2.45)	0.737

3.9 Conclusion

Use of force is not a frequent event with approximately one in every 1125 (0.09%) of police occurrences involving the application of force. Moreover, while officers do not encounter subjects suffering from ExDS every day (1 in every 66 use of force encounters), there is a risk of fatal outcome when dealing with these subjects. To diminish this risk, it is important to evaluate current data to determine what risks exist for both police and public safety. This quantitative research represents a new area of inquiry into ExDS and provides valuable findings upon which the qualitative portion of this study can explicate and elaborate. Furthermore, this analysis demonstrates significant results which allows for three of the study's four null hypotheses to be rejected.

First, compared to the reference group, probable cases of ExDS as defined by the presence six or more indicators are associated with a significant increase in the rate of use of force events applied to the subject ($RR = 1.49$, $CI_{95\%} 1.26, 1.77$, $p < .001$). This implies that more force is required to gain control of these subjects and is indicative of prolonged struggles. Second, there is a decreased rate ($RR = 0.05$, $CI_{95\%} 0.04, 0.07$, $p < .001$) that use of force will be effective and increased odds ($OR = 5.58$, $CI_{95\%} 3.49, 8.93$, $p < .001$) that use of force will be ineffective when applied to these subjects. This is likely due to prevalent features of ExDS (i.e., pain tolerance, superhuman strength, constant/near constant movement, not fatiguing, profuse sweating) which would obstruct certain interventions from working and render it difficult for officers to control these subjects. Third, there is an increased odds ($OR = 2.14$, $CI_{95\%} 1.26, 3.63$, $p < .01$) of officer injury during these encounters. Conversely, the odds of subject injury to probable cases of ExDS is not significantly different ($OR = 0.73$, $CI_{95\%} 0.44, 1.22$, $p = .236$) compared to the reference group. This is significant in itself considering the increased amount of force and struggle involved in these encounters.

This research also indicates alcohol as a protective factor of ExDS, while drug use is demonstrated as a risk factor. The most distinguishing features of probable cases of ExDS were hyperthermia, as well as those who were naked or inappropriately clothed, sweating profusely, displaying superhuman strength or sweating profusely. Furthermore, probable cases of ExDS were associated with increased odds of violent subject behaviours, a struggle going to the ground and the subject perceived to be in possession of a weapon. Moreover, on average these encounters usually involved one additional member on scene during these situations. With regards to the intervention options used

during these situations, this research shows that there are increased odds of the use of the baton and CEW in both modes. Lastly, considering all three measures (i.e., effectiveness, subject injury and officer injury), these results indicate that the CEW in probe mode is the best suited intervention option for dealing with subjects perceived to be emotionally disturbed and displaying three or more features. This intervention option provides both time and distance, as well as immobilization of the subject. It should be noted however that this finding is limited as it did not examine the extent or level of the injury in these cases, only that there was some type of injury indicated. As such, this finding should be interpreted with caution. Particularly since Justice Goudge et al. (2013:viii) found that while fatal complications related to the deployment of a CEW would be extremely rare, they are biologically plausible and that a “combination of emotional stress, extreme agitation, physical exertion, drug intoxication, and less-lethal weapons may culminate in a fatal cardiac event” (p.46). The qualitative inquiry will provide a more nuanced understanding of injuries sustained by the subjects in the encounters.

These findings are exceedingly relevant to inform policy and training around the use of force and response to potential cases of ExDS. The results indicate an increased risk to officers involved in these situations and clearly emphasizes the need for intervention strategies that promote multiple member responses and effective intervention options to quickly and efficiently control these subjects. This will facilitate a reduction in the extent of struggle involved and allow for more expedient monitoring of vitals, as well as immediate medical intervention, thus reducing risk of harm to the subject, officers and any potential bystanders. The following qualitative analysis will be used to corroborate, elaborate, complement and/or contradict these quantitative results.

4 Chapter: Qualitative Analysis

The qualitative inquiry will provide greater context and a more nuanced understanding of use of force encounters generalized in the previous chapter and answer the question posited in Section 1.1. This portion of the research will be used to triangulate the quantitative findings, particularly around the risk assessment, intervention techniques, effectiveness of the intervention, resulting injury/treatment, as well as the predictive validity of the features of ExDS. Furthermore, the qualitative analysis will utilize a symbolic interactionist perspective to examine what meaning officers attribute to these encounters, specifically focusing on the use of Excited Delirium to describe the subject. This will determine how the meaning being attributed affects the officers' actions, as well as critically analyze what influence policy and training have on police perception and understanding.

Through the process of coding and memo-writing, seven key concepts emerged from the data. The first four concepts related to a semi-linear account of the phases which an officer goes through during these interactions: “the initial call”, “the encounter”, “the struggle” and “maintaining control & how to proceed”. After additional coding, two interrelated concepts of “risk assessment” and “recognition” emerged which displayed the interpretive process through which officers' cumulative knowledge and experiences, along with their perceptions, form meaning which is then translated into actions. These actions include the decision to treat a situation as a medical emergency. The last concept that emerged was “depersonalization” which relates to how officers present these interactions in the narratives of their formal written reports. These seven concepts assisted in creating an “interpretive portrayal” (Charmaz 2006:10) or “plausible

accounts” (Charmaz 2006:132) of encounters with probable cases of ExDS. In other words, this is my interpretation of the construction of reality and meaning presented by the officers in the narratives of these reports. Figure 10 displays the conceptual model which takes on storyline structure for these encounters, while providing both parsimony and fit.

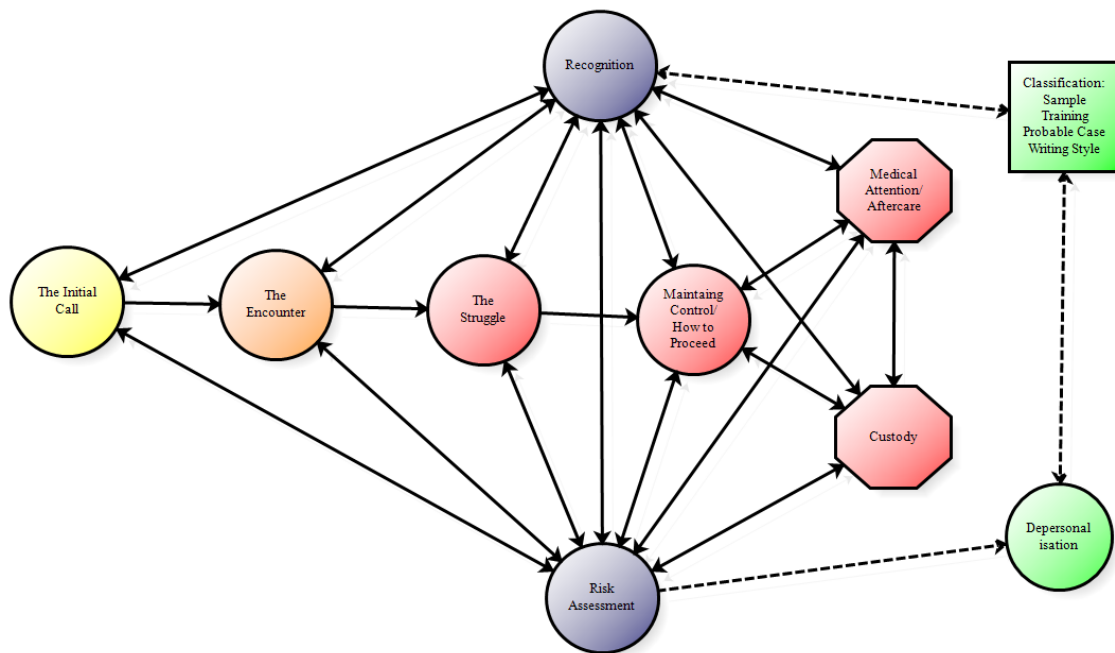


Figure 10 - Conceptual Model of Use of Force Encounters with Probable Case of ExDS

Since both ExDS and police use of force are contentious topics, a substantial number of excerpts³ from Subject Behaviour/Officer Response (SB/OR) reports will be included.

While this still does not provide an all-encompassing account of such dynamic and variable incidents, it does provide a broader understanding of the extreme nature of these incidents. Furthermore, it offers readers the opportunity to make their own interpretations of these accounts.

³ Other than minor grammatical edits, the inclusion of full form for abbreviations denoted by enclosed square brackets “[]” for legibility and vetting of personal information to ensure anonymity (see 2.5) denoted by “*****”, no other changes have been made to the excerpts.

In the latter part of this chapter, advanced memos are employed to compare and analyze differences in the classifications used for theoretical sampling. These classifications include: the sub-samples (i.e., reports with 8 or more features of ExDS and Excited Delirium not referenced, reports with 6 or more features of ExDs and Excited Delirium referenced, and reports with less than 6 features of ExDs and Excited Delirium referenced); whether the officers had received training that discussed ExDS; the writing style of the officer (i.e., first or third person); and finally, whether or not I interpreted the subject as a probable case of ExDS (e.g., medical emergency/attention/distress) based on the officer's narrative. The chapter will now discuss the aforementioned individual concepts that emerged from the grounded theory approach.

4.1 The Initial Call

These incidents generally evolve from a call to 911 reporting a crime in progress or concern for public safety. Typical incidents pertain to a break and enter, suicidal individual, disturbance, violence and/or impaired driving. These incidents are often reported by family members, victims of a crime or received as a radio transmission for emergency back-up. Some incidents even involve the subject calling themselves and expressing the need for help, which often demonstrates the paranoid and delusional nature of the subject in these cases. The information received in these calls or dispatches is generally limited, with fragmented details that are often conflicting or are determined to be inaccurate once on the scene. Each of the following excerpts⁴ below provides an example of the nature of these initial calls.

⁴ Excerpts throughout this chapter are taken from separate reports to provide a more comprehensive picture of each or the concepts and elements being discussed.

On duty members were called to an address where the occupants were scared for their safety as her brother was on drugs and was now acting violently.

*....members responded to a report of a break and enter in progress at *****. Upon arrival members were told that the suspect was sitting on the couch naked and the female victim was still inside the residence.*

I responded with others to a series of complaints about a male subject clad only in shorts and shoes carrying a hatchet who was running through yards, hopping fences, and climbing onto roofs.

*Emergency Health Services requested for ***** RCMP to assist with a male who was overdosing on drugs and becoming violent with his family.*

Officer attended 24 hour massage parlour on complaint that subject was intoxicated on cocaine, exhibiting lewd behaviour and refusing to leave.

Information on subject at the time only revealed that he was possibly suffering from excited delirium from drugs, was naked, covered in blood, had stabbed his dog, and had smashed out windows.

....member was advised by Cst that subj was outside of detachment walking in and out of traffic and dressed all in black. Cst stated spouse advised he was snorting cocaine for the past four days and talking about suicide.

Officer 1 and Officer 2 received a call of a male subject who had been removed from a drinking establishment and was causing problems for the patrons.

Subject had repeatedly called 911, would only state 'someone is going to hurt him [me], send help now'.

*SGT. ***** responded to a distress call from CPL. ***** who was attempting to arrest Subject 1 responsible for a theft of vehicle and Break and Enter.*

*Members were responding to a 10-33 [officer in trouble] call for help from a member of ***** detachment who was on a traffic stop and the vehicle fled from him and crashed and the R/O [registered owner] was on foot.*

Dispatched to call of suicidal male who had overdosed on Clonazepam. Male reported to be unresponsive at scene. Police arrived and were met

by EHS and fire personnel who had exited the residence after saying that subject had been violent and throwing items within the home.

*Cst ***** and Cst ***** were called (third party info) to ***** for Subject who was destroying his house inside running inside and outside the house naked, talking and not making any sense. While driving to the house a second call was received stating the same from someone inside the house.*

....dispatched to a call of a very intoxicated male who was out of control inside a residence breaking items.

The initial calls indicate that these subjects are already in an agitated or abnormal state prior to police contact. These are also cases where members of the public were faced with circumstances beyond their control, requiring the involvement of the police to control the situation and restore order. Upon responding to these calls, officers encounter the subject and begin their interaction.

4.2 The Encounter

The encounter often involves the police officer(s) coming into contact with a subject displaying uncharacteristic and abnormal behaviour. This includes babbling, yelling incoherently, repetition, mimicking, delusional and nonsensical statements, breaking glass, self-harm, contorted expressions and body positioning, being naked and animalistic behaviour. The following excerpts display some of these behaviours.

Initial view of the subject by Officer was having the subject running directly towards Officers car. Subject then smiled and put both middle fingers up at Officer while standing beside car. Subject then began to lick his 2 middle fingers as he still fingered Officer. As Officer got out of his patrol car, Officer could hear the subject talking to himself. Subjects talk was incoherent, subject was mumbling to himself, saying words over and over again. Subject then ran away from the officer for approximately 150yards and abruptly stopped, began to look upwards at the sky and again started to talk to himself which was again incoherent.

The Subject was found sitting in an open field naked and covered in blood. The Subject was eating cow feces, mud and grass and was babbling to himself.

He was frantically rummaging/running around the kitchen in a heightened alert state; He was in possession of a long cylinder type object that he was violently striking the floor with; He was rambling and speaking quickly with fragmented and repetitious statements about getting them.

Subject was on ground on hands and knees with face in water sprinkler.

He went in and out of the house several times. He had the 1000 yard stare. He was there, but he wasn't really there. He wasn't listening to anything anyone was saying. There was no verbal response in relation to us helping him. He just kept saying he was Jesus Christ and that he wasn't the devil.

Subject found on bed in massage parlour naked and facedown attempting to engage in sexual intercourse with the bed.

His eyes were very glossy, sweat pouring from his forehead. He had a very crazed look to him. There was writing on the wall that looked to be written in blood.

SOC [subject of complaint] was now shirt-less and very agitated, all muscles tense, like a beast ready to attack and refused to leave.

His eyes were open quite wide: from across the counter, it appeared his pupils were fully dilated. His appearance in this regard is best described as wild-eyed. The male was hyperactive, to the point that he was almost quivering. He had his hands together behind his head. He kept reacting to invisible threats, as though he was expecting or actually seeing threats both behind him and above him.

Approach of the vehicle the male was praying and making comments that this was the end,....

This uncharacteristic and unusual behaviour is often validated in the report narratives by bystanders or by officer's previous dealings with the subject as demonstrated below:

Member has had previous dealings with subject that were always positive.

In the driveway was the first caller who was saying to Officers that something was wrong with the Subject

Family members advised that the subject#1 had been acting strange that evening and began acting violent and nonsensical.

A civilian known to him said "You better get in there, something strange is going on."

....advised that the subject male inside the downstairs unit was bleeding profusely and was suffering from personal issues. The male and female stated they have not ever seen the male in this type of state.

His sister later called to report her brother was acting strange and had consumed cocaine.

She advised that Subject #1 began behaving strange on the way home from the bar.

Observations reported by citizens suggested the subject was either high on drugs or MHA [mental health act].

While not always tactically feasible during these encounters due to an imminent threat or concern for police or public safety, de-escalation techniques and communication are typically used by the officers. From the onset, officers normally try to diffuse the situation and put the subject at ease. This includes using calming voices, identifying themselves as police officers who are there to help the subject, offering medical assistance and explaining to the subject what steps are going to be taken.

Throughout this entire incident, both plain clothed and uniformed police officers attempted to calm the subject through dialogue. Repeatedly, he was asked to calm down and stop resisting his arrest. He was also encouraged to focus on his breathing, to stop spitting and to try and relax. The subject appeared to reach a state, where he seemed to not even hear what was being said to him and all of his energy went into fighting with the police, despite constant communication with him.

Attempted to talk to subject the entire time, telling him he was not going to be in trouble but that Police were only trying to get him medical attention. Police tried several times to tell him to relax, and gave him opportunity to cooperate with Police

Both members already on scene tried to calm subject down by talking to him in low voices, explaining to the subject what would happen and what steps needed to be taken.

Subject engaged in conversation from onset of interaction. Advised that members on scene were indeed police and were there to help.

*Cst. ***** lead investigator was attempting to calm the subject by talking with him prior to any use of force, but Police presents seem to worsen the situation*

Members continuously tried to calm the subject down, by telling him everything is going to be ok, and to just relax, however the subjects responses were minimal at best. The subject finally said at one point, ok, and when asked his name, he stated, "Jesus Christ", and "I'm in Hell."

The suspect was placed in an upright position to ensure his breathing wasn't restricted, while at the same time, de-escalating technics were employed to help calm the suspect.

Members kept a safety perimeter around subject attempting to calm him down. Conversation and verbal commands continual throughout incident.

From the minute I got there, I was talking to him trying to let him know were there to help him and that EHS was there for him.

telling subj[ect] over and over that we were here to help him, that we were going to take him to the hospital, to cooperate, trust us, he was going to see the doctor

From a symbolic interactionist perspective, this use of empathy and understanding demonstrates the officer's ability to take on "the role of the other" (Mead 2009:254) in these situations. This use of empathy is one of the fundamental elements of police training and is emphasized throughout their careers. Additionally, some officers seem to be acutely aware of how their appearance as a police officer may be interpreted as a threat by these subjects in crisis. As a result, the officers try to emphasize that their role is to help and seek medical assistance for the subject. This partially demonstrates Cooley's (1902:152) looking glass self, in which officers can imagine their appearance to the

subject and the subject's judgement of that appearance. For example, the officer alters his or her actions accordingly to try and modify how their appearance may be interpreted by these subjects. These actions may be an attempt to redefine themselves in the situation based on how they imagine the subject perceives them or how they would like to be perceived by the subject. Thus, by taking the subject's perspective, an officer alters their "actions toward others on the basis of the kind of object he is to himself" (Blumer 1986:12). By viewing oneself as an object in these situations, it allows the officer to "anticipate their own conduct, visualize themselves as a part of their own acts in relation to other people's acts" (Hewitt and Shulman 2009:45). Moreover, the use of crisis intervention and de-escalation techniques demonstrates how officers conceptualize their social and personal identity, as well as their role as a police officer; not only as enforcers of the law, but as social service providers that aid individuals in crisis.

Communication from officers continues throughout these situations, though these subjects are typically unresponsive to the attempts to de-escalate. As a result, authoritative commands are then used, despite the fact that these attempts also typically fail.

All attempts of communication failed and the subject disregarded any communication commands to stop resisting.

Officer directed subject with loud, clear, verbal directions to get off the bed and get dressed numerous times. The subject was non-responsive to this direction and continued to pleasure himself on the mattress.

Therefore, in encounters which involve the use of force, not only do subjects appear to be unresponsive to communication attempts, but in some cases are totally unaware of police presence.

During this time subject had his fists clenched and a very stiff/ rigid body, breathing hard, sweating (outside temp was approx - 10°C), he wouldn't make eye contact, was looking past the members, was looking around at the sky, the ground and in general looking everywhere. He was making fists, had a rigid/ stiff body posture and wouldn't respond to any of the questions/ comments made to him.

When I tried to talk to him, he mentioned something about the government intercepting his calls and that they were listening in. I tried to convince him to go into the ambulance. The subject just wanted to go into the house and take a shower. The subject was walking around the lawn. EHS [Emergency Health Services] and myself were trying to talk to him. The subject was not listening to us as all.

*The subject's behaviours were very concerning to Cst. *****, as he appeared oblivious to the fact that both uniformed and plain clothes police officers were attempting to help him.*

As well, the subject seemed unaffected by the presence of uniformed police officers, now arriving on scene.

*Sgt ***** repeatedly told the suspect to drop the items, he failed to comply and appeared to be in an altered stated (Not acknowledging the officers who were present in the house).*

Still the subject refused to acknowledge the members or even look at them.

This lack of cooperation likely affects the common expectation of the officer's preconceived notion that their presence and role as a law enforcement officer will have some sort of impact on the subject. In addition, it presents an unexpected and novel situation in which reciprocity of social norms and order are not being met. These factors, along with the information received from the initial call, the situational factors and subject behaviour from the initial encounter with the subject inform an officer's continuous risk assessment, the attribution of meaning, as well as action. This will be discussed in the following section.

It must be noted that this analysis is based only on reports from use of force encounters and thus this inquiry cannot determine how frequently these types of

encounters are resolved with only the use of communication. Correspondingly, as previously discussed (see 2.1.1) 99.8% of police calls for service and 97.6% of arrests do not involve the use of force, demonstrating that the vast majority of police-public encounters are resolved with only officer presence and/or the use of communication.

4.3 Risk Assessment

During these encounters, officers must take into account the totality of the situation, including their perceptions, assessment of situational factors present, tactical considerations and subject behaviour, all of which form a risk assessment (Royal Canadian Mounted Police 2009a). While this is a continuous process that spans the entire interaction, it seemed most fitting to insert the concept of risk assessment here, in between the encounter and the struggle. A risk assessment is based on the officer's observations, experience, knowledge and in-the-moment perceptions which guide their interpretation, understanding and association of meaning in a particular situation. This interpretation and meaning then translates into actions of the officer. Thus, the officer's risk assessment assists in the development of their response strategy and in explaining to others how a particular situation was perceived, assessed, and responded to, as well as what it meant to them.

Risk assessments were articulated as being rated on the scale of low, medium and high, although many cases provided a rating that was on the higher end of this spectrum.

With subject's perceived mental health crisis and the size and strength of the subject, risk assessment was medium to high.

Risk assessment was high due to unstable mental condition, agitation, and immunity to pain.

Subject jumped off a roof behind applying member with hatchet in hand which exhibited active resistant behaviour as the male was attempting to

flee from police with his weapon as he had been doing earlier. Ongoing risk assessment had this situation as medium due to the fence located between subject and applying member.

*Cst. *****'s risk assessment of this incident was high.*

Risk - HIGH given time of night, middle of intersection, agitated state

Due to previous history/ knowledge risk assessment was high.

In dealing with the subjects, aside from violent behaviour, some of the most frequently referred to factors of a risk assessment include, and are exemplified by the following excerpts:

1. strength of the subject which is a situational factor (i.e., perceived subjects' abilities);

Subject showed extreme strength and it required 4 members to hold the subject down on the ground.

Even handcuffed, the subject remained a concern to the officer. The officer had never heard of anyone being able to break the links in the handcuff chain, but feared that this subject may be capable of doing this.

****** tried to tackle the male, but the male appeared to be exceptionally strong. They grappled for about 30 seconds, but ***** ended up on the floor and was in danger of being overpowered by the male. Fortunately the male backed away long enough for ***** to get up. ***** assumed a fighting stance in front of the male, drawing his attention away from the female.*

At one point he had the arresting member by the lower jaw and was pulling the member to the ground, Subject 1 was obviously under some type of drug having extreme strength.

All three members were restraining him and the subject was able to physically lift himself up off the ~~degree~~ [ground] a small degree. Members tried to turn him and he gained traction and appeared to be overcoming the 3 members. He appeared to have extraordinary strength. I assessed that he posed imminent harm to the members and would be able to overpower them, causing injury very quickly.

Officer 1 placed all his body weight on the Subject. The subject was still able to push the Officer up. Officer 1 called for additional units as he was scared for the safety of Officer 1 and Officer 2.

Members wrestled with him for almost 10 minutes but he seemed have super human strength.

Officer thought that subject could literally rip officer's head off if he were to get his hands on the officer.

The subject was yelling obscenities at the members and was displaying superhuman strength as he was able to resist two members attempting to put one of his arms behind his back. The subject was still kneeling on the ground at this point and was displaying enough strength to be able to get back up.

*Due to the size and extreme strength of the subject, it was decided between Cst. ***** and myself that a second pair of handcuffs would be utilized in the same fashion as the first, as a secondary measure in the event the first pair of handcuffs encountered some form of fault and broke.*

2. risk of communicable disease through the contamination of bodily fluid (e.g., blood, saliva), which is a situational factor (i.e., environmental), though it can also be interrelated with subject behaviour (e.g., spitting);

Subject swiped at second member hitting him in the face and contaminating him with a substantial amount of blood.

Subject bleeding profusely all over members causing grave concern for infectious transmission.

*Cst. ***** then gained control of the male's left arm at the elbow while trying to avoid getting covered in blood, not knowing if the male had any infectious diseases.*

*Both Cst. ***** and I was covered in blood as was the subject.*

I used the EHS antiseptic to get the blood off my hand, but there was and still is blood on my clothes.

As a result, the subject was taken to the ground, where he violently continued to resist arrest, by pulling away, spitting at police and attempting to bite their feet and legs with his mouth.

*Shortly thereafter, the subject was placed into the back seat area of Cst. *****'s police car, where his violent behaviour continued - he was seen smashing his face and head into the silent patrolman, windows and doors;*

he was seen attempting to kick out the windows in both doors and intentionally spitting blood all over the back seat area of the police (later deeming in unusable until professionally cleaned).

*The subject, while being offered assistance by a male paramedic, intentionally spit blood onto the paramedics shirt. As a result, Cst. ***** requested a protective spit barrier for the subject from paramedics.*

The second member and original member had their faces covered in the subjects blood and were struggling to get him restrained.

Upon paramedics arriving, the subject became assaultive again, spitting saliva and blood at paramedics as they tried to assist in bandaging his injuries. A blanket was placed over the subjects head to prevent contamination however, he continued to resist as monitors were placed on his fingers.

*....contagious with information suggesting that SOC has *****. Cst. ***** received a significant amount of saliva from the SOC his face.*

*Subject #1 was bleeding from the upper torso. Cst. ***** feared Subject #1 would contaminate ***** and/or Cst. ***** with his blood, and therefore believed it was important to control Subject #1.*

3. the availability and proximity of backup which is a tactical consideration; and

Mbr realized a fight was about to take place and that he was alone and his closest backup was over 30 minutes away.

*Constable ***** heard members request an additional member to their location as they were attempting to apprehend a male, identified as the Subject, at his residence. Constable ***** heard what sounded like in coherent yelling in the background of the members radio transmission. Constable ***** re-routed to assist the members and responded 'Code 3', utilizing his lights and sirens.*

Responding officer requested additional member attendance since suspect demonstrating superhuman strength and immunity to pain.

Member requested over the police radio for additional members to scene to assist with the arrest.

I attended this call on my own because back up was not in close proximity but was on the way from another detachment to provide back up.

I knew that I would need help from another member as this subject was to get out of control.

*I asked that Cst. ***** step it up because I was going to have to arrest the subject. I was really fearing for my safety. I was really fearing for his safety also. He seemed to be exhibiting signs of excited delirium.*

Once the subject became aggressive and assault the Officer, additional units were called in and 4 more officers responded.

*I asked Cst. ***** over the radio if he needed back up and he said yes....*

*Having heard the subject calling for help, A/Cst. ***** came to assist. I called Cst. ***** over the radio for assistance.*

Two members attended. I was dispatched to make sure the two attending officers were not in trouble.

*I relayed this information on the radio. Cst. ***** my back up member stated he was making his way to my location from exit ***** on the radio. That was quite a distance away. I kept trying to talk to ***** and I kept updating the other members on the radio.*

4. the presence or accessibility of weapons or potential weapons which is a situational factor (i.e., perceived subject's abilities) and can also be interconnected with the subject's behaviour (e.g., threat of grievous bodily harm or death).

*As ***** hung on from behind, the male got hold of a 3 hole paper punch, & began striking ***** in the head with the punch.*

The house was a mess there were items everywhere that could be used as weapons, especially all the common things found in kitchens knives etc.

No violence reported but subject was carrying a hatchet.

....threatening to kill himself with a 12" serrated kitchen knife.

Subject had knives, forks, broken plates within reach.

Since keys were in the ignition, I felt that he might drive away. He certainly could not drive in this condition. Also, the vehicle could have been used as a weapon and anyone of us could have been hurt.

....he threatened to kill himself staff and Police with a shard of glass from a broken window.

He had a lighter in his hand saying he was going to light himself on fire and had the lighter up by his hair.

....subject had a pen in his hand fashioned as a weapon....

Among these excerpts, ‘risk assessment’, ‘backup’ and ‘contamination’ including blood and spit were all considered “in vivo” codes. These codes “serve as symbolic markers of participants’ speech and meanings” (Charmaz 2006:55) and represented symbolic language used by officers (Annells 1996; Blumer 1986; Charmaz 2006) and thus, are considered as having additional importance.

The following will provide further examples to demonstrate how the diverse factors and nature of these incidents fit into the different element of an officer’s risk assessment and the training they have received on the Incident Management/Intervention Model (IMIM). This is not an exhaustive list, nor is it mutually exclusive as some factors may fit under various categories of a risk assessment. The risk assessment process (discussed in 2.1.2) includes four categories which are illustrated with the following excerpts:

1. situational factors;

While en-route members were updated that there were other people inside the residence one of which was an infant.

*Cst ***** called to the Subject he came to the top of the stairs, Cst ***** was at the bottom. The stairs were steep and there were many 20 or so. Subject was naked, looked to stand at least 6'3", weigh at least 200lbs and looked very fit and muscular.*

The house was a mess there were items everywhere that could be used as weapons, especially all the common things found in kitchens knives etc.

There was a 2 year old and 1 year old inside the residence as well.

I observed the male lift all three members with his body and I assessed that he was going to be able to overpower them.

This male presented himself to the police as someone who wanted to fight and was not fearful of the outcome.

I was worried that the subject could not be seen and the members were at risk of being shot or attacked by the occupant. I could not tell if he had any weapons, I only knew that the member had hit the 10-33[officer in trouble] button and that the driver took off from him.

Since keys were in the ignition, I felt that he might drive away. He certainly could not drive in this condition. Also, the vehicle could have been used as a weapon and anyone of us could have been hurt. Plus, he could of hurt another innocent bystander.

2. subject behaviour;

*At this time the suspect was attempting to bite Cst *****'s hands as she was pulling his arms out.*

*Cst. ***** noted the subject male was standing in a fighting position with him staring at Cst. ***** with a 1000 yard stare. The male had a clenched jaw and was tense. Cst. ***** believed the male was readying himself to fight Cst. *****.*

Police feared grievous bodily harm or death due to Subjects behaviour consistent with drug induced psychosis and excited delirium, uttering death threats, engaging police in a fight and knife, fork and broken plate within reaching distance. Subject was exhibiting extreme strength and endurance. Police perceived the subject as going to cause serious injury or death if not immediately controlled.

He had a lighter in his hand saying he was going to light himself on fire and had the lighter up by his hair. (grievous bodily harm/death)

*he raised his hand in a fist towards Cst ***** who also saw that the subject had a pen in his hand fashioned as a weapon and subject behaviour & risk assessment was raised to assaultive & higher risk (active threat).*

*The Subject was so erratic it was like Subject was 20 steps ahead of Officers, Subject's actions were so fast Cst ***** could barely keep up it felt like, the situation kept evolving so fast. Subject ability to intend on escaping at any cost was unreal.*

3. tactical considerations; and

The writer looked at the heavy traffic flow and decided that it would not be a good idea to attempt to arrest Subject 1 on the side of the truck as someone would have been ran over by a passing vehicle.

The Cst was wearing the RCMP working uniform (dark blue pants with yellow side stripe, grey uniform shirt with RCMP shoulder flashes, blue duty vest, black duty belt with radio, gun, handcuffs, pepper spray). He was readily identifiable as an RCMP officer. The first thing the male said when the Cst came through the door was "That guy's not a cop either."

4. officer perceptions.

*Based on my training at the "Depot" Training Academy, and my knowledge and experience of having observed drug-induced states, my risk assessment became high. Subject was a very large and muscular male capable of exerting extreme strength. Cst. ***** and myself are large, strong males and with both of us we were encountering extreme resistance to handcuffing attempts. Subject was exhibiting "active resistant" behaviour, but given his brief "assaultive" posturing (the "You get on the ground!" remark), and the fact he was experiencing a mental health crisis likely brought upon by drug use his behaviour was understandably unpredictable and could shift to assaultive at any moment. This meant my risk assessment was high, as though injury to the public was unlikely (given the hour), with two police officers engaged in a struggle the potential for an injury to a police officer was very high.*

*During the entire event Subject 1 displayed extreme strength in accordance with SGT. ***** experience Subject 1 would have been capable to cause serious bodily harm to the arresting officers.*

As a police officer with 16 years experience, I was certain that he had extreme potential to harm the members, himself or me. I have been in previous incidents where people high on drugs are extremely aggressive and dangerous.

Once I saw the subject, I knew who he was. My perception of the situation was heightened. I have dealt with the subject in the past. He is normally very aggressive, but you can talk to him. He has also fought with some of our members in the past. Because of this history, and the nature of the call so far, my threat assessment was very high given the subjects erratic behavior, mental state and known history on mental illness and violence towards the police. Also, the subject is 6'0 and about 190 pounds. He is quite muscular. He is a lot stronger than I am.

It has been my experience that people can contort their bodies in such a way to get handcuffs to the front of their bodies. I could not put him in my police vehicle without a proper search being completed as even though he was hand cuffed he may still be able to access it and hurt me or himself. Should he somehow manage to escape my custody he could potentially be a danger to others. The residence subject I had fled to was also a known drug house. I needed to get control of him as I feared additional threats could come from this house.

Officer was aware that subjects who use steroids can be violent and very unpredictable.

Officer is aware that people who are taking stimulants (ie:PCP) can exhibit super-human strength. Officer is aware of small statured individuals who can fight with many police officers and show extraordinary feats of strength and resistance to pain compliance techniques. Officer is aware that these same subjects can fight through OC spray and still be a very large threat to police in the enraged and drug induced state.

*Subject was a very large and muscular male capable of exerting extreme strength. Cst. ***** and myself are large, strong males and with both of us we were encountering extreme resistance to handcuffing attempts.*

I repositioned to the rear of the truck and attempted to speak to the subject who at this time was making biblical references, saying his name was "Jesus Christ", "this is the end", "I am ready", and was making the sign of the cross and praying, I interpreted this to be some sort of preparation for death or a build up to a last stand or horrific event.

While the previous three categories are fundamental components of a risk assessment, it is the officer's perception of these dynamic and interrelated factors, in addition to actions and potential actions that significantly impacts the interpretive process. The officer's in-the-moment perceptions which vary from person-to-person, time and place (e.g., a person with a knife can be perceived many different ways depending on the context – chef vs. arrest of violent subject) assist in the handling of meaning. Particularly, in novel situations such as these, where the officers need to “reach into their stock of individual skills and socially acquired knowledge for general principles” (Hewitt and Shulman

2009:28) to help them respond appropriately to what they are facing. As such, some of the narratives demonstrate how officers tap into their previous experience or knowledge from social interactions, as well as their own perceived abilities to support their risk assessment and project potential outcomes, predominantly with regards to possible harm to the officer, the subject and bystanders.

In summary, the IMIM and a member's risk assessment are basically a way by which police officers structure and explain their interpretative process used throughout a use of force encounters. While relatively analogous with the tenets of symbolic interactionism, the key component missing from the visual IMIM model is the "interpretation". This is the process by which these factors are brought together to attribute meaning and form action. Though this is incorporated in training by emphasizing "What did this mean to you?" (Royal Canadian Mounted Police 2009a), greater prominence on this process should be included in the IMIM to assist officers' articulation after the fact. The following section will demonstrate how this risk assessment process guides officers' use of force and continues throughout the encounter during the ensuing struggle.

4.4 The Struggle

These encounters often result in a prolonged struggle where-by the subject assaults the police officer(s). Sometimes these attacks are quick and spontaneous and catch the officer(s) off guard.

Before further communications were attempted, the Subject immediately got up and charged at one of the police members who was in the midst of preparing his handcuffs for an arrest. Police member was caught off guard and while backing up away from the Subject, the Police member slipped and fell to the ground.

I opened the passenger vehicle, and the other member attempted to grab the subject, however he jumped towards the steering wheel, then looked at me, and charged. The subject leaped off the passenger side up and out at me, where I grabbed him, and threw him over top of me into the snow bank I was standing in.

As the door was opened, Members heard someone say "Oh good, they're here!" Members then observed The Subject quickly descending the stairs from the second floor. The Subject was yelling something to the effect of "You fuckers! You want a piece of me! I'm strong!! You fuckers, bring it on!" The Subject stood at the base of the stairs in the front foyer. The Subject took a bladed stance, rocking his weight back and forth in a rapid motion.

Subject went from seated to outright rage in a split second. Subject was seated on a couch when first contact with police. Immediately started swearing at police, picked up a heavy chair or table and hurled it at the officer and launched himself towards the officer actually jumped in the air towards the officer and was stopped by the pile of previously thrown items of household furnishings that had been piled by the rear entrance door to the residence.

Subject charged at police and engaged a physical fight.

Based on the officer's continuous risk assessment and the totality of the circumstances, the use of force such as physical control (e.g., pain compliance techniques) and intermediate weapons such as oleoresin capicum (OC) spray, baton and the conducted energy weapon (CEW) are often employed. However, they are frequently ineffective due to the subject's pain tolerance, extreme strength, and slipperiness (due to sweat and bodily fluid), as well as their endurance and continual resistance. The following excerpts demonstrate these ineffective attempts at controlling the subject using:

1. physical control;

*Cst. ***** was using the full weight on his body on the males legs but he was still able to lift them and move with all three members attempting to control him.*

*Cst ***** was having difficulties securing the suspects arms because of his actions and the sweatiness of his body. This sweat made the suspect*

*very slippery and difficult to control. The fighting was increasing and Cpl ***** had felt the head lock was not completely controlling this male as the suspects pain tolerance was very high due to his drug use.*

*....he was able to get a carotid hold on him (behind the male, with his right arm around the male's neck). ***** couldn't lock the hold onto the male, and didn't have much control.*

*Cpl ***** assisted but had limited use of left hand from an existing injury so he did two kicks two the lower shin of the subject as pain compliance with still no effect.*

I applied three close handed strikes to the side of the subject's stomach in an attempt to distract him from fighting with the members on the ground. Because of the size and intoxication of the subject, the strikes had no effect and no injury occurred.

2. OC spray;

****** told the Cst to use Oleoresin Capsicum (OC) spray irritant. ***** could then taste the OC and feel it in his nose and face, but mostly as a wetness: ***** did not feel any pain or discomfort, and his vision was not blinded. ***** could tell then that the male had been sprayed in the face with OC, but it had no effect making the male compliant. In fact, the male escalated the violence of his fighting.*

*SOC attacked Cst. ***** who deployed his OC Spray on SOC's face. After being OC Sprayed, SOC jumped out the window covered by blinds and ran through the back yard.*

*OC spray was applied to his face area which had no effect. Constable ***** attempted pain compliance techniques which had no effect.*

3. CEW;

*Cst ***** drew, activated and pointed his CEW at Subject again shouted commands for the male to get on the ground. Subject took a step toward Officers and the CEW was deployed in probe mode. There was NMI [neuromuscular incapacitation] Subject fell to the ground after the cycle was complete immediately sprung to his feet again and was screaming. Commands were given to get on the ground on his stomach which he did not. The trigger was pulled and the cycle started again at this point Cst ***** is not sure if the cycle went the full 5 seconds because the Subject went fell to the ground then immediately sprung to his feet and ran off toward the side of the house, perhaps he pulled a probe off or it fell out it is unknown but regardless the tool was not working.*

*The CEW was the best way to effect the arrest but causing the least amount of harm to the Subject Cst ***** knew based on the symptoms of the Subject Officers would have to use an incredible amount of physical force to apprehend the Subject. Cst ***** had never experience a situation where the CEW had failed like that in so many ways. The Subject was so erratic it was like Subject was 20 steps ahead of Officers, Subject's actions were so fast Cst ***** could barely keep up it felt like, the situation kept evolving so fast.*

I pulled out my CEW, pointed it at him and yelled, Taser, Taser, Taser. It had no effect. As he began to run towards me and the house I then activated my CEW. I was standing between the subject and the house. The subject fell to the ground, but he quickly got up in an aggressive manner. I activated the CEW again. The subject fell down then got up again. I continued to give him commands. He then pulled out the probes and ran off. I changed the cartridges and activated the CEW again. The subject fell down, got up and pulled the probes out again. He continued running around in an agitated state. He was running towards people. I continued to give him commands to get on the ground. I activated my last cartridges. The subject fell down, got up and pulled the probes out again. He ran off again in an agitated stated state. I was very scared at this point. The CEW did not seem to have much of an effect and the subject was more agitated also.

4. baton; and

*Cst ***** came to help and slid onto the Subject's lower back with his knee and struck the male with his baton in closed mode in the back rib area, appeared to have no effect the Subject still trying to get up and reach for Cst *****'s legs.*

*Constable ***** removed his asp baton and again yelled at THE ACCUSED to comply with Police commands. THE ACCUSED was now in a struggle with Constable ***** and which point Constable ***** struck his asp baton towards the right arm of THE ACCUSED. THE ACCUSED now focussed his attention at Constable *****. THE ACCUSED began screaming and yelling obscenities. Before Constable ***** could back away, THE ACCUSED had grabbed a hold of Constable *****'s jacket and vest. Constable ***** struck THE ACCUSED again with an asp baton, however THE ACCUSED refused to let go. THE ACCUSED began kicking, pushing and grapple with Police.*

5. multiple intervention options.

Members attempted to take subject to the ground. Writer placed his 210 lb body on subject but he continued to resist when members informed him he was under arrest and to stop resisting. Members handcuffed subject left hand but he put his right hand under his chest, subject was attempting to kick members, writer attempted to grab subject's right hand by he attempted to bite writers hand, writer then gave the subject a 2 second burst of OC spray, no effect, writer then attempted to pry subjects hand from underneath his body with baton but subject bent the baton. Writer eventually cuffed subject with two pairs of cuffs, subject was taken into the hallway but still attempted to assault members.

The CEW, baton or pepper spray did not have any effect on him at all.

The subject would not provide the right arm and joint locks and leverage with baton were ineffective. Subject was unresponsive to pain compliance, joint locks, and leveraging techniques using baton.

*Since all my other intervention options failed, I hit him in the leg with my baton to stop him. Again, there was no response from *****, but he did run from the car and I was able to shut the door of the car. All of my interventions failed. I was truly afraid that with all the intervention models I had, nothing was working. I did not know what else to do.*

*Cst. ***** utilized a single knee strike with his right knee directed at the left shoulder area. This did not appear to have any effect on the male. Cst. ***** attempted to use the closed baton to assist with a wrist lock on the rear of the right hand but this did not have any effect and was discontinued to prevent injury. Cst. ***** extended the baton and attempted to use it as a leverage tool to move the males arm behind his back ,however, his arm position and strength level prevented any action.*

Subject possessed superhuman strength and attempts to use force to handcuff subject failed. Several strikes to subject's body and arm in order to affect compliance failed to have any effect.

Attempts to curl subject's arms back for handcuffing included pulling, distraction strikes, pain compliance (knuckles along ribcage, wrist control, etc.) and even attempting to use ASP baton as a fulcrum all failed.

While these narratives paint a bleak picture for controlling these subjects, pre-planning and intervention strategies that involve multiple officer response show promise for gaining control.

*Therefore, Cpl ***** was even more cautious when approaching this suspect and Cpl ***** knew that swift physical control may have to be applied to prevent any risk to anyone at the residence. .*

We were waiting for two more members to show up due to the fact that it took up to 7 members to control the male roadside. Once the other members showed up a plan was made to remove the male from the PC [police car] and the hospital staff was going to inject him while he was on the ground in an effort to calm him down.

A plan was discussed and it was determined that we needed to intervene and resolve this before someone gets hurts or killed.

A total of four members were on scene to assist and maintained a substantial perimeter around the subject.

Members decided to take the Subject to the ground in order to allow for better control and the ability to handcuff the Subject.

These coordinated multiple-officer control techniques which are promoted in the literature (American College of Emergency Physicians Excited Delirium Task Force 2009; IACP National Law Enforcement Policy Center 2014; US Department of Justice 2011) can allow for the subject to be rapidly controlled and subdued. This is demonstrated by the following:

As the suspect descended the stairs, and almost reached the last step, he was quickly apprehended by the arrest team and taken to the floor to effect the arrest.

Acting as a team, we both pinned the subject (who was already on the ground) to the grass, who immediately stiffen and became extremely active resistant, "turtling" his arms in front of him, kicking his legs, and bucking his body in an attempt to get officers off of him.

Once on the ground, more police officers were able to assist and the subject was secured into handcuffs safely.

Members brought the Subject to the ground using control and were able to successfully place the Subject into handcuffs.

Realistically this may not be possible, as the diversity of police resourcing in Canada will not always make this feasible (e.g., isolated posts, large geographical patrol areas).

However, the quantitative analysis revealed that there were generally more police officers on scene during incidents involving probable cases of ExDS (see

Table 8). In the majority of cases, intervention options when used on their own are rarely effective. Thus, it is usually the combination of multiple attempts of a use of force intervention(s), alongside several members' involvement, which are required to successfully control the subject.

*Attempts to curl subject's arms back for handcuffing included pulling, distraction strikes, pain compliance (knuckles along ribcage, wrist control, etc.) and even attempting to use ASP[brand of telescoping baton] baton as a fulcrum all failed. Eventually, after some time, Cst. ***** and I both heaved on each of the subject's arms and were successful in positioning them for handcuffing.*

*The suspect continued to fight with the members and Cpl ***** deployed the taser a second time. The taser was cycled for the full 5 seconds. This had minimal effect on the suspect, but it did allow the members an opportunity to force the suspect onto the ground face down.*

****** wrapped his legs around the male's legs, and grabbed the male's testicles as best he could through the male's jeans. At this point the male seemed to pause; at the same time, other uniform members began arriving in the bank. A second Cst put a handcuff on the male's right wrist when he stuck it out. Unknown to ***** if the male offered his hand as a result of *****'s grip on his testicles, or something else motivated him.*

Officer's 1 & 5 were able to control the arms, while Officers 3&6 moved the handcuffs to the back. Officer 2 kept control of the feet and Officer 4 kept watching for additional threats.

*It took 3 members to force Subject 1 into the prone (face down) position on the side walk to handcuff as he pushed back and kicked back. Cst ***** held subject's head while Cst ***** knee on suspect's back. Cpl ***** stood on Subject 1's feet at one point to subdue him enough to start handcuffing*

*As the other members pulled Cpl ***** did 2-3 punches to the stomach of Subject 1 as pain compliance to get him to bend over which did appear to work in concert with other techniques used on Subject 1.*

I used the extended baton as a prying tool and was able to gain his arm from underneath his body. With this arm now free members were able to handcuff the subject.

*....this time he was tasered again to his upper left leg for a full cycle and then Subject 1 advised that he was done not without still resisting CPL. ***** was able to handcuff the subject 1.*

*Constable ***** , using a closed fist, punched the Subject in the mid back approximately 5 times, each time attempting to gain control of the Subject's hands. Eventually the Subject released his grip on either the front door knob or his other hand, allowing members to gain control of both of his hands.*

*The subject turned around and I deployed the pepper spray which did not take affect right away, ***** and I were yelling at the subject to get down, after ten seconds he turned away from us and dropped to his knees.*

The prongs made contact with the upper back but was not very effective because he was had use of his arms. The tazer was cycled 3 more times with the same effect. He eventually gave up because he did not want to be tazed again.

Moreover, this need for additional backup and multimember response is further exemplified in incidences where the officer(s) experience exhaustion and struggle just to maintain control of the subject, relying on the arrival of backup. In the absence of additional backup, civilians or bystanders are sometimes involved in situations.

*This struggle carried on for many minutes, with both Cst. ***** and myself becoming winded with the effort it took to control the very strong and very energetic subject.*

*Cst. ***** attempted to restrain subject 1, however Subject 1 became extremely aggressive, violently swinging arms and kicking, and punched Cst. ***** on the left side of the head. Cst. ***** made attempts to restrain Subject 1 who was still highly agitated and ***** had to pin Subject 1 to the ground and physically restrain both wrists. Subject 1 then began to knee Cst. ***** on the left side of the body. Cst. ***** identified himself numerous times as "POLICE" and "stop resisting" however Subject 1 refused to cooperate. Subject 1 was screaming out "I am not going to fucking stop fighting!!" and was swinging and kicking arms violently and completely out of control. As Subject 1 was screaming Cst.*

***** could detect smell of liquor emanating from Subject 1's breath. Cst. ***** was able to gain control and Cpl. ***** assisted and Subject 1 kicked Cpl. ***** and attempted to bite and punch Cpl. *****. Subject 1 had another burst of violent rage and control was lost again however Cst. ***** was able to get one handcuff secured to Subject 1's left wrist. Subject 1 continued to fight and was resisting for over 10 minutes and Cst. ***** arrived on scene and was required to assist, whom Subject 1 kicked in the chest. Subject 1's violent behaviour was so extreme local residents intervened and assisted Csts. ***** and ***** and Cpl. ***** to gain control. Cst. ***** was kicked a second time in the left arm sustained minor injuries. Subject 1 was eventually handcuffed behind his back and was still screaming out being belligerent and trying to spit at the police.

I attended to my police vehicle and attempted to get warm as I could not feel my hands and legs and was exhausted from my interaction with the subject.

Member was concerned due to the ongoing strength of subject and the waning strength of members.

Upon arriving to the scene SGT. ***** observed CPL. ***** on the ground attempting to handcuff Subject 1 assisted by 4 citizens.

Police grabbed subject 1 to restrain him and handcuffed him but he resisted and did not comply. Members wrestled with him in a staircase for almost 10 minutes but he seemed have super human strength. At that point the two Police officers feared death or grievous bodily harm due to Subject 1 getting more aggressive, uncooperative and was not getting tired.

The members were able to get control of the male after about 5 minutes of fighting with him. They were able to get handcuffs on the male with his hands behind his back. Even after the male was cuffed he continued to fight with the members.

Member requested over the police radio for additional members to scene to assist with the arrest. Two male residents of the area assisted Member and 2nd Member with handcuffing Subject.

He was caught a short distance later by Cst. ***** and the subject's father. The subject's body was so rigid. I had to punch the subject on the arm on his pressure point to get his arm out from under him. Cst. ***** and the subjects father was on his back holding his other arm. After a lot of struggling, we were finally able to get the hand cuffs on him. I was so out of breath. It took a lot of effort to get the handcuffs on.

The writer asked the driver of the truck to hold onto Subject 1's arm while the writer handcuffed Subject 1. The driver of the truck assisted the writer with this.

Also, while trying to control and handcuff the subject, an officer safety concern frequently arises, as they are able to secure one handcuff but not the other. This results in a potential weapon for the subject as displayed in the following:

*Cst ***** secured one end of the handcuff onto the suspect. As the one handcuff was secured to the suspects left wrist he pulled his arms away again from Cst ***** and now he had his arms free, but his left wrist had the handcuffs attached. Cpl ***** observed this and immediately recognized the increased danger. With Cpl *****'s years of experience and training he understood how extremely dangerous it is when a suspect has only one cuff attached to their wrist. The handcuff now could be used as a weapon against the members.*

Subject's hands were not visible and the Subject had a steel handcuff on one hand. Potential High Risk of injury to members.

*Cst. ***** placed one handcuff on SUBJECT 1's right hand which was pulled out from the door area. Immediately after placing the handcuff on him, he began to swing around.*

Mitigation strategies for this, including the use of multiple handcuff techniques, have been presented by the Force Science Institute (2007) and are included in Appendix B . It was noted that justification, particularly surrounding the use of the CEW, was provided. This is perhaps due to the heightened concern and scrutiny around the use of this intervention option and the potential for medical risk when dealing with these subjects.

With my experience, I am confident that the application of the CEW was the best intervention option as members and the subject would have sustained injuries if this had not been successful.

*Cpl ***** believed the CEW was the most effective tool for this situation. The suspect had demonstrated that he was not feeling any pain and because of his combative and aggressive behaviour hard control may have been needed if the CEW was not available. This hard control action could have possibly caused serious harm to the suspect. Fortunately, Cpl ***** was prepared for the risks associated to CEW intervention as he*

had an AED [automated external defibrillator] on scene as well had EHS attending Code 3[lights and sirens] for assistance once the suspect was secure.

*The CEW was the best way to effect the arrest but causing the least amount of harm to the Subject Cst ***** knew based on the symptoms of the Subject Officers would have to use an incredible amount of physical force to apprehend the Subject.*

Plus officer is aware that repeated deployments of the Taser against the same subject, in a short period of time, should be avoided if at all possible, due to the possibility of serious medical implications to the subject.

Lastly, stuns and strikes that disrupt the subject's focus and movement or neck/body restraints that control or render the subject unconscious seem to be most effective in this sample, as displayed by the following.

*Cst. ***** was able to get a hold of his left arm and head and applied a joint lock (triangle) to his left arm and head. No pressure was placed on his throat or neck as Cst. ***** had his right leg over top Subject's left shoulder and had left leg on the other side of the Subject's body. The Subject's left arm was trapped between Cst. *****'s right leg and hooked through Cst. *****'s arms secured. Male was not able to move from this position. The Subject was held in place until other police members were able to slowly get handcuffs onto the Subject.*

Member delivered a baton strike to Subject's upper right leg. Subject stumbled, but continued to walk forward. Member delivered a second strike, which brought Subject to the grass.

Officer 1 gained control of the head and neck and applied the jugular pressure points and attempted to cause pain. The subject would cry out and Officer 1 would release a bit.

*Cst ***** then managed to place ***** in what appeared to be carotid control, while Cst ***** delivered 2 knee strikes to *****'s abdomen. ***** then went to the ground and did not resist Police further.*

Though this analysis has not uncovered the single best and/or consistent intervention option for controlling probable cases of ExDS during these intense struggles, it has offered insight into specific officer safety concerns, as well as shown the reasons

behind ineffective interventions some and promising intervention strategies. Interestingly, while the CEW in probe mode was found to be one of the more promising interventions in the quantitative inquiry, because it is effective in briefly stopping the subject's behaviour (i.e., during the cycling – full cycle is five seconds), the subject often resumes their resistance immediately following the deployment. While these incidents are rapidly unfolding, where feasible, multiple member response strategies should be employed collaboratively with the use of the CEW to effectively take advantage of this short window of opportunity for control, which could avoid the use of multiple cycles. The following will now discuss the how officers recognize and perceive the subject's state.

4.5 Recognition

The recognition or perception of a subject's emotional state and/or the presence of drugs and/or alcohol are categorized as situational factors (i.e., perceived subject's abilities) in IMIM training. However, 'recognition' emerged as a separate concept in this analysis which proved beneficial as it is the primary line of inquiry for this qualitative analysis. As a component of an officer's risk assessment, recognition is a dynamic and continuous interpretive process. It is based on the officer's observations and perceptions while being informed by the officer's knowledge and experience which they have gained through their social interactions. As such, recognition can vary from officer to officer and throughout the incident. These subjects were recognized by the officers to be in a situation of elevated risk, which they primarily attributed to:

- 1) substance use;

Caller stated that her brother had taken mushrooms, hash oil and smoked marijuana and was now acting very violently.

....subject was seated and exhibiting signs of being under the influence of hard drugs....

The subject male was out of control intoxicated and breaking items inside the residence.

....complainant reported extreme intoxication by cocaine just prior to police contact

By his appearance and actions, I assessed that he was high on drugs and therefore very unpredictable.

*Based on the Subject's behaviour, Constable ***** believed that the Subject was under the influence of illicit drugs.*

SUBJECT 1 was also foaming from the mouth, which could be contributed to either drug or alcohol addiction.

The subject's mother said he believed her son was on heavy drugs, but she wasn't sure what he took.

Subject of complaint also causing a disturbance by striking windows of hotel and appeared to be suffering from the side-effects of drug consumption.

Cooperative at cell block for a few minutes, informed police he had taken GHB and ketamine and was having a "bad trip". Face pale, hot to the touch, pupils dilated, eyes wide, heart racing.

*During one of his calmer periods Cst. ***** asked subject 1 how much cocaine he had taken. He replied "not very much, only \$40 worth".*

The subject had his fists clenched and he was flexing his muscles and in a visible rage. His face was flushed with anger and he appeared to be in "Roid Rage" or under the influence of stimulants (PCP or Cocaine). Subject appeared to be a body builder and a steroid user.

The subject was intoxicated by drugs and alcohol. He advised that he had consumed "a lot of hard liquor" and that he may have consumed drugs.

*Subject #1 appeared to be heavily intoxicated by drugs and alcohol. Cst. *****'s believed Subject #1 had used cocaine and/or ecstasy.*

2) mental health issues/emotional disturbance;

*Cst. ***** was aware of SOC's [subject of complaint] mental health issues from recent dealing with police and that he could be violent, confrontational and not complying with police.*

*Cst. ***** advised SOC he was under arrest under the Mental Health Act.*

*Prior to arriving on scene, Cst. ***** was advised by Dispatch that members of *****, were dealing with an agitated, highly aggressive male, who appeared to be suffering from mental health issues.*

Subject 1 had a prior file where he was brought to the hospital due the mental health issues mostly him hallucinating and being delusional.

Subject 1 is a large man with severe mental health issues.

Suspicion of a mental health crisis.

Subject experiencing a psychotic event

Subject was suicidal. He had a knife and had cut himself on several location of his body.

3) ExDS; or

Subject then began to fight, showing behavior consistent with excited delirium.

*Cst ***** thought Subject was a text book example of excited delirium. Subject felt intensely strong to Cst ***** you could feel the energy and the strength pulse through Subject. Based on Subject having the ability to forward roll in the air out of a joint lock and the signs of excited delirium Cst ***** knew the male would have unreal abilities to fight and felt bodily harm would be imminent to both Officers.*

*Cst. ***** felt this may be a case of excited delirium. In the experience of Cst. ***** this condition causes people to act out of control, have no response to police/people/commands and show super human strength.*

Accused was suffering from excited delirium, attempting to break into the residence in front of Police. Accused was yelling, screaming, crying and laughing. Accused was not making any sense, and all attempts to reason with him with verbal commands were ineffective.

I was really fearing for my safety. I was really fearing for his safety also. He seemed to be exhibiting signs of excited delirium.

In my training I have watched video's on excited delirium, I would say that this is what we were observing.

4) a combination of the three.

Subject showing signs of being mentally disturbed and possibly intoxicated by drugs

Observed to be mentally disturbed and had consumed drugs.

Subject known for violence, violence against Police, drug use, and suicidal attempts.

Subject appeared disoriented from drug or mental condition

....he was experiencing a mental health crisis—likely brought upon by drug use

SOC is known drug user with violent behaviour as well as on set schizophrenia.

Original dispatch was of suicidal male who had OD'd on Clonazepam and was non-responsive.

Cst stated spouse advised he was snorting cocaine for the past four days and talking about suicide.

Subject appeared to be suffering from Excited Delirium (Cocaine) - Crack pipe found in subjects affects afterwards

Subject was in a state of behaviour consistent with excited delirium and drug induced psychosis. Subject uttered death threats to police. Subject's behaviour was unprovoked Subject appeared to be intoxicated by illicit stimulants

*It was Sgt. *****'s opinion that the suspect was suffering from a drug induced psychosis/ excited delirium.*

Subject showing signs of being mentally disturbed and possibly intoxicated by drugs

Information on subject at the time only revealed that he was possibly suffering from excited delirium from drugs

It became apparent that the subject was under the influence of cocaine and was in a state of excited delirium.

*The male also appeared to be high on drugs as he was very sweaty and pale looking. Furthermore, the male did not seem to be focused or aware of his surroundings. This action combined with the lack of response to verbal commands caused the Cpl ***** to be on guard for a combative situation. As the members were approaching this suspect it was clear that he was under the influence of drugs as he seemed unaware of what was going on around him. The suspect was also naked which made Cpl ***** believe that this may be a situation where the suspect is suffering from an Excited Delirium state. Through Cpl *****'s experience and training he understands how volatile these situation can be. Therefore, Cpl ***** was even more cautious when approaching this suspect and Cpl ***** knew that swift physical control may have to be applied to prevent any risk to anyone at the residence.*

When confronted by police he was behaving as if frantic and making no sense when he spoke causing police concern that the subject could be suffering from excited delirium or high on drugs.

The adjectives most frequently used to describe substance use, mental health, and ExDS include: suffering, signs/symptoms of, state, condition, episode, event, crisis, influence and use. All of which, demonstrates the way in which officers most readily recognize situations.

Other behaviours and indicators, many of which are consistent with the feature of ExDS presented by the US Department of Justice (2011), were used to describe these subjects and their perceived condition. This includes: agitated, violent, impervious to pain, unusual amount of strength, heavy breathing, hyperventilating, sweating and overheating, uncharacteristic/strange, running around wildly, running in traffic, delusional, dilated pupils, wide eyes, unresponsive/unaware of police presence, inappropriately clothed for cold weather and no effect of cold weather, moving constantly, hyperactive, paranoid, babbling, yelling incoherently, repetitive, mimicking, nonsensical statements, breaking glass, self-harm, contorted expressions and body

positioning, naked and animalistic. The following excerpts display how these behaviours and indicators are presented in the officers' narratives.

Subject was found to be extremely warm, sweating profusely, and repeating words over and over again.

Upon arrival members were told the suspect was sitting on the couch naked. Members approached the male and attempted to communicate with him with no response.

The suspect was unable to talk due to his drug induced state and would only grunt and staring at the members.

Erratic, fidgety, looking everywhere, grinding teeth, not listening to police commands, erratic verbal communication, saliva at corners of mouth.

....running around naked, destroying the house, running around naked outside, talking and not making sense.

SOC was now shirt-less and very agitated, all muscles tense, like a beast ready to attack and refused to leave.

During initial officer contact with subject, it became clear that subject was not responding to verbal direction and pain compliance. Responding officer requested additional member attendance since suspect demonstrating superhuman strength and immunity to pain.

He was sweating, his lips were dry, he sometime pulled his tongue out and he had difficulty keeping his eyes open.

He kept saying he was going to die and that his breathing was rapid.

At that point the two Police officers feared death or grievous bodily harm due to Subject 1 getting more aggressive, uncooperative and was not getting tired.

Subject was pacing back and forth breathing very rapidly and sweating allot.

Subject was foaming at the mouth and appeared to be yelling incoherently. Subject had an extreme amount of strength as he was able to successfully resist four members. Subject kept his hands on the door knob and hidden from members. Subject was not responding to or complying with verbal commands.

Observed subject yelling, and completely naked. Conditions -41, and extremely cold. Observed subjects eyes, completely constricted pupils, and throwing broken glass at members and cutting his hands while doing so. Non-responsive to police commands, and oc spray.

I could not believe how cold it was outside and that it appeared to have no effect on the male.

....subject was breaking windows and running around naked.

Was incoherent, mumbling, hot to touch, dried spit on corners of mouth, dilated pupils that would not react to light.

*Cst ***** approached the male, who was soaking wet from the rain, yet still appeared to have hot, flushed skin.*

The male was hot and sweaty and was yelling words members did not understand.

....extremely delusional, hyper vigilant, paranoid, rapid breathing and rambling (speaking nonsensically).

He was walking briskly, arms flailing wildly, pale skin, sweaty, agitated and appeared high.

Pale face, sweaty skin, wide eyes. During the contact it was clearly evident that SOC was agitated, hyperactive and incoherent. He was jittery and also appeared paranoid. He was talking fast and not making any sense.

He was very "pumped up" Subject was sweating and his whole body was shaking in rage.

*Subject #1 was hyperventilating and had a bizarre look on his face. Cst. ***** asked Subject #1 why he was breathing in the manner he was. Subject #1 did not answer but stared intently at Cst. *****.*

*****Note: Subject #1 was topless, in -6 whether, on the ground and in the snow, but the latter did not affect him.*

The reference to ExDS in these reports was most frequently associated with indicators like superhuman strength (excerpts previously provided in 4.3), unresponsive to police presence (excerpts previously provided in 4.2), imperviousness to pain,

sweating, heavy/rapid breathing, and naked/inappropriately clothed, which are consistent with the features of ExDS presented in the literature (Hall et al. 2013). The following provides examples of the description of these features:

Subject behaviour increased in violence as the fight escalated and subject was completely out of control, exhibiting great strength and beginning signs of Excited Delirium and showed no response to pain stimulus or any restraint attempts.

Member suspected Excited Delirium as was showing tell tails signs. Suspect only wearing pants was bare footed, when speaking made no sense. No response to pain and had superhuman strength.

The subject previously attempted to run from members and was showing signs of extreme strength and symptoms of possible excited delirium. The subject was also foaming from the mouth.

It was now evident that THE ACCUSED'S speech disturbances, violent and bizarre behavior along with the insensitivity to pain with superhuman strength was consistent with Excited Delirium.

Subject displayed symptoms of a state known to police as excited delirium. Subject was sweating profusely, he had a wild-wide eyed look on his face, and he was rambling nonsense.

Subject 1 showed signs of excited delirium. Subject 1 had a high pain threshold, extreme strength.

*This raised urgency and threat level as cocaine impairment can lead to "cocaine psychosis" a form of excited delirium which Cpl ***** has seen in which subjects display "super human" strength and high pain threshold during violent encounters with police.*

The subject had stripped naked and was yelling at the members outside the vehicle. He was sweating profusely. Fear of Excited Delirium possible frostbite.

*Cst. ***** attended to assist other members in locating a subject who was suffering from excited delirium. Subject was last seen leaving the ***** naked and covered in blood.*

*Cst *****'s first thought was the Subject may be experiencing excited delirium. Cst ***** has dealt with people in excited delirium, they usually like to take their clothes off and are sweaty.*

Descriptive words specifically associated with Excited Delirium were most commonly suffering, signs/symptoms of and state. Often the reference to Excited Delirium was associated with medical emergency and the need for medical attention and/or aftercare (e.g., recovery position, monitoring breathing) by the officers. Medical assistance was usually requested proactively, or immediately following the handcuffing and control of the subject.

*Cpl ***** immediately had requested for EHS to attend due to the drug use and taser deployment. Cpl ***** had recognized the medical risk associated with what he believed to be an Excited Delirium situation.*

These symptoms being presented by this subject were consistent with excited delirium. Due to the concerns for the subject safety from the symptoms the subject was showing Officers had EHS attend.

Member noticed that the subject began to breathe heavily, was sweating, and was starting to make yelling noises with no words. Member recognizes these as possible signs of excited delirium and knows that a person in Excited Delirium is in a medical emergency.

The male yelled, I can't breathe, I can't breathe and I directed the cell guard to call for an ambulance immediately, in case of excited delirium. The male was lifted to a temporary holding cell where he was placed in the recovery position and monitored continuously until the arrival of cells.

*Constable ***** advised via the police radio that the Subject was foaming at the mouth and requested the Emergency Health Services (EHS) attend their location. Constable ***** feared that the Subject may have been suffering from excited delirium and Constable ***** was aware that this required urgent medical attention. Constable ***** placed the Subject in a recovery position, laying on his right side, and continued to speak to the Subject ensuring that he did not lose consciousness. The Subject was breathing heavily and was requesting that members wake up his landlord. Constable ***** advised the Subject that members wanted to ensure that he was attended to by EHS before doing anything else. EHS arrived on scene and members assisted in getting the Subject onto a stretcher. The Subject was then transported by EHS to ***** ***** Hospital.*

*It was Sgt. *****'s opinion that the suspect was suffering from a drug induced psychosis/ Excited Delirium. The officer based this on the follow:*

He appeared to be in a heightened state of alert; His actions were scattered and sporadic in nature (consistent with other subjects the officer has dealt with in the same state of mind); He was sweating profusely; and The officer later learned that he recently used a considerable amount of cocaine (family members advised this as well as the officer over heard the suspect admitting this to the attending ambulance personnel). The suspect was placed in an upright position to ensure his breathing wasn't restricted, while at the same time, de-escalating technics were employed to help calm the suspect. The ambulance service later attended the scene and transported the male to a local hospital for further treatment. It was later learned that subject#2's heart rate was at 188 bpm (this is when he'd calmed down and was being assessed by ambulance personnel).

*Cst ***** and ***** then placed subject 1 in the recovery position and requested EHS respond code 3 [lights and sirens] as he appeared to be in a state of Excited Delirium.*

The SOC [subject of complaint] was clearly in an Excited Delirium state, rapid breathing, irrational speech, hyper-aggression, superhuman strength and profuse sweating. EHS and ALS [advanced life support] called to scene code 3. SOC was monitored and until EHS arrival.

*Cst ***** requested Emergency Health Services to attend as quick as they could as the subject#1 may have been experiencing excited delirium.*

*Once secured in handcuffs, 2nd Member requested a supervisor to scene, as well as ***** Ambulance Services with a priority response for a male who appeared to be in a state of excited delirium.*

The subjects behavior was consistent with knowledge I have gained as a police officer and from information I obtained in training. I knew that a person experiencing excited delirium in this agitated state was a medical emergency.

*Once on scene, Cst. *****, even before exiting his police car to assist, requested an ambulance, as he believed the male to be in a state of excited delirium. The male was sweating, not listening to reason, highly agitated and screaming*

I was concerned that we had a case of excited delirium and that he was going to be in danger of some type of medical distress. The members who were on scene first advised that they had called for an ambulance earlier and that it should be there soon.

*At 0204 hours Cst ***** requested EHS to attend the scene, as Subject 1 was intoxicated by alcohol, and was possibly in a state of excited delirium.*

The male was taken to the hospital as he was showing signs of excited delirium.

*Cst. ***** noted the male appeared to be showing symptoms of excited delirium from his continuous effort to resist any verbal or physical direction. The male now displayed labored breathing and a small amount of blood was observed on the floor which appeared to be from the inside of his mouth. Cst. ***** advised Cst. ***** to request EHS at this point which he did immediately.*

*It was clear that he a likely suffering from excited delirium. Cst. ***** requested an ambulance be dispatched.*

EMS was called to the scene by the writer because Subject 1 was displaying signs of excited delirium. Subject 1 was yelling uncontrollably, hyperventilating and breathing very heavily.

I expected that due to the violent and extreme nature of the struggles typically associated with cases of ExDS, that the term ‘Excited Delirium’ would be utilized as part of the officer’s risk assessment to rationalize an increased concern for officer safety and/or the use of a certain level of force. However, this does not appear to be the case, as officers are using the individual behaviours as part of their assessment and subsequent rationalizations, rather than their association with ExDS. Thus, actions surrounding the use of force do not appear to be premised upon the meaning associated with ExDS. Instead, the use of the term Excited Delirium by officers appears to be twofold. First, it is used by officers to label the combination of behavioural/physiological features being displayed by the subject in order to make sense of and redefine these extreme situations. Second, this labelling of behaviours assists the officers in determining whether or not these situations are medically high risk and therefore, enables them to modify their actions accordingly. As a result, while officers’ primary focus is still controlling the subject and ensuring police and public safety which is often facilitated by calling for

backup; their secondary focus is upon taking the necessary actions to ensure that the subject receives immediate medical attention. This demonstrates Mead's (2009:149) "significant symbol" in that there is a mutually agreed upon and shared social meaning in the use of the two combined words (i.e., medical emergency). However, this shared understanding and associated actions are limited to individuals that have prior knowledge of ExDS. Furthermore, due to the reliance on individual officer narratives, it is difficult to determine how this term is interpreted by others. As such, while this analysis demonstrates the benefits of the recognition of potential cases of ExDS (e.g., prompt medical attention) through identifying individual behaviours, it indicates the need for training on ExDS for all first responders to ensure more widespread and consistent attribution of meaning (i.e., medical emergency). A more universal understanding of ExDS and its associated meanings would help to prevent fatal cases of ExDS. The following section will discuss the concept that emerged following the initial control of the subject.

4.6 Maintaining Control & How to Proceed

This is the final concept of this semi-linear encounter with probable cases of ExDS. Once initially controlled, to maintain control and restraint of the subject, zap straps or leg restraints are sometimes employed as displayed in the following quotes.

*Cst ***** secured Subjects feet together with Zap-straps in order to control his kicking and movement as police were not subject to bio-hazards including blood, feces, urine, spit and vomit. Subject transported to Hospital. Subject placed into full restraints by hospital staff.*

He was physically restrained until handcuffs and leg irons could be applied.

He was directed on the ground where ankle restraints were secured.

These types of restraints help to facilitate the safe transport and/or treatment of these subjects by paramedics and hospital staff.

Subject placed into full restraints by hospital staff.

....the subject was also properly secured to the bed with (hospital issued) hand and leg restraints.

The subject was then placed in an ambulance where he continued to yell at paramedics and fought against restraints that had been placed on his arms and feet to protect emergency workers.

Upon arrival of Ambulance we assisted with getting subject 1 onto the stretcher. He became noticeably calmer during this period. We assisted in removing his handcuffs and placing him in restraints.

Despite being involved in an intense and violent struggle, officers still continue to demonstrate empathy for subjects, often citing the steps that they took to reduce the risk of injury to the subject and/or ensure the subject's comfort.

*Cst. ***** attempted to use the closed baton to assist with a wrist lock on the rear of the right hand but this did not have any effect and was discontinued to prevent injury.*

Subject banged his head off the hood of the police car and officer placed his gloved hand on forehead of subject to lessen the impact. Subject was still strong enough to hit his head on the hood of the car, even with officer pulling back against this action.

After being handcuffed the subject continued to attempt to hit his head off a door frame and the floor. A pillow was placed under the subject's head to prevent same and slow some of the bleeding,

*Cpl ***** chose to punch Subject 1 as the suspect had a large "paunch" and less likelihood of injury than other techniques which would require knee strikes or strikes to the face to gain compliance and pull the subject down.*

*Cst. ***** attempted to use ankle locks however the male continued to display no pain sensation and these attempts were discontinued to prevent injury to the male.*

....once in police vehicle began smashing own head into rear seat security bars on window while handcuffed - removed from back seat to ground to stop self-harm

I observed the subject now to be completely naked inside the vehicle, and grabbing glass both inside the vehicle, and attached to the door, and throw it at the members outside. In standing outside for several minutes, in -41, I recognized that my fingers and toes and face were becoming extremely cold, and that the subject naked inside the vehicle, had a likelihood of frostbite extremely fast, should we not be able to get him out of the vehicle.

We all knew that we could not uncuff him as the hospital would not be able to control him and there was a genuine concern for their safety and for the male's safety if he was unrestrained.

As another example, in some incidents, subjects are handcuffed in the front (rather than behind their backs) for comfort despite the fact that this introduces officer safety concerns. These safety concerns are demonstrated in the excerpts below as often subjects attempt to choke police officers with their handcuffs.

Subject complained of a sore shoulder and asked if he could be cuffed in front of his body. Subject was advised that the cuffs could be placed in front, but that they would quickly go back, should he become violent again. A second officer had shown up by this time and assisted the primary officer with cuffing subject in front of his body. This also served a second purpose of making it easier and more comfortable for subject to lay on the stretcher that was brought from the ambulance.

The subject was also trying to put his arms around the officer's neck clearly trying to choke him.

Officer 1 arrested the subject for Cause and Disturbance and placed the handcuffs on the subject in front due to the precarious lay out of the entry way. At this point the Subject was being cooperative.

Once restrained, the focus of the officer continues to be maintaining control of the subject and the decision to proceed either to the hospital for treatment or the local cellblock for incarcerations. In many of these cases where a medically high risk situation has been identified, particularly when ExDS is recognized by the officer or the subject is

having difficulty breathing, the decision is clear; the officers monitor vitals and either maintain control of the subject until paramedics arrive to assist or transport the subject to the hospital on their own.

The subject showed violent behavior towards the EHS attendance. Once some of the vitals were conducted by the EHS attendance it was determined by them that the subject needed to be rushed to the hospital. Subject was still showing his violent behavior and could not be placed in the back of an ambulance. Another Officer transported the subject to the hospital.

....subject had medical episode while restrained (breathing issues) - subject transported to hospital - subject released from hospital next day and then released by police

The male continued to struggle, scream incoherently, and not calm down. EHS transported male.

*Ambulance attended details provided to them. Cst ***** rode with Ambulance to hospital. Reason for arrest was under the Mental Health Act, he was suffering from a Mental Health condition and needed to be brought to a Doctor before Subject hurt himself or others, danger was evident.*

*Cst. ***** arrived with SOC at the hospital, where he was brought to the shower room and he was fully decontaminated. Next, SOC was escorted to the Psychiatric Emergency Section (PES), where he was admitted by the emergency physician and secured him into an isolated treatment room.*

Ambulance declared he was in a state of excited delirium and called advanced life support. Suspect was placed on ambulance stretcher and handcuffed to it without further incident or physical intervention.

*Emergency Health Services attended scene and secured the subject#1 to a spinal board. The subject#1 was transported to ***** Hospital accompanied by Cst. ***** Cst. ***** remained with Emergency Health Services and assisted with securing The subject#1 to a hospital bed until doctors could treat him.*

Subject transported to Hospital. Subject placed into full restraints by hospital staff.

*After placing him in handcuffs Cst. ***** and Cst. ***** placed SUBJECT 1 in the recovery position and waited for an ambulance which*

*was staged on ***** near the residence. At this time, SUBJECT 1 had calmed down significantly but was still foaming from the mouth. Members assisted with placing SUBJECT 1 on an ambulance stretcher and he was transported to ***** Hospital.*

*Paramedics soon arrived in the area. Member accompanied Subject in the ambulance to ***** Hospital (*****). All the while, Subject continued to smile, laugh, and ramble to himself. Subject's conversation was difficult to follow.*

****** started to wash the face of the subject who after a few minutes started to convulse and shake and then went still. After a few seconds he started to yell once again and started talking. Cst. ***** then called occ [operational communication centre – i.e., dispatch] to call an ambulance. ***** and I moved the subject from his right side to his left side and I leaned the subject up against my left knee to support him. at this time I noticed that the subjects skin was very hot and sweaty. ***** then washed out his other eye. Ambulance arrived after I had left the area, with Cst. ***** transporting him to hospital*

The suspect was placed in an upright position to ensure his breathing wasn't restricted, while at the same time, de-escalating technics were employed to help calm the suspect. The B.C. ambulance service later attended the scene and transported the male to a local hospital for further treatment. It was later learned that subject#2's heart rate was at 188 bpm (this is when he'd calmed down and was being assessed by BCAS personnel).

The Subject male was treated and transported to the hospital. While en route to the hospital, the Subject male continued to babble incoherently and attempted to get out of his restraints.

*Cst ***** noticed, and it was also pointed out by Cst ***** , that *****'s breathing became heavily laboured and was sounding like he was struggling for breath. As he was still secure on the ground with nothing on his back or chest, Cst ***** requested a Paramedic check on his breathing. The Paramedic said he believed his breath was laboured from the struggle, but said he would contact ALS [Advance Life Support] to be sure there was proper medical attention to look at *****. After approximately 5-7mins, ***** was calmed enough to talk to. ***** agreed to go with the Paramedics, and was placed on the stretcher. No restraints were used on the stretcher, but ***** was still in handcuffs. The Paramedics stated that they would be fine with Police following behind, even though Cst ***** offered to ride along inside the Ambulance.*

We remained on subject 1 while waiting for ambulance. (Approximately 10-15 minutes) He continued to struggle.

*Once stunned, I was able to wrap my arm around his head in a head lock and pull him to the ground. Once on the ground I felt the subject start to lift himself, with me attached to him, off the ground. I tightened up my grip, repositioned and pulled him to the ground and held him there with every ounce of strength I had because it felt like this guy had super human strength. It took all I had just to keep him pinned to the ground, even for a few seconds. This allowed Cst. ***** and other persons, including hospital security to catch up and assist in holding him down to the floor, restraining him, and eventually getting him in handcuffs so the doctor could sedate him. Even after being handcuffed and sedated, the accused continued to resist and fight.*

*A second EMS employee brought a sedative to *****'s, and Cst. *****'s location and administered the drug by needle to Subject #1 right arm. The drug had no effect on Subject #1.*

*SOC was monitored and until EHS arrival. No strikes were used, no OC spray, baton or CEW required. During the process of holding the SOC down until EHS arrived, he kept moving his head from side to side and at times scraping on the pavement causing a small skin break. SOC is known drug user with violent behaviour as well as on set schizophrenia. EHS arrived in about 10 minutes. SOC taken to ***** Hospital for treatment, monitoring and was released 12hrs later.*

Subject 1 had received unknown cuts to his face during his time on the ground and was bleeding. Upon arrival of Ambulance we assisted with getting subject 1 onto the stretcher. He became noticeably calmer during this period. We assisted in removing his handcuffs and placing him in restraints.

In the most extreme cases, the individuals are administered a sedative to calm them, however the subject can still continue to resist.

*He was the[n] transported to the ***** Hospital, to be seen by a medical physician. Due to the subject's behaviour, both Cst. ***** and Cst. *****, escorted the ambulance. Once at the hospital, the subject transitioned from calm to violent behaviour throughout the entire evening. The subject was threatening to hospital staff and his actions were highly disruptive to other patients in the Emergency Department; ultimately, he was moved to a hospital room at the back of the department, in an attempt to contain his disruptive behaviour. While there, the subject's behaviour continued to escalate and although secured to the hospital bed, his*

*behaviour became a growing concern. Cst. ***** spoke with Doctors and a decision to sedate the subject with medication was made - all attempts to have the medication taken orally were unsuccessful; the subject actually attempted to kick the medication out of the doctor's hand. As a result, a decision was made to request additional police officers from the ***** Police Service (*****). Once on site, five police officers and two security guards entered the subject's hospital room and physically secured him, while a physician administered a sedation medication by way of injection. In addition to this, the subject was also properly secured to the bed with (hospital issued) hand and leg restraints.*

The medical staff injected the male with a needle while the members were holding his down. The hospital staff said that the drugs should have a calming effect on the male but after 5-10 minutes it did not appear to be working as he was still not cooperating with the members or hospital staff. It was decided that he needed to be treated for his injuries as assessed as we were afraid that he may be in danger.

After a paramedics were able to triage the suspect as well as they could, the subject was placed on a spine board and subsequently a wheeled gurney because he was too heavy to be carried safely. The subject was then placed in an ambulance where he continued to yell at paramedics and fought against restraints that had been placed on his arms and feet to protect emergency workers. The subject was transported to hospital where he was sedated and subsequently remanded for psychological evaluation.

*A second EMS employee brought a sedative to *****'s, and Cst. *****'s location and administered the drug by needle to Subject #1 right arm. The drug had no effect on Subject #1. A gurnie was prepped and brought adjacent to where *****; Cst. ***** and Subject #1 were still struggling on the ground.*

*Once at *****; Subject was restrained to a hospital bed and sedated. Subject continued to display bizarre behaviour which included smiling and giggling to himself. Eventually, Subject calmed, and fell asleep.*

Once on site, five police officers and two security guards entered the subject's hospital room and physically secured him, while a physician administered a sedation medication by way of injection.

The subject was transported to hospital where he was sedated and subsequently remanded for psychological evaluation.

Officer was told that they could in that case and officer asked them to give subject the sedative. officer witnessed EHS administer a liquid via a

needle in the upper right bicep/shoulder of subject. Subject pulled away from needle and stated, "Get that fucking needle away from me".

*A second EMS employee brought a sedative to *****'s, and Cst. *****'s location and administered the drug by needle to Subject #1 right arm. The drug had no effect on Subject #1.*

Subject was given medicine by needles and later started to fall asleep.

Often, since the subjects were apprehended under the Mental Health Act, they are released to the hospital without charges, even when officers are assaulted. This further demonstrates the officer's level of understanding of the subject's psychological state and the need to deal with the subject through the medical, not the criminal justice system.

....subject then taken to hospital for admittance, no police charges

*Neither family members requested charges against the subject#1. Cst. ***** remained with Emergency Health Services and assisted with securing The subject#1 to a hospital bed until doctors could treat him.*

*Dispatch was updated that ***** could possibly be in an Excited Delirium situation, and an alert was sent to hospital advising security. ***** released to hospital without charges.*

No charges of assault were pursued due to the mental state of the subject.

Subject was left in the care of the hospital, for what appeared to be a drug induced state of psychosis.

As a result of releasing the subject to the hospital, it may limit the officer's knowledge of injuries sustained by the subject during the encounter, particularly since some injuries may only be recognized once the subject has calmed and regained a great sense of awareness of their surroundings and sensations. This has implications for the injury rates cited in the quantitative analysis as they may be underreported. In other cases, such as those delineated below, the subjects are medically cleared for incarceration and the

officers are able to accurately record any injuries resulting from the use of force, if applicable.

*EHS arrived on scene, and determined that Subject 1 would need to be transported to hospital to be cleared medically for cells. Subject 1 had suffered an abrasion to his forehead, his left arm, and his back. It is unknown if these injuries were suffered prior to police attendance, or upon police intervention. Subject 1 subsequently began vomiting, and was transported to ***** Hospital for medical treatment. At 0250 hours Subject 1 arrived at ***** Hospital, to be assessed by a doctor. Subject 1 became belligerent towards hospital staff, yelling and screaming, and removed his penis from his pants in order to taunt police. At 0320 hours was cleared for cells by Dr *****.*

Subject was brought into a cell and held while EHS assessed, finding subject to not be experiencing any life threatening conditions. During assessment subject began to resist again, struggling and pushing police towards cell door while in restraints. Police pinned subject to the floor and controlled subject in this manner while EHS completed assessment. With assessment complete, subject's handcuffs were removed and subject was lodged in cells for the rest of the night.

*Subject 1 transported to ***** Hospital by EHS and was medically assessed by a physician. Subject 1 began to become agitated again and once medically cleared Subject 1 was released to detachment cells. Subject 1 was transported back to the detachment cells by EHS and Cst. ***** accompanied.*

Despite the increased rates of officer injury identified in the quantitative analysis, there appears to be minimal reference to their extent of injuries. This could be as a result of officer injuries being captured through other venues such as Hazardous Occurrence Reports (Form 3414), as referenced in the last quote below.

****** & the Cst both injured.*

*During this I cut my left hand. Cst ***** also cut his thumb on something.*

At this point, I realized my chest and ribs, were sore, and I advised medical staff, as I was already at the hospital.

I noticed that my right ear was burning and that it appeared to be swollen. I went back to the detachment but returned to the hospital a

short while later to have my ear looked at. The doctor told me it was either cauliflower ear or frostbite and that it would probably get more swollen over night. I was told to ice it and it may help with the swelling.

*SOC [subject of complaint] on *****[records management system] as contagious with information suggesting that SOC has *****. Cst. ***** received a significant amount of saliva from the SOC his face. 3414's completed.*

Lastly, when subjects do return to a state of normalcy, they often have no recollection of the events that transpired.

*Once at ***** , Subject was restrained to a hospital bed and sedated. Subject continued to display bizarre behaviour which included smiling and giggling to himself. Eventually, Subject calmed, and fell asleep. After being woken by a nurse, Subject's cognitive awareness seemed to return, and he became calm and respectful. Member asked Subject if he had any recollection of what had transpired. Subject explained that he had recently been prescribed a new medication and had a bad reaction. Subject did not admit to using any street drugs.*

While in the ambulance, he was given his verbal charter and warning. He did not answer. He just kept saying he was Jesus Christ and wasn't the devil. I rode in the ambulance with him. He repeated this all the way there. Just as we got to the hospital, he looked that EHS attendant and said in a calm voice, "where am I?". He just snapped out of it.

The following day subject was removed from cells by same members was fingerprinted and photographed. When asked if he remembers anything subject stated "no". Member explained to him his actions from the beginning to the end.

At the conclusion of this somewhat linear sequence of events and concepts outlined in this interpretive account, officers' articulate these events in a use of force (SB/OR) report. From this, the seventh concept of depersonalization emerged.

4.7 Depersonalization

After these incidents, when a member has used force, they are required to complete an SB/OR report describing their risk assessment, the totality of the situation and the force response that they employed. It is through this process that the officer is

provided added opportunity to see themselves as an object from an outside perspective and present “the self”. This includes how they believe they are perceived by another individual and by society, their personal and social identity, as well as how they view their role as a police officer in the situation. Interestingly, the vast majority of officers in this sample (81%) opted to write their reports in the third person which made them very clinical and removed their storytelling ability. This writing style appears to blunt the emotions of the officer and inhibits the reader’s ability to gain a deeper understanding of the incident by taking on the role of the officer. Despite explanation and understanding being the purpose of these use of force reports, this writing style is likely attributed to the training these officers have received on the completion of other police reports (e.g., crown brief, general occurrence report). These other court reports often rely upon a more “objective” third person writing style and typically become habitual as they are completed much more frequently than use of force reports. The following provides an example of each of these writing styles:

1. third person; and

Officer is aware that people who are taking stimulants (ie: PCP) can exhibit super-human strength. Officer is aware of small statured individuals who can fight with many police officers and show extraordinary feats of strength and resistance to pain compliance techniques. Officer is aware that these same subjects can fight through OC spray and still be a very large threat to police in the enraged and drug induced state.

*Cpl ***** feared that the suspect was going to escalate the situation to an assaultive level putting them at risk of harm.*

*Cst ***** was surprised and frightened by the Subjects agility and ability to escape, coupled with the other attitudes he was showing.*

2. first person.

*This put me in an area where there were pretty much no exits or means of escape other than pushing forward or retreating back through the door in which I came, but this would put my back to any possible threat that lay ahead of me. I saw a muscular stocky male, 6'1" around 250 lbs coming toward me. He was approximately 15 feet from me as I entered the ward and he was advancing on me in a quick and agitated manner. The male had no shirt on, his fists were clenched, the muscles in his forearms were flexed and he looked at me, but yet appeared focused on the door/exit behind me. It is my experience in my 21 years of policing that when a male is serious about fighting, they will take their shirt off and flex their muscles and try and stare down their opponent. Again, the male's fists were clenched and his forearms were flexed, which also tells me he is prepared to fight. When I say he was goal focused I mean that he was staring at the door behind me which told me he was heading there at any cost and no one was stopping him. Since I was not able to learn any more information from Cst. ***** prior to entering the room (as there was no reply on his radio when I asked him what was going on) I figured he may have already been injured by this male and not able to respond to me calling him.*

Once I saw the subject, I knew who he was. My perception of the situation was heightened. I have dealt with the subject in the past. He is normally very aggressive, but you can talk to him. He has also fought with some of our members in the past. Because of this history, and the nature of the call so far, my threat assessment was very high given the subjects erratic behavior, mental state and known history on mental illness and violence towards the police. Also, the subject is 6'0 and about 190 pounds. He is quite muscular. He is a lot stronger than I am.

*Based on my training at the "Depot" Training Academy, and my knowledge and experience of having observed drug-induced states, my risk assessment became high. Subject was a very large and muscular male capable of exerting extreme strength. Cst. ***** and myself are large, strong males and with both of us we were encountering extreme resistance to handcuffing attempts. Subject was exhibiting "active resistant" behaviour, but given his brief "assaultive" posturing (the "You get on the ground!" remark), and the fact he was experiencing a mental health crisis—likely brought upon by drug use—his behaviour was understandably unpredictable and could shift to assaultive at any moment. This meant my risk assessment was high, as though injury to the public was unlikely (given the hour), with two police officers engaged in a struggle the potential for an injury to a police officer was very high.*

It has been my experience that people can contort their bodies in such a way to get handcuffs to the front of their bodies. I could not put him in my police vehicle without a proper search being completed as even though he

was hand cuffed he may still be able to access it and hurt me or himself. Should he somehow manage to escape my custody he could potentially be a danger to others. The residence subject I had fled to was also a known drug house. I needed to get control of him as I feared additional threats could come from this house.

Mead's theoretical perspective on the "I" and the "me" provides interesting insight into the officers' report writing. This perspective posits that the "'I' is the response of the organism to the attitudes of the others; the 'me' is the organized set of attitudes of others which one himself assumes" (Mead 2009:175). Since these incidents are often emotionally charged due to the extreme physical altercations and that these reports are for court purposes and oversight, the use of the third person might facilitate the concealment of the officer's "I" or negative emotions like anger; while assisting in the presenting the officer's "me" who remains in control of the situation and their emotions.

Officers also often rely on terminology from the IMIM to describe the subject's behaviour, using "model speak". This means utilizing predetermined terms like 'assaultive' or 'active resistant' to describe the subject's behaviour, instead of explaining in their own words or plain language which specific behaviours or threat cues demonstrated the subject's intent (e.g., raised fist, spitting, punching, kicking) and facilitated their initial designation.

Subject displayed active resistant and combative behavior.

CID [crisis intervention and de-escalation] model - attempts to de-escalate and communicate verbally.

Subject tried to close door on members (active resistant), subject then became combative once members gained entry, then subject became active resistant again

Accused displayed behavior of Passive Resistant, then he escalated and displayed Active Resistant.

*THE ACCUSED again began displaying an ACTIVE RESISTANT behaviour, as he ran towards the residence at which point Constable ***** went hands-on in an attempt to effect arrest. Attempts to use Physical Control soft were negative as THE ACCUSED pushed Police away and replied with an assaultive behavior.*

Subject was observed to be an immediate threat of grievous bodily harm or death to the officer.

Subject was exhibiting, and police feared, grievous bodily harm or death. The male exhibited grievous bodily harm or death behavior by threatening Police and staff with weapons and uttering threats to cut Police officers heads off. Risk assessment was high based on situational factors.

Additionally, rarely do the officers express being scared unless using model speak (e.g., ‘feared grievous bodily harm or death’) and instead appear to use bystanders, witnesses and victims to narrate feelings of being afraid.

A number of bystanders that appeared too scared to move.

The complainant advised that she has never observed Subject #1 act in a similar manner, she was scared, and feared for Subject #1 well being.

*The civilians appeared to be staff & customers. They all looked scared and worried. ***** walked calmly up to the male and identified himself.*

Conversely, the use of backup and radio communications may be used to symbolize fear and a lifeline for the officer. Concern and frustration are voiced when radio communications do not work and officers are left unsure if backup will be available to help. This identifies an important officer safety concern.

*While waiting with the original subject, I heard ***** call on his radio for me to get into the emergency ward right away. I could hear that his voice was elevated and felt he may be in trouble.*

Member attempted to call for assistance on his portable radio 3 separate times, by pressing his RTT [radio transmission technology] button. Member felt that this female was being assaultive. Member could hear the RTT squelch and stated that he needed back up and that he was fighting. Member did not receive a response.

*Once on the ground Cst. ***** radioed Cst. ***** that his immediate assistance was required. However, the duty radio's supplied by the RCMP do not work very well and the transmission was never heard by Cst. *****.*

I was unable to make out any of the communication on the radio, due to poor reception.

From Mead's perspective of symbolic interactionism, the self is defined through "social roles, expectations and perspectives cast on self by society and by those within society" (Annells 1996:380). In Canadian society, traditionally we have been brought up to believe that police officers are brave, fearless and invincible. Consequently, this has generated an unrealistic social identity for police officers to fulfill, which fails to recognize them as real people with emotional, physiological and psychological limitations. As a result of these societal expectations, officers may adopt this idealistic role and social identity, concealing emotions of being scared or ill-equipped to deal with the situation; only revealing this through indirect or symbolic references and model speak. The following section will now provide analysis of the report classifications to provide a more in-depth understanding of the data.

4.8 Comparative Analysis of Classifications

Due to the limitations of theoretical sampling, data classification was completed to assist in the development of emerging theory (Charmaz 2006). Table 25 outlines the sub-samples of the 43 reports including: 9 reports with 8 or more features of ExDS and Excited Delirium not referenced; 17 reports with 6 or more features of ExDs and Excited Delirium referenced; and 17 reports with less than 6 features of ExDs and Excited Delirium referenced. Additional classifications were created for whether or not I interpreted the subject as a probable case of ExDS based on the officer's narrative and the

indication of a medically high risk situation (e.g., medical emergency/attention/distress).

Based upon my interpretation of narratives, 35 (81.4%) of reports from the total sample were interpreted as being probable cases of ExDS. Classifications were also formed on whether the officers had received training that discussed ExDS to determine the impact of this training on meaning and action. This indicated that almost 60% of this sample had received training that included discussion of ExDS.

Table 25 – Descriptive Statistics of Report Classification for Theoretical Sampling

		Count	Column N %
ExDS Features/Referenced	8 or More Features of ExDs and	9	20.9%
	No Reference to Excited Delirium		
	Less Than 6 Features of ExDs and	17	39.5%
	Excited Delirium Referenced		
	6 or More Features of ExDs and	17	39.5%
	Excited Delirium Referenced		
	Total	43	100.0%
Interpretation of Narrative	Improbable Case of ExDS	7	16.3%
	Probable Case of ExDS	35	81.4%
	Undetermined	1	2.3%
	Total	43	100.0%
Received Training on ExDS	Yes	25	58.1%
	No	18	41.9%
	Total	43	100.0%

Lastly, classification included identifying reports that were completed by different officers for the same incident (i.e., where multiple officers used force on the same subject) for comparison. This provided five incidents with reports across sub-samples.

This provides the ability to determine how individual knowledge, experience and perceptions can affect the interpretation of a single event. Through the use of advanced memos, these classifications were compared and analyzed for differences (Charmaz 2006). This comparison was facilitated by cross referencing the node and classification table in NVivo.

Several key findings were made in the comparative analysis of the nodes to classifications. First, Table 26 identifies that all 17 reports with 6 or more features of ExDs and Excited Delirium referenced were interpreted as being probable cases of ExDS. This was followed by 7 reports with 8 or more features of ExDS and Excited Delirium not referenced in which 78% were interpreted as probable cases. Lastly, the 11 (65%) reports with less than 6 features of ExDs and Excited Delirium referenced demonstrated the most false positives (e.g., improbable cases of ExDS). One such case is demonstrated here:

*Cst *****'s first thought was the Subject may be experiencing Excited Delirium. Cst ***** has dealt with people in Excited Delirium, they usually like to take their clothes off and are sweaty.....Cst ***** learned Subject was naked and wet because he was in a bathtub prior to Police arrival.*

This demonstrates the fluidity of these situations and that “as events do or do not occur as expected, a past is created, and the meaning of the present is transformed” (Hewitt and Shulman 2009:118). Thus, through this interpretive process described by symbolic interactionists, officers may interpret a subject as experiencing ExDS, however, may later rule it out because it fails to meet their understanding of the syndrome.

Overall, these interpretive classifications indicate that the presence of multiple features of ExDS (i.e., six or more) provide robust predictive validity for identifying a medical emergency and/or probable case of ExDS. While, it is not a completely reliable measure, the knowledge and recognition of both features and their association to ExDS appears to provide great promise for ensuring subjects are appropriately identified as medical high risk and received immediate medical attention. These findings have implications for the prevalence rates presented in the quantitative analysis. First, this

qualitative review has identified a few false positives (seven), although the majority (six) displayed less than six features of ExDS. However, there appears to be an even greater number of false negatives (ten). These cases (i.e., false negative) were interpreted as probable cases of ExDS, although they did not meet the threshold of six or more features of ExDS and were only identified for this sample due to the officer's reference of the term Excited Delirium. As such, the quantitative prevalence rates could underestimate the true prevalence rate of ExDS. This may be partially due to the reporting limitation previously discussed in Table 9 of Chapter 4.

Table 26 - Interpretation of ExDS by ExDS Features/Referenced

		ExDS Features/Referenced					
		8 or More Features of ExDs and Excited Delirium Not Referenced		Less Than 6 Features of ExDs and Excited Delirium Referenced		6 or More Features of ExDs and Excited Delirium Referenced	
		Count	Column N %	Count	Column N %	Count	Column N %
Interpretation of Narrative	Improbable Case of ExDS	1	11.1%	6	35.3%	0	0.0%
	Probable Case of ExDS	7	77.8%	11	64.7%	17	100.0%
	Undetermined	1	11.1%	0	0.0%	0	0.0%
	Total	9	100.0%	17	100.0%	17	100.0%

Table 27 indicates that 65% of the reports that referenced Excited Delirium were written by an officer who received training that discussed ExDS. While training does not produce fewer false positives (i.e., improbable cases of ExDS) than those who have not received this training, the presence of features of ExDS in combination with recognition as ExDS, provides the best predictive validity and association as a medical emergency. This also identifies that 12 individuals received their stock of knowledge on ExDS from sources outside of RCMP training. Interestingly, the meaning associated in these cases was congruently focused on the need for medical attention. It would be of interest to determine what other sources officers are receiving this knowledge from such as the media.

Table 27 – Training by ExDS Features/Referenced

		ExDS Features/Referenced					
		8 or More Features of ExDs and Excited Delirium Not Referenced		Less Than 6 Features of ExDs and Excited Delirium Referenced		6 or More Features of ExDs and Excited Delirium Referenced	
		Count	Column N %	Count	Column N %	Count	Column N %
Received	Yes	3	33.3%	12	70.6%	10	58.8%
Training on	No	6	66.7%	5	29.4%	7	41.2%
ExDS	Total	9	100.0%	17	100.0%	17	100.0%

Lastly, when comparing the reports of different officers across the same incidents, the difference in interpretation, perception, attribution of meaning and articulation of the situation clearly differ. This demonstrates the differing realities that officers interpret and perceive based on their individual knowledge and experience. Thus, emphasizing the importance of an individual articulation of their continuous risk assessment and the use of a micro level sociological theory (e.g., symbolic interactions) to analyze of use of force encounters. Reports across the sub-samples demonstrated that those who recognize ExDS provide greater articulation around the need for medical assistance and medical action taken. This interpretation however is limited as it assumes that all officers who did not reference Excited Delirium in the narrative of their report lacked prior knowledge of ExDS or perceived the subject as a probable case of ExDS, which may not be the case. The following provides examples of the differing interpretations of these situations, as well as the reference to ExDS and medical attention.

1. This incident demonstrates that while these officers reported differing number of features of ExDS (six and three respectively) and only one had received training on ExDS, they both referenced Excited Delirium. Furthermore, both accounts focused on medical aftercare such as putting the subject in the recovery position and ensuring the subject received medical attention.

- a. Six or more features of ExDs and Excited Delirium referenced. No training received on ExDS.

*Constable ***** advised via the police radio that the Subject was foaming at the mouth and requested the Emergency Health Services (EHS) attend their location. Constable ***** feared that the Subject may have been suffering from excited delirium and Constable ***** was aware that this required urgent medical attention. Constable ***** placed the Subject in a recovery position, laying on his right side, and continued to speak to the Subject ensuring that he did not lose consciousness. The Subject was breathing heavily and was requesting that members wake up his landlord.*

- b. Less than six features of ExDs and Excited Delirium referenced. Received training on ExDS.

*Cst. ***** believed that SUBJECT 1 was experiencing excited delirium, which causes super human like strength, when illicit drugs are consumed.*

*After placing him in handcuffs Cst. ***** and Cst. ***** placed SUBJECT 1 in the recovery position and waited for an ambulance which was staged on ***** near the residence. At this time, SUBJECT 1 had calmed down significantly but was still foaming from the mouth. Members assisted with placing SUBJECT 1 on an ambulance stretcher and he was transported to ***** Hospital.*

- 2. This narrative demonstrates that while both officers used Excited Delirium to describe the combination of the subject's behaviours, only one officer articulated it to identify the need for a priority medical response. Neither of the officers in this incident had received training on ExDS.

- a. Less than six features of ExDs and Excited Delirium referenced. No training received on ExDS.

Accused was suffering from excited delirium, attempting to break into the residence in front of Police. Accused was yelling, screaming, crying and laughing. Accused was not making any sense, and all attempts to reason with him with verbal commands were ineffective.

It was now evident that THE ACCUSED'S speech disturbances, violent and bizarre behavior along with the insensitivity to pain with superhuman strength was consistent with Excited Delirium.

- b. Six or more features of ExDs and Excited Delirium referenced. No training received on ExDS.

Subject displayed symptoms of a state known to police as excited delirium. Subject was sweating profusely, he had a wild-wide eyed look on his face, and he was rambling nonsense. Member requested over the police radio for additional members to scene to assist with the arrest.

*Once secured in handcuffs, 2nd Member requested a supervisor to scene, as well as ***** Ambulance Services with a priority response for a male who appeared to be in a state of excited delirium.*

- 3. This incident demonstrates that while both officers indicated a significant amount of features associated with ExDS (eight and nine respectively), only the officer that received training on ExDS articulated a link with Excited Delirium. This reference was then followed by indicators of medical distress and the need for medical attention and appears to indicate urgency with the use of “immediately”. Conversely, the other officer appears to associate this situation to drug use and does not seem to indicate the same sense of urgency for medical attention.

- a. Six or more features of ExDs and Excited Delirium referenced. Received training on ExDS.

*Cst.***** noted the male appeared to be showing symptoms of excited delirium from his continuous effort to resist any verbal or physical direction. The male now displayed labored breathing and a small amount of blood was observed on the floor which appeared to be from the inside of his mouth. Cst.***** advised Cst. ***** to request EHS at this point which he did immediately.*

The male was too aggressive to take to hospital and was not displaying any life threatening injury. As a result EHS departed.

- b. Eight or more features of ExDS and Excited Delirium not referenced. No training received on ExDS.

Cooperative at cell block for a few minutes, informed police he had taken GHB and ketamine and was having a "bad trip". Face pale, hot to the touch, pupils dilated, eyes wide, heart racing. Though he was cooperative at this juncture when subject was brought out of police vehicle he immediately began to struggle again, pulling away and yelling at police nonsensically, occasionally murmuring that people were "out to get him". EHS notified of situation and requested attendance to cells to assess. Subject was brought into a cell and held while EHS assessed, finding subject to not be experiencing any life threatening conditions.

This closes the qualitative inquiry and the results of this analysis will be summed in the following section.

4.9 Conclusion

By taking Strauss, Corbin and Charmaz's grounded theory approach to this analysis of extent text, it allowed for concepts to emerge from the data. These findings provide a detailed interpretive account of encounters with probable cases of Excited Delirium, including the somewhat linear progression of events (i.e., the initial call, the encounter, the struggle and maintaining control/how to proceed) that officers are typically exposed to in these cases. The theoretical perspectives of symbolic interactionist such as Mead and Blumer provided valuable insight into the interpretive process that makes up the officers' continuous risk assessment and recognition of ExDS. This includes officers' ability to take on the role of the other (e.g., empathy) in the situations and the importance of ExDS as a significant symbol which illicit a similar meaning and response (i.e., medical emergency) in all first responders. The recognition of ExDS appears only to influence actions with regards to ensuring backup and immediate medical attention; not the use of force which is instead predicated by the specific behavioural features

displayed. As such, there does not appear to be any adverse effects to training that presents ExDS as a medical emergency. This indicates the benefits and need for the development and implementation of robust policy and training that supports this association of meaning.

Though this analysis has not uncovered the singular optimal and/or uniform intervention option(s) to be utilized to control probable cases of ExDS, it has offered insight into the results of the quantitative inquiry. Particularly, this line of inquiry has helped to explicate why certain interventions are ineffective (e.g., subject's pain tolerance, extreme strength, slipperiness due to sweat and bodily fluid, endurance, continual resistance), what key officer safety concerns are during these encounters (e.g., contamination, availability of backup, handcuffs used as weapon), and promising intervention strategies to control the situation (e.g., coordinated multi-officer response, multiple handcuff techniques). The features of ExDS do demonstrate strong predictive validity for identifying a medical emergency and/or probable case of ExDS. However, a threshold of six features appears to be underestimating the true prevalence rate, though this may be partially due to the reporting limitation discussed in Table 9 of chapter 4. Additionally, subject injury rates in the quantitative inquiry may be underrepresented as many of these subjects are released to the hospital for medical/psychiatric treatment which could limit the officer's knowledge of injuries sustained by the subject as a result of the use of force.

Lastly, this theoretical standpoint illuminates the impact that IMIM training has on officers' responses, as well as the way in which the officers articulate their actions and portray themselves in their reports. While there are significant parallels between symbolic

interactions and the IMIM, of particular note is the lack of emphasis on interpretation in the IMIM. The interpretive process is demonstrated as one of the fundamental principles of symbolic interactionism and could be beneficial to further integrate into officer training and the IMIM's visual model. Furthermore, the extensive use of the third person in report writing, as well as the use of 'model speak' depersonalizes the use of force (SB/OR) narratives. Promoting officers use of plain language accounts in the first person will assist readers to take on the role of the other. This will create a better societal understanding of the realities of policing, including the dynamic, extreme and dangerous nature of these encounters. Chapter 6 will now summarize the findings from the literature review, further triangulating the quantitative and qualitative analysis. This section will also provide practical recommendations for policy, training and equipment. Additionally, the limitations of this research and recommendations for future research will be discussed.

5 Chapter: Conclusion

Instead of burying our heads in the sand on this issue, let us move forward and recognize the existence of the state of Exds, much the way sudden infant death syndrome (SIDS) and acquired immune deficiency syndrome (AIDS) were recognized after much debate – in the interest of saving lives. (Johnston 2012)

This research represents a new area of inquiry into ExDS and the risk factors surrounding sudden in-custody deaths (I-CDs). The use of a mixed methods research design has provided valuable findings by combining both qualitative and quantitative methods. This has given both the depth and breadth required to inform law enforcement training and policy in the area of use of force and medically-high risk situations. The

following will triangulate the key results from the previous quantitative and qualitative analyses in order to elucidate, validate and generalize these findings.

Use of force is a highly infrequent event with approximately one in every 1125 (0.09%) of police occurrences involving the application of force. In this study population, 73 (1.5%) or one in every 66 use of force encounters presented six or more features of ExDS, identifying them as a probable cases of Excited Delirium Syndrome or someone “in a state that could only be described as a medical emergency” (Hall and Votova 2013:35). The qualitative inquiry confirmed that ExDS features have a robust predictive validity for identifying a medical emergency and/or probable case of ExDS. However, this has also uncovered a large number of false negatives or probable cases of ExDS which displayed less than six features. As such, a threshold of less than six features appears to be underestimating the true prevalence of ExDS. Other methodological reasons for underestimation are discussed in the limitations section (5.4). Overall, these prevalence rates indicate that there is a substantial population within police use of force events that have a risk of a sudden and unexpected death.

The quantitative analysis demonstrated significant results which allowed for three of the study's four null hypotheses to be rejected. First, compared to the reference group (i.e., subjects not perceived to be emotionally disturbed and/or displayed less than three features of ExDS), probable cases of ExDS as defined by the of presence six or more indicators were associated with a statistically significant increase in the rate of use of force events applied to the subject ($RR = 1.49$, $CI_{95\%} 1.26, 1.77$, $p < .001$). This means that compared to the reference group, the rate of use of force events applied to probable cases of ExDS is 49% higher. This is supported by the qualitative results as many

encounters involved a prolonged struggle which required multiple officers and a combination of intervention options to gain control of the subject. These findings are related to the second hypothesis around the effectiveness of the use of force.

Second, there was a decreased rate of effectiveness ($RR = 0.05$, $CI_{95\%} 0.04, 0.07$, $p < .001$) when use of force was utilized to control these situations. Similarly, there was an increased odds ($OR = 5.58$, $CI_{95\%} 3.49, 8.93$, $p < .001$) that the use of force was ineffective when applied to these subjects. Therefore, in comparison to the reference group, the rate of use of force effectiveness is reduced by 95% when applied to a subject suffering from ExDS; and the odds of one or more interventions being ineffective on a probable case of ExDS is over 5 ½ times or 458% higher than the reference group. The qualitative inquiry identified that these interventions are frequently ineffective due to the subject's pain tolerance, extreme strength, slipperiness due to sweat and bodily fluid, as well as their endurance and continual resistance. These factors obstruct certain interventions from working, particularly pain compliance techniques, rendering it difficult for officers to control these subjects. Therefore, multiple officers and multiple use of force attempts are required to control these subjects.

Third, there was an increased odds ($OR = 2.14$, $CI_{95\%} 1.26, 3.63$, $p < .01$) of officer injury during these encounters. This means that when applying force to a subject displaying six or more features of ExDS, the odds of officer injury is two times or 100% higher than when applying force to the reference group. Despite this increased rate of officer injury, there was minimal mention of these injuries and/or the degree to which the officers were injured in their report narratives. This could be due to officers recording

their injuries through other internal reporting procedures (e.g., hazardous occurrence reports).

Fourth, the odds of subject injury for probable cases of ExDS was not significantly different (OR = 0.73, CI95% 0.44, 1.22, $p = .236$) compared to the reference group. This was significant in itself when taking into account the increased amount of force and struggle involved in these encounters. While this could be indicative of subjects' increased tolerance to pain and/or the ineffective application of interventions; the qualitative analysis provided greater insight. According to the narratives, many of these subjects were released to the hospital for medical/psychiatric treatment. This could have limited the officer's knowledge of injuries sustained by the subject as a result of the use of force. Particularly, since some injuries may only have been recognized once the subject had calmed and regained a greater sense of awareness of their surroundings and sensations. Furthermore, officer's may not have known what injuries were sustained by the subject as a result of use of force or may have perceived injuries to be minor or trivial relative to other injuries the subject sustained prior to the incident (e.g., self-inflicted, pre-existing). Consequently, the results of the quantitative inquiry are likely underestimating the odds of subject injury and thus, should be interpreted with caution.

With regards to the intervention options, considering all three measures (i.e., effectiveness, subject injury and officer injury), these results indicated that the CEW in probe mode is a promising intervention option for dealing with subjects perceived to be emotionally disturbed and displaying three or more features. This intervention option provides time and distance, as well as immobilization of the subject. Interestingly, while the CEW in probe mode was found to be one of the more promising interventions in the

quantitative inquiry, this intervention is limited as it is often only effective in briefly stopping the subject's behaviour. Thus, the subject often resumes their resistance immediately following the CEW deployment. This will be discussed further in Section 5.2.1. It should be noted that the quantitative and qualitative data provided limitations for determining both the prevalence and extent of subjects' injuries resulting from the use of force. Additionally, these findings are based on use of force reports and do not represent any form of medical expertise. As such, these findings should be interpreted with caution. Particularly since Justice Goudge et al. (2013:viii) found that while fatal complications related to the deployment of a CEW would be extremely rare, they are biologically plausible and that a "combination of emotional stress, extreme agitation, physical exertion, drug intoxication, and less-lethal weapons may culminate in a fatal cardiac event" (p.46). Hence, while this intervention technique demonstrated merits for controlling probable cases of ExDS, controversy still exists around the use of the CEW.

Other promising intervention strategies for gaining control of these subjects include pre-planned and coordinated multiple-officer control techniques which are promoted in the literature (American College of Emergency Physicians Excited Delirium Task Force 2009; IACP National Law Enforcement Policy Center 2014; US Department of Justice 2011). These interventions allow for the subject to be rapidly controlled and subdued. Realistically however, this may not be possible due to the diversity of police resourcing in Canada (e.g., isolated posts, large geographical patrol areas). Despite this fact, the quantitative analysis did reveal that there were on average 3.5 police officers on scene during incidents involving probable cases of ExDS, significantly more than when dealing with the reference group. The qualitative inquiry indicates that this is due to

additional officers being called for back-up resulting from the heightened level of risk/threat presented and prolonged struggle which enables more officers to get to the scene during this time. This research did not analyze the geographical regions in which ExDS is most prevalent. However, based on the increased number of officers that attend these calls, it may be indicative that these incidents are occurring more frequently in populous areas in which more officers are available, as well as where there is a higher frequency of individuals with mental health and drug abuse issues.

In the quantitative analysis, probable cases of ExDS were associated with increased odds of violent subject behaviours, a struggle going to the ground and the subject being perceived to be in possession of a weapon. The factors were all corroborated by the qualitative analysis which also identified common risk factors to be the strength of the subject, the risk of communicable disease through the contamination of bodily fluid (e.g., blood, saliva), as well as the availability and proximity of backup. Lastly, an officer safety concern only emerged around being able to secure one handcuff on the subject during the struggle as this introduced a potential weapon for the subject to use. Mitigation strategies for this, including the use of multiple handcuff techniques, which have been presented by the Force Science Institute (2007) and are included in Appendix B . Furthermore, these handcuffing techniques can facilitate laying the subject supine and allowing the subject to be securely transported on a stretcher.

The quantitative findings indicated alcohol as a protective factor of ExDS, while drug use was demonstrated as a risk factor. This was corroborated by the extant text analysis which identified that officers most frequently recognized subjects as being under the influence of drugs, having mental health issues and/or experiencing ExDS. Moreover,

the reference to ExDS in these reports was most frequently associated with features consistent with Hall et al. (2013) such as superhuman strength, unresponsive to police presence, imperviousness to pain, sweating, heavy/rapid breathing, and naked/inappropriately clothed. These predominantly align with the statistical analysis which determined the most distinguishing features of probable cases of ExDS as hyperthermia, followed by those who were naked or inappropriately clothed, sweating profusely and/or displaying superhuman strength.

From the qualitative inquiry, seven key concepts emerged from the data. The first four concepts related to a near linear account of the phases which an officer is typically exposed to in these incidents: “the initial call”, “the encounter”, “the struggle” and “maintaining control & how to proceed”. Throughout this process the interrelated concepts of “risk assessment” and “recognition” displayed the interpretive process through which cumulative knowledge and personal experiences along with officers' perceptions, form meaning. The theoretical perspective of symbolic interactionism provided valuable insight into this interpretive process, particularly around the officers' ability to take on the role of the other (e.g., express empathy) in these situations and the importance of ExDS as a significant symbol which elicits the same meaning and response (i.e., medical emergency) in all first responders. Furthermore, the meaning attributed in these encounters was subsequently translated into officers' actions. The recognition of ExDS and its associated meaning appeared to be effectively influencing the actions of officers with regards to ensuring backup and immediate medical attention. Conversely, this association of meaning does not appear to have an effect on the use of force, which is instead predicated by the specific behavioural features displayed. As such, there does not

appear to be any adverse effects to training that presents ExDS as a medical emergency. Thus, this perspective demonstrates the benefits and need for the development and implementation of robust policy and training that supports this association of meaning. The last concept discovered was “depersonalization” which related to how officers' presented themselves and these interactions in the narratives of their reports (discussed in Section 5.2.1.). These seven concepts assisted in creating an interpretive account of encounters with probable cases of ExDS. This should help provide a better understanding of these incidents for police, other first responders, the medical community, the courts, the media and society at large.

The sociology of diagnosis has identified both the benefits and risks of the social construction of diagnosis. While this theoretical perspective makes it clear that ExDS is socially constructed, this is no different than any other diagnosis, illness and syndrome in existence. As Conrad and Schneider (1980:30) state, “illness and disease are human constructions; they do not exist without someone proposing, describing, and recognizing them”. A thorough review of the literature has identified that the research in this area originates predominantly from the medical community and is supported by those that come in the most frequent contact (e.g., ACEP and NAME) with these subjects. This review of sudden and unexpected in-custody deaths clearly demonstrates that there is a cluster of features which indicate that these subjects are suffering from a medical emergency. Furthermore, this research has established that individuals have died with and without police intervention and/or restraint. Correspondingly, Canadian coroners' recommendations and the analysis of police data validate ExDS as a real issue with serious implications for first responders.

Jutel (2011b:797) warns that “a diagnosis can vindicate and blame, can legitimise or stigmatise” demonstrating both the benefits and the risks of this type of social construction. While Justice Braidwood (2010:15) was correct in saying that an “officer’s challenge is not to make a medical diagnosis”, the way in which training presents ExDS (i.e., medical emergency, not a diagnosis) and how it is being used by officers throughout these encounters to associate meaning and influence action has demonstrated little, if any, adverse effects to the subjects. Instead, recognition and identification of a possible case of ExDS seems to be accomplishing its intended objective of establishing the need for immediate medical attention and monitoring the subject's vitals. Thus, the way in which officers are trained and are using the term ExDS is not to assign blame, justify a fatal outcome or “[avoid] having to examine the underlying medical condition or conditions that actually caused death” (Braidwood 2010:15); nor does it absolve an officer of any potential wrong-doing in these cases. The police are not triers of fact and therefore it would be up to a Coroner’s Inquest and medical experts to determine any cause(s) of death in a fatal encounter, as well as the Courts and independent oversight agencies to determine any criminal culpability or misconduct.

What remains to be answered is in the event that one of the officers in this study population had not taken the steps that they had, would the subject involved have survived the encounter? While any answer would be speculative, this question needs to be asked more frequently to counterbalance claims such as those from the Compliance Strategy Group which recommended that:

[t]he application of the notion ‘Excited Delirium’ and kindred terms such as ‘agitated delirium’ should be restricted to medical domains such as emergency- room medicine, forensic pathology and coroners’ reports; for

the time being, all reference to these notions should be removed from policy protocols and training manuals and lectures” (Kiedrowski 2008:13)

These types of recommendations, without proper consideration of operational realities and context may be more harmful than they are beneficial.

Unfortunately, there is not the same focus on the lives that law enforcement saves on a daily basis, with 99.9% of police occurrences being resolved with only officer presence and the use of communication. Instead, officers are often scrutinized for their use of force and blamed for any associated deaths by removed third party actors (e.g., the public and media) after the fact, who often have an incomplete comprehension of the nature of policing and its dynamic nature. For example, the majority of these criticisms appear to be void of an appreciation of the realities of policing, human psychological and physiological limitations (including the effects of critical incident stress), the totality of the circumstances, and the in-the-moment perceptions and interpretations by the officers which are based on their individual knowledge and experience. Furthermore, there is limited consideration of the underlying societal issues (e.g., mental health, substance use/abuse, health, poverty) which are the root causes of these encounters and add to the complexity of fatal outcomes. Instead, the onus of responsibility falls upon the police as a secondary/reactive measure to address and/or bandage these societal issues rather than upon community service providers and the development of proactive crime prevention strategies. Consequently, judgements on the causes of death are often wrongly attributed to the most superficial factor (i.e., police role). This is despite the literature review indicating that intervention options play a limited role in the myriad of other factors involved in sudden in-custody deaths.

Fortunately, the majority of society will never have to deal with someone experiencing ExDS, and while this research attempts to provide a glimpse into these incidents, most of us (myself included) will never truly understand the extreme nature of these encounters, never worry about being in a fight for our own lives and never be concerned with being contaminated by someone who may have an infectious disease, etc. For officers however, this is a constant reality, a role that society calls them to fulfill, to reactively deal with situations that should have been prevented. They respond, often not knowing what situation they might walk into and in the interest of public safety, do not have the option to turn a blind eye or walk away.

By not accepting ExDS as a legitimate syndrome or symbolic marker of a medical emergency, we risk leaving officers unprepared for one of the most extreme and violent subjects that they may encounter. By not having the necessary skills and knowledge to best respond to these situations, this puts officers at a disadvantage, as well as at the risk of further criminalizing someone who is suffering from a medical emergency. If this type of situation is not to be considered a medical emergency as ExDS implies, police will respond accordingly (e.g., arrest and incarcerate the subject), unaware that they may be escalating or perpetuating the problem. As Hall et al. (2013:106) state “[t]hese decisions are and will continue to be based on information that is immediately available at the scene, based on the assessments of the personnel in contact with the individual without the ability to clarify or confirm, and without the luxury of time to make a detailed management decision based on information that cannot be gained until after the fact”. Consequently, if officers are not appropriately prepared to recognize and respond to these encounters, it will increase the potential of a sudden in-custody death (I-CD). For an

officer, a fatal outcome means not only having to cope with being involved in the loss of a life (e.g., mental, emotional trauma, strain) but also the resulting investigations, inquests, inquiries, and civil litigation. This perspective is reaffirmed by the Honourable Frank Iacobucci (2014) who stated in his review of Toronto Police's policies and procedures following the officer-involved shooting death of Sammy Yatim, that:

What is often not appreciated is the effect of police killings on the officers themselves. Causing the death of a person who needs help is a police officer's nightmare. Regardless of how justifiable the killing may have been (in terms of being necessary in order to protect the life of the officer or others), the officer experiences self-doubt and guilt, which is exacerbated to a very high degree by the ensuing Special Investigations Unit (SIU) investigation, media scrutiny, and inquest, as well as any legal proceedings that may follow. The mental health of the officer is placed in significant jeopardy, both in the immediate and longer terms. The officer's family suffers alongside, watching with a feeling of helplessness as the officer goes through all of the painful stages of trying to heal. (p. 63)

This demonstrates the extensive impact that these types of incidents have on officers.

Thus, in the interest of public and police safety, it is important that the necessary support and training is given to ensure these positive outcomes. Hall et al. (2013:104) posit that:

if interventions are to be made in mitigating death, the point in having police officers and other prehospital personnel recognize the presence of multiple features of ExDS is to expedite the transport of that individual for medical assessment and care. Immediate medical attention can only be optimized if ExDS signs are recognized and personnel are given the tools to do so.

However, for this to be achieved, society cannot as S/Sgt. (ret.) Joel Johnston suggests, 'bury its head in the sand'. Instead, it must acknowledge that there is a cluster of features which, from a review of sudden and unexpected in-custody deaths, as well as data from use of force encounters, indicate that these subjects are suffering from a medical

emergency. Ranson (2012:669) indicates the benefits of labelling such a cluster of features in that:

“Syndromic” entities, by the very uncertainty of their nature, stimulate attention both among the general community and the professionals engaged in managing these cases and undertaking fundamental and applied research into their causes, management and prevention. By giving a name to an otherwise loose cluster of variable symptoms, research and therapeutic activities can become focused around an “entity” which, depending on its social impact also generates awareness in the community that can be linked to prevention strategies.

As such, it is important for first responders (e.g., law enforcement officers, dispatchers, paramedics) to have a significant symbol; a standardized and concise label with which meaning (e.g., medical emergency) can be assigned. This will assist in ensuring that the appropriate action such as recognition, identification, intervention and treatment can occur.

In summary, without the acceptance ExDS as a distinct entity and label, as well as its research-based foundation, law enforcement agencies are limited in their ability to increase awareness and improve training, policy and response protocols. This will ultimately hinder the goal of preventing future sudden in-custody deaths. While there are many risk factors and a multitude of etiologies for ExDS, there are prevention and intervention strategies that can be employed within these dynamic and rapidly unfolding events to diminish adverse outcomes. The findings of this research are exceedingly relevant to inform policy and training around the use of force and response to potential cases of ExDS. As such, the practical implications of this research will be explored following the theoretical implications delineated below.

5.1 Theoretical Implications

This research appears to be the first use of symbolic interaction to analyze police use of force encounters. Resultantly, it has identified that this micro-sociological perspective is a particularly appropriate and practical theoretical lens to analyze these interactions. This is due to its substantial parallels with the IMIM which focuses on individual human interactions including an officer's perceptions, interpretation, association of meaning and action. This demonstrates modern support to this theory and progressively applies it in a way never used before. This lends support to its adoption and application to the "operational" side of policing, as well as provides credence to the pragmatic application of sociological theory to contemporary policing issues as a whole. Furthermore, this theoretical approach has assisted in identifying some important practical implications for use of force training which are discussed in Section 5.2.1. As such, this is a robust demonstration of putting theory into practice and bridging the gap between the law enforcement community and academia.

Theoretical consideration must also be given to the impact of societal expectations on policing in general. Specifically, as society (re)defines the role of policing, it will continually impact how officers view themselves, view their role, take on that role and develop their social identity. While many societal expectations, such as that the police are honest, professional, compassionate, respectful and accountable are positive and needed. Other expectations are not as realistic or achievable. Expectations must be practical and based in psychology, physiology and the training received; taking into consideration human limitations, particularly when faced with extreme situations and the effects of critical incident stress. This could be achieved through greater research and

public educations on the realities of policing and the use of force. This will help ensure that officers are not taking on or expected to take on an unrealistic role, consequently being set up for failure and criticism (e.g., the officer should have shot/kicked the knife out of the subject's hand, the officer should have just shot him in the leg, the officer is dishonest because there are discrepancies in their recollection of the events).

Lastly, this research has demonstrated a contemporary application of the sociology of diagnosis. This has enabled the examination of both the benefits and risks of the social construction of diagnosis, which has, inevitably furthered the knowledge and perspective of ExDS. Only through carefully weighing of both the benefits and risks can the merits of establishing specific terminology/nomenclature for a syndrome be established. This research and its symbolic interactionist approach could be drawn upon by others amongst the academic and medical communities to guide a way forward in analysing controversial illness or syndromes.

5.2 Practical Implications

There are numerous practical implications for this research due to the use of a mixed methods research design, sample size, theoretical framework, focus on non-fatal cases of ExDS, as well as officer perspective. These implications include grounded recommendations for policy and training as a delivery mechanism of meaning, as well as for equipment and use of force reporting. All of which, have the focus and intent of reducing the risk of sudden I-CDs and improving police and public safety.

5.2.1 Training

Current training on ExDS, while limited, appears to be having the intended effect in that officers are attributing meaning of a medical emergency and as a result prioritizing

medical attention. This finding is a particularly significant and timely, as the Honourable Frank Iacobucci (2014) recommended that use of force training and procedures:

recognize indicators of mental health crises as symptoms rather than threats to officer safety; acknowledge that many mental health calls result from crisis symptoms rather than criminal behavior; [and] emphasize that police responding to people in crisis are usually required to play a helping role, not an enforcement role (p.24).

As such, law enforcement training on ExDS should be developed to focus on: recognition and identification as a medical emergency; prioritization of resources (e.g., medical and police back-up); multi-officer response; control tactics (e.g., multiple handcuffing techniques); officer safety concerns (e.g., handcuffing, contamination); medical aftercare (e.g., monitoring airways, breathing and circulation, positioning) and working in collaboration with medical practitioners. This training should be made mandatory for all law enforcement officers and dispatchers. It should also be integrated within existing training on mental health, crisis-intervention and de-escalation (CID), first aid and CPR, as well as use of force (IMIM) training to ensure necessary associating of concepts. As new research on ExDS emerges and best practices are identified, this training should be updated accordingly. Furthermore, similar ExDS training should be developed for other first responders and those who have a higher likelihood of encountering these subjects (e.g., paramedics, emergency physicians, hospital security, correctional officers), tailoring the training to their specific roles in these encounters.

The quantitative analysis identified the CEW in probe mode as being one of the most promising interventions. However, the qualitative analysis uncovered that while it is effective in briefly stopping the subject's behaviour (i.e., during the cycling – full cycle is five seconds), the subject often resumes their resistance immediately following the

deployment. As such, CEW training should emphasize that while these incidents are rapidly unfolding, where feasible, multiple member response strategies should be employed collaboratively with the use of the CEW. This will help ensure that officers can take advantage of this short window of opportunity for control, which could prevent the use of multiple cycles.

While the IMIM is relatively analogous with the tenets of symbolic interactionism, the key component missing from the visual IMIM model is “interpretation”. This is the process by which these factors are brought together to attribute meaning and form action. Though this is incorporated in training by emphasizing “What did this mean to you?” (Royal Canadian Mounted Police 2009a), greater prominence of this concept should be included specifically to assist officers’ articulation after the fact within SB/OR reports. As such, there may be a benefit to further integrating “interpretation” into training and the visual model. Furthermore, the extensive use of the third person in report writing, as well as the use of ‘model speak’ depersonalizes the narratives. This writing style may blunt the emotions of the officer and inhibits the reader’s ability to gain a deeper understanding of the incident by taking on the role of the officer. Despite explanation and understanding being the purpose of these use of force reports, this writing style is likely attributed to the training these officers have received on the completion of other police reports (e.g., Crown brief, general occurrence report). These other court reports often rely on a more “objective” third person writing style and have likely become habitual as they are completed much more frequently than use of force reports. Thus, training should include greater emphasis on having officers articulate their interpretative process using plain language accounts in the

first person. This will provide more cohesive accounts that promote a better societal understanding of the realities of policing, including the dynamic, extreme and dangerous nature of dealing with probable cases of ExDS. The following section will now discuss the role of policy in support of training.

5.2.2 Policy

While the need for training is foremost, robust policy that supports training is also essential. As such, law enforcement policy on ExDS should be developed to enforce mandatory ExDS training for officers and dispatchers. Policy should emphasize recognition and identification of ExDS as a medical emergency, as well as prioritization of resources (e.g., medical and police back-up) and medical aftercare (e.g., monitoring airways, breathing, circulation and positioning) when ExDS is identified. Lastly, policy should underscore the importance of collaborative preplanning with other first responders to ensure consistent understanding for a coordinated response. The implications for equipment will be discussed next.

5.2.3 Equipment

This research has identified several implications for equipment. First, with back-up being a necessity in many of these situations and communication being integral, the effectiveness of current radio communication system should be evaluated as radio transmission proved to be an issue in several cases in this small sample. Second, as cord cuffs or zap straps were used to assist in controlling the subject in several encounters, it may be of benefit that research and development is conducted to determine what if any other restraint options are available for use by officers. While spit hoods and Kevlar gloves are available to protect officers to a certain extent from contamination of bodily

fluids, this appeared to be one of the greatest risks for officers during these encounters. As such, research and development should be undertaken to determine if there are other types of equipment that can further protect officers from the risk of contamination. Lastly, continued research and development on less lethal technologies is necessary to ensure the safest and most effective devices can be employed. Particularly, since this research indicated the CEW as a promising intervention in these encounters, continued research around the physiological effects of the CEW in medically high risk situations is needed. Lastly, the implications for use of force reporting will be discussed in the following section.

5.2.4 Use of Force Reporting

While the SB/OR reporting has provided valuable data for this research, there are some limitations that could be addressed through amendments or enhancements to the database. First, the ExDS feature hyperthermia should also include the descriptor of “hot to the touch” (Hall et al. 2013). Second, the ability to capture the features of ExDS should not be limited to subjects who are perceived to be emotionally disturbed. This will ensure that these features are collected for all subjects regardless of their perceived emotional state. By applying these two amendments, data collection methods will be more consistent with those used by Dr. Hall (Hall et al. 2013).

The use of likert scale responses for outcome variables such as effectiveness (e.g., very ineffective, somewhat ineffective, neither effective/nor ineffective, somewhat effective, very effective) would provide more nuanced results and allow for the use of additional statistical analysis techniques. Also, providing definitions for variables (e.g., effectiveness is defined as the officer’s ability to control the subject and/or de-escalate

the situation) may reduce the amount of subjectivity in the measures. Lastly, to avoid depersonalization of the report narratives, greater emphasis within the reporting template should promote officers' use of plain language accounts in the first person which will assist readers (e.g., courts, judges, juries, oversight bodies) to take on the role of the other.

5.3 Future Research

It is clear from this research process that a great deal more research is required in the area to quell the debates over the legitimacy of ExDS. One of the largest gaps in the literature is that, aside from this current research and the work of Dr. Hall and her associates, there is little prospective research on ExDS. This has served to limit the recognition of ExDS in the medical community. As such, further research led by the medical community is required. It should include determining the predictive power of the features of ExDS by testing the sensitivity and specificity. This will assist in developing a case definition for ExDS, which in turn will facilitate the institutionalization (i.e., I-CD, DSM) of this syndrome, also known as the final step of Conrad and Schneider's (1980) model of the medicalization of deviance.

Medical research should focus on narrowing the etiologies and pathophysiologies of ExDS. This may identify better intervention/treatment strategies and assist in determining why some cases have fatal outcomes while others do not. In addition, research should investigate why ExDS is presented almost exclusively in males. Future evaluation should also include the benefits and risks associated with sedation which is regularly employed by medical practitioners during these incidents. Medical research is also important to inform law enforcement policies and practices, particularly in

determining the risks associated with intervention strategies on subjects experiencing ExDS. As such, continued research on this population is required to examine the hazards associated with physical exertion/struggle, as well as the use of the vascular neck restraint and CEWs. This type of research will require greater collaborative research efforts between both the medical community and law enforcement. Similarly for law enforcement, data in this area should continue to be collected and evaluated to monitor trends and determine the impact of any changes to training, policy and/or equipment. Furthermore, this current research should be replicated to determine the validity and generalizability of these findings.

Lastly, much of the sociological research in the area of police use of force comes from a critical criminology and macro perspectives. As such, future research on police use of force should take a pragmatic approach by incorporating symbolic interactionism. The use of this practical micro-sociological theory promotes a more nuanced understanding of these encounters, as well as the realities of policing and may facilitate building stronger partnerships between the police and academia. Ultimately, this will better serve to improve police and public safety.

5.4 Limitations

The standardized reporting system used to capture the data in this study was developed primarily to assist police officers in articulating their actions for court. As such, it does have several limitations for research purposes that need to be discussed and taken into consideration when interpreting these results. First, Charmaz (2006) has identified that extant text has some serious limitations, such as the context under which the reports are completed. These reports are constructed for a specific purpose within an

organizational context. Officers complete these reports as a mandatory requirement to articulate their actions for court, as well as to provide oversight and accountability. Although they are completed for court proceedings “texts do not stand as objective facts although they often represent what their authors assumed were objective facts” (Charmaz 2006:35). As such, the data is only from the officer’s perspective and based on their interpretation of the incident. Furthermore, it is a retrospective account which may also be impacted by the effects of critical incident stress. While these reports provided a nuanced account of these incidents, these narratives like all narratives are biased, representing only a partial or one-sided account of the incident. Consequently, they only represent/privilege the dominant voices of the police officers instead of the subjects, victims and/or bystanders and may emphasize or omit particular details. Alpert and Dunham (2010) noted similar limitations in their national study on the use of force, as the suspect’s version of the events often differed significantly from the officer’s account which could indicate officer bias. In the field of policing and use of force, there is much variation and complexity. Thus interpretations of the extant text should be substantiated through other sources, such as interviews, though this was not achievable due to the limited time and scope of the current research. As a result, this is but one interpretation of data which is based on officers’ interpretation and understanding of these incidents.

Since the database was not developed for advanced statistical analysis, questions in the reporting system are generally responded to with dichotomous “yes” or “no” checkboxes. This is opposed to Likert scale responses which would provide more nuanced results and allow the use of additional analytical techniques. Moreover, several of the outcome measures (e.g., effectiveness, injury) and situational factors (e.g.,

perceived subject influences, weapons, emotionally disturbed) are very subjective in nature. For example, there is no definition of 'effectiveness' and injury is defined as “any hurt or injury to a person that interferes with the health or comfort of the person and that is more than merely transient or trifling in nature” (Department of Justice 1985a:s.2). The subjectivity of these measures could possibly lead to measurement errors and biased results due to over/under-reporting. Similar limitations have been noted in studies of the use of force (Alpert and Dunham 2010; Hall and Butler 2008).

Additionally, these measures are based on the officer's perceptions at the time of the incident, not necessarily confirmation after the fact. Hall et al. (2013:110) describe this as “reflective of real world practice and the officers' assessment of comorbidity reflects the true street environment in which operational decisions are made”. Thus, while the officer may have perceived the subject to have a weapon or to be under the influence of a substance, this may have been confirmed as unfounded after the fact.

Correspondingly, as a result of releasing the subject to the hospital, it may limit the officer's knowledge of injuries sustained by the subject during the encounter. Particularly since some injuries may only be recognized once the subject has calmed and regained a greater sense of awareness of their surroundings and sensations. Furthermore, officers may not know what injuries were sustained as a result of use of force or may perceive injuries to be minor or trivial relative to other injuries the subject may have sustained prior to the incident (e.g., self-inflicted, pre-existing). This has implications for possible bias in the subject injury rates cited in the quantitative analysis. Additionally, since subject injury was only analyzed as a dichotomous (yes/no) variable, the extent or seriousness of these injuries could not be determined. Lastly, a media report (i.e.,

Postmedia) on a 2011 compliance audit of SB/OR reporting indicated that there was a significant amount of unreported incidents involving the use of force (Quan 2012). Due to the fact that this study was unable to determine the specific reporting compliance rates during the date range examined (2012-2013), there are concerns that the rates of use of force presented in this study are somewhat underestimating the true prevalence rate.

To ensure that the assumption of independence of observation could be met for logistic regression, various duplicate checks and data merges were conducted to confirm each subject was only represented once. When merging report data for an individual subject, the highest value indicated across reports was selected (i.e., number of police officers on scene, number of features of ExDS, subject behaviour) and any perception of comorbidities or risk factors across reports was selected (i.e., perceived presence of drugs and/or alcohol, a struggle going to the ground, perceived possession of weapon). As a result, this could result in over-representation and bias in the study's estimates.

With regards to ExDS, the features are only collected if the subject is perceived to be emotionally disturbed. Therefore, all subjects not perceived to be emotionally disturbed received missing values for these indicators. Although, one could assume that most, if not all probable cases of ExDS would be perceived as emotionally disturbed, capturing the information this way can bias the results and differs from the methods used by Dr. Hall in which identifiers were collected for all subjects regardless of their perceived emotional state (Hall et al. 2013). Additionally, since the indicator "tactile hyperthermia" which is related to more extreme cases of ExDS (Hall et al. 2013; Mash et al. 2009) is thought to be underestimated, it is likely that the numbers in this study underestimate the prevalence of probable cases of ExDS in the population. It is suggested

that the descriptor “hot to touch” is used to rectify this issue in the future. Should data collection methods have been more consistent with those of Hall and Votova (2013) and Hall et al. (2013), the target population would have been larger in this study.

Additionally, the qualitative inquiry uncovered a large number of false negatives or probable cases of ExDS that displayed less than six features. As such, a threshold of less than six features appears to be underestimating the true prevalence of ExDS which sets limitations on this research. Also, this analysis is based on reports from use of force encounters and thus, this inquiry cannot determine how frequently these types of encounters are resolved with only the use of communication.

Lastly, as sociological research, the findings of this study do not claim to represent a medical perspective or promote any use of force option as being risk free or safe. An officer’s response should always be based in legislative authority, police training, the principles of the IMIM and the totality of the circumstances. Continued medical research is required to reduce the risk associated to the use of force.

Additionally, as an employee of a law enforcement agency, the knowledge and experience that I have gained from this position affects my own interpretation of the data and could bias the research. To mitigate this risk, I was cognizant of my personal preconceptions and remained reflexive in my position and interpretation throughout the research process.

In conclusion, I hope that this research has provided a greater perspective on police work, the use of force and ExDS, while adding more to the debate over the existence of this syndrome.

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Appendices

Appendix A

A.1 Verdict of Coroner's Jury – Aron James Firman (2010)

Cause of Death: Cardiac Arrhythmia, due to Excited Delirium and Schizophrenia
Contributing factors of cardiomegaly, CEW deployment, and SCN5A polymorphism

13. Provide additional and meaningful awareness training for officers dealing with persons affected by mental illness, with particular attention to the concept and features of Excited Delirium Syndrome (ExDS), as part of annual Block Training. Providing mandatory e-learning opportunities, webinars and podcasts would assure consistency of messaging and mitigate the need for time away from front line duties as electronic availability does not require multiple officers to be in the same place at the same time.

Coroner's Comment:

The expert witness indicated that the concept of Excited Delirium Syndrome has been acknowledged and accepted by the forensic community for a number of years. Most importantly, once recognized, it must be treated as a medical emergency requiring urgent medical intervention. It is therefore extremely important that police officers understand the features so that it can be more readily recognized.

Annual Block Training, which includes Use of Force and Firearm recertification takes place over four days and is a mandatory requirement for all officers. Recognizing the burden that annual Block Training places on resources of the OPP, the jury is suggesting electronically available options that could mitigate the impact while still being highly effective.

14. Any suspicion by officers that a subject may be experiencing ExDS should be treated as a medical emergency and Emergency Medical Services (EMS) requested immediately.

Coroner's Comment:

Following on the comment above, it is suggested that once ExDS is recognized by officers and/or dispatchers, EMS should be requested and dispatched to the scene as soon as possible.

15. Develop a standardized mental health screening form that includes the features of ExDS to assist officers in accurately reporting their observations and give consideration to when that form should be completed.

Coroner's Comment:

In a recently published study (“Frequency of signs of Excited Delirium Syndrome in subjects undergoing police use of force”. Journal of Forensic and Legal Medicine 2013; 20:102-107) the authors had developed a check-list to assist officers to recognize and document signs/characteristics of Excited Delirium Syndrome (ExDS) in the field at the time of interaction. Better documentation allows better research into understanding the dynamics of the syndrome and may ultimately inform better medical treatment and more effective policing interventions. The study found that providing officers with information (as an “aide-memoire”) leads to more accurate documentation and did not cause an over-reporting of features of ExDS.

Firman (Re), 2013 CanLII 69541 (ON OCCO), <<http://canlii.ca/t/g1pww>> retrieved on 2014-02-17

A.2 Verdict of Coroner’s Jury – Logan Schaafsma (2010)

Cause of Death: Cardiorespiratory Arrest due to, or as a consequence of, postictal state of excited delirium.

Schaafsma (Re), 2012 CanLII 95682 (ON OCCO), <<http://canlii.ca/t/fxqbk>> retrieved on 2014-02-17

A.3 Verdict of Coroner’s Jury – Junior Alexander Manon (2010)

Cause of Death: Restraint asphyxia, following a struggle and exertion

To the Toronto Police Service:

1a. Procedure 01-01 should be revised in order to separate the discussion regarding the risks of prone positioning from the discussion of the management of excited delirium.

1b. The above procedure should reinforce current understanding and knowledge regarding the risks of prone positioning.

Coroner’s Comments:

The jury heard testimony that the wording of Toronto Police Service Procedure 01-01(Arrest and Release) is not aligned with the training currently provided to police officers. Specifically, Procedure 01-01 describes the risks of prone restraint only within the context of excited delirium. However, there is evidence to suggest that prone restraint may represent a risk for positional asphyxia independent of whether or not the subject exhibits signs of excited delirium. The jury heard that the current training of Toronto Police officers reflects the fact that prone positioning is to be avoided in all situations, not just in the setting of excited delirium. The above recommendations are meant to ensure that the procedures reflect the current knowledge and training with respect to prone positioning.

Manon (Re), 2012 CanLII 66795 (ON OCCO), <<http://canlii.ca/t/ftmde>> retrieved on 2014-02-17

A.4 Verdict of Coroner's Jury – Sean Reilly (2008)

Cause of Death: Acute Cocaine Intoxication with Excited Delirium

To the Ministry of Community Safety and Correctional Services- Policing Services Division (MCSCS) and the Ministry of Health and Long Term Care-Emergency Health Services Branch (MHLTC-EHSB) and to the Ontario Police College (OPC):

1. To reinforce and identify, through regular and refresher training, at least annually; the signs and symptoms excited delirium, that excited delirium is a medical emergency, the risk of death associated with excited delirium and the importance of an immediate response in cases of suspected excited delirium.

Coroner's Comments:

Evidence was presented that the subject of Excited Delirium (EDS) has been presented at educational sessions at the Ontario Police College (OPC), at annual Use of Force mandatory training for Peel Regional Police, and at shift parade on numerous occasions and over a period of many years. The officers involved in this case acknowledged that they could either not recall specific training about EDS prior to this incident, or had little recollection of EDS and its signs and symptoms. They also acknowledged that they did not begin to appreciate that Mr. Reilly may have been exhibiting EDS until after he had been secured and was in care of EMS. The jury has emphasized the need for ongoing training in this area with the expectation that it may enhance both the identification of the phenomenon and the response to it.

To MCSCS and MHLTC-EHSB:

3. The development of a coordinated approach for policing and Emergency Medical Services (EMS) first responders to rapidly restrain subjects displaying symptoms of excited delirium.

Coroner's Comments:

Evidence was presented that EDS should be recognized as a medical emergency, and that rapid restraint with the earliest possible medical intervention, including administration of sedation, should be the goal. Some jurisdictions have developed coordinated approaches where EMS is requested as soon as EDS is suspected, so that their expertise is available immediately upon restraint of the subject/patient. Although the cause of EDS remains elusive, current theories support rapid restraint of the subject to avoid lengthy and potentially exhausting struggles with police, as this may potentially increase the chances of sudden death occurring.

4. The development of a written coordinated protocol for policing and EMS first responders in situations of suspected excited delirium

Coroner's Comments:

This recommendation flows from recommendation #3. Formal documentation of a protocol would increase the likelihood that all first responders would know and understand their respective roles in the coordinated response to a subject with suspected EDS.

To MCSCS:

6. To encourage the prompt distribution of any new or updated information acquired as a result of any study of excited delirium to all police services in Ontario;

Coroner's Comments:

Excited Delirium Syndrome (EDS) is a phenomenon that is not yet completely understood. Previous inquest juries have recommended the need for ongoing study and research into the causation, most appropriate responses and interventions to prevent the outcome of sudden death. As our knowledge and understanding improves, this may have a significant impact on how police and other emergency first responders approach and deal with subjects suspected of exhibiting EDS. The jury feels that the Policing Services Division of MCSCS should make efforts to keep all police services up to date on the current state of knowledge on this subject.

To Local Municipal and Regional Governments:

9. To develop a protocol whereby Advanced Care Paramedics and /or Tactical Paramedics would attend wherever possible during cases involving subjects displaying symptoms of excited delirium.

Coroner's Comments:

This recommendation complements numbers 1-4 and 8 above. If rapid medical intervention, with administration of sedation to calm the agitated subject is regarded as an optimum response to possible EDS, then there needs to be a concerted effort to develop policies and protocols to ensure that this will be implemented.

To the Federal and Ontario Governments:

10. To encourage increased research and training in excited delirium and restraint, including the advisability of using the Taser in such cases;

Coroner's Comments:

As noted above (comment to recommendation #6), more research into EDS is needed so that the pathophysiology (i.e. causation) can be understood. This will lead to constructive recommendations and suggestions for optimum first responder training in the management of such cases. Although some current research suggests that restraint positions may have less impact on outcomes than previously believed, this needs to be studied further. Given the current "political sensitivity" that surrounds Taser (CEW) use, further research and understanding of its potential impact in cases with EDS would also be very informative. The jury is suggesting that governments appropriately fund such research initiatives.

11. To encourage funding for continued research into sudden deaths that occur in police custody; and

Coroner's Comments:

Evidence was presented that the phenomenon of sudden deaths of subjects while in police custody has been a long-standing concern, with no clear causal/ink to any one specific police training or use of force issue. Factors such as psychiatric illness, use of drugs or intoxicants, or other subject factors may be equally, or more important, to understand. Given societal concerns for this phenomenon, which extends beyond EDS, the jury is encouraging further research into this area.

12. To encourage the development of a multidisciplinary roundtable through which directives with respect to recognition and treatment of excited delirium can be developed.

Coroner's Comments:

Given the complexities of EDS and our current state of understanding, I believe the jury is suggesting that a multidisciplinary approach to improving policies and directives for police should be considered. Participants could include police trainers, EMS, emergency physicians and other medical experts, epidemiologists, forensic pathologists, coroners and others.

Reilly (Re), 2011 CanLII 99642 (ON OCCO), <<http://canlii.ca/t/fzmp8>> retrieved on 2014-02-17

A.5 Verdict of Coroner's Jury – Jeffrey Marreel (2008)

Cause of Death: Acute Cocaine Poisoning

Recommendation #2:

That the Ministry of Health and Long Term Care and the base hospital responsible for training of EMS personnel in the Hamilton Niagara Haldimand Brant LHN enhance and continue to ensure that front line medical emergency personnel are trained annually.

a) in the recognition and management of possible excited delirium; and

b) that excited delirium constitutes a medical emergency requiring immediate medical intervention to prevent death.

Coroner's Comments:

The jury heard that the recognition and management of the patient exhibiting 'excited delirium' is complex, challenging and a rare event such that continuing and refresher education may be beneficial.

Recommendation #3:

That all OPC trainers receive additional annual training in consultation with a professional medical expert in the field of excited delirium to assist them with their future training of police officers in recognition of the signs, symptoms, and risks associated with excited delirium.

Coroner's Comments:

The same rationale as applies to recommendation #2 applies here.

Recommendation #4:

That the Ontario Provincial Police and Ontario Police College enhance and continue to ensure that new recruits are trained

a) in the recognition and management of possible excited delirium; and

b) that excited delirium constitutes a medical emergency requiring immediate medical intervention to prevent death.

Recommendation #5:

That the Ontario Provincial Police enhance and continue to ensure that all police officers under their supervision receive up-to-date training with respect to the recognition of signs and risks associated with excited delirium and the requirement of immediate medical intervention.

Coroner's Comments:

The same rationale as applies to recommendation #2 applies here.

Recommendation #6:

That the Ministry of Community Safety and Correctional Services issues a directive to all police services in the Province of Ontario to ensure that all police officers under their supervision receive annual up-to-date training with respect to the recognition of signs and risks associated with excited delirium and the requirement of immediate medical intervention.

Coroner's Comments:

The same rationale as applies to recommendation #2 applies here.

Recommendation #7:

That case 2008-7465 be specifically utilized as an enhanced scenario-based training model by the OPP and OPPC for the recognition of excited delirium.

Coroner's Comments:

The jury heard that this particular death scenario in many respects reflected the 'typical' excited delirium individual and would be an 'ideal' learning scenario.

Marreel (Re), 2010 CanLII 99935 (ON OCCO), <<http://canlii.ca/t/fzmp4>> retrieved on 2014-02-17

A.6 Verdict of Coroner's Jury – Glen Bocskei (2007)

Cause of Death: Untreated schizophrenia, acute psychotic episode, struggle led to excited delirium and exhaustion

That the Niagara Detention Centre and Ministry of Community Safety and Correctional Services:

17. Enhance and continue to ensure that all health care and correctional staff receives mandatory up-to-date training with respect to the recognition of signs of mental health issues and, in particular, the risks associated with excited delirium, the appropriate management of inmates who are exhibiting excited delirium, and that excited delirium constitutes a medical emergency requiring immediate intervention to prevent death.

Coroner's Comments:

The jury clearly felt that excited delirium played a role in this death given their verdict. I believe it was their opinion that the correctional staff were not adequately trained, and that this training should be mandatory since this condition could lead to death.

That the Ministry of Community Safety and Correctional Services and the Ontario Correctional Services College:

19. Utilize the case involving Glen Bocskei as an enhanced scenario-based training model for the recognition of signs and risks associated with excited delirium, the appropriate management of inmates who are exhibiting excited delirium, and that excited delirium constitutes a medical emergency requiring immediate intervention to prevent death.

Coroner's Comments:

The jury likely felt that this case was a "classic" example of excited delirium and that it would be appropriate to use it to help educate correctional officers in the hope of preventing other deaths in similar circumstances.

Bocskei (Re), 2011 CanLII 99658 (ON OCCO), <<http://canlii.ca/t/fzmqp>> retrieved on 2014-02-17

A.7 Verdict of Coroner's Jury – Orlando Vince Rotolo (2007)

Cause of Death: The toxic effects of Cocaine

Jury recommendations: 1. It is recommended that the Niagara Regional Police Service study, review, and consider updating General Order 167.03 with respect to its currency in accordance with the latest knowledge and best practices on how to deal with the vulnerabilities of Emotionally Disturbed Persons and those who may be experiencing Excited Delirium.

“While there is no doubt that excited delirium is associated with a high risk of death, there is controversy regarding the extent to which excited delirium, in and of itself, actually causes death.”

Rotolo (Re), 2010 CanLII 99929 (ON OCCO), <<http://canlii.ca/t/fzmnr>> retrieved on 2014-02-17

A.8 Verdict of Coroner's Jury – Norman Jeanveau (2007)

Cause of Death: Sudden unexplained death in a man with agitated state and restraint in a prone position

1. The Canadian Institute of Health Research should support research into excited delirium, restraint in the prone position and related conditions.

Rationale: Evidence indicated that these conditions are not currently well understood or differentiated in the scientific community. It is expected that further research will provide greater insights that can be used by all provincial policing agencies and emergency medical services to review and revise their policies and procedures to more accurately identify and deal with persons exhibiting these conditions.

To Officer of the Chief Coroner:

3. Circumstances of all cases of death from excited delirium, restraint in the prone position and related conditions which occur in police custody should be forwarded to the Ontario Police College for review and feedback to the involved police service and emergency medical service.

Rationale: Learnings from these incidents can be used to optimize training programs at the Ontario Police College, the police services and the emergency medical services.

Jeanveau (Re), 2008 CanLII 89715 (ON OCCO), <<http://canlii.ca/t/fzs1f>> retrieved on 2014-02-17

A.9 Verdict of Coroner's Jury – Paramjeet Singh Padda (2001)

Cause of Death: Alcohol withdrawal leading to excited delirium complicated by positional asphyxia from restraint

1. That the Ontario Police College develop a training program for all new recruits and current members of Ontario Police Services regarding the identification of alcohol withdrawal symptoms, Delirium Tremens, Excited Delirium, and use of restraint. This training program should emphasize those symptoms that require immediate medical assistance.

Rationale: We heard evidence throughout the inquest that officers had not received any training to recognize the symptoms of this medical condition.

7. All law enforcement agencies, medical facilities and correctional institutions to develop alternate restraint positions, which will not impair vital functions. In particular, in persons showing signs of excited delirium.

Rationale: We heard evidence from an expert witness, that being restrained in a prone position can exacerbate the condition.

8. That all Ministry of Community Safety and Correctional Services and Police Service inmate transport vehicles have a visible warning sticker placed in the front compartment alerting escort staff to signs and symptoms of alcohol withdrawal, delirium tremens (DT's), and excited delirium. If inmate shows symptoms call supervisor immediately and seek medical attention.

Rationale: We heard evidence that escort officers failed to recognize these symptoms.

9. That the Police Services develop a training program for all new recruits and current civilian prisoner escort officers regarding the identification of alcohol withdrawal

symptoms, Delirium Tremens, Excited Delirium, and use of restraint. This training program should emphasize those symptoms that require immediate medical assistance.

Rationale: We heard evidence throughout the inquest that officers had not received any training to recognize the symptoms of this medical condition.

10. That the Ministry of Community Safety and Correctional Services develop a training program for all new recruits and current Correctional Officers regarding the identification of alcohol withdrawal symptoms, Delirium Tremens, Excited Delirium, and use of restraint. This training program should emphasize those symptoms that require immediate medical assistance.

Rationale: We heard evidence throughout the inquest officers had not received any training to recognize the symptoms of this medical condition.

Padda (Re), 2004 CanLII 72782 (ON OCCO), <<http://canlii.ca/t/g07qt>> retrieved on 2014-02-17

A.10 Verdict of Coroner's Jury – James Foldi (2005)

Cause of Death: Acute cocaine toxicity leading to sudden cardiac death, in the setting of excited delirium

To the Ministry of Community Safety and Correctional Services in the Province of Ontario:

4. It is recommended that any updated or new information, as the result of the study of Excited Delirium, be promptly distributed to all Police Services in Ontario.

Coroner's Comments:

Expert testimony was heard regarding the concept and medical state known as Excited Delirium. This appears to be a rapidly developing and controversial field of medicine with substantial disagreement among experts about both diagnosis and treatment. Given the difficulty of recognizing Excited Delirium, it was felt important that police services be kept up to date on the latest medical best evidence.

Foldi (Re), 2009 CanLII 91988 (ON OCCO), <<http://canlii.ca/t/fzrz>> retrieved on 2014-02-17

A.11 Verdict of Coroner's Jury – Robert Gourley (2005)

Cause of Death: Excited Delirium due to Cocaine Toxicity

To the Office of the Chief Coroner:

1. That further research into Excited Delirium is undertaken.

Gourley (Re), 2008 CanLII 89757 (ON OCCO), <<http://canlii.ca/t/fzs3g>> retrieved on 2014-02-17

A.12 Verdict of Coroner's Jury – Stephane Michaud (2005)

Cause of Death: Positional Asphyxia

1. The jury recommends that further and practical training and protocols be provided for paramedics across Ontario on Section 8 Psychiatric Disorders in the Basic Life Support Patient Care Standards with particular attention given to the set of symptoms commonly referred to as excited delirium. The training should cover the indicators, life-threatening risks, care, transport and restraint methods associated with the condition.

The transport and restraint methods should emphasize the risks and consequences of the prone position and the potential for positional asphyxia.

Testimony indicated that knowledge about excited delirium and how to deal with it had not previously been well communicated.

4. The jury recommends that medical research organizations such as the Canadian Institute of Health Research conduct research into the causes of the set of symptoms commonly known as excited delirium. Testimony showed that little is known about excited delirium.

10. The jury recommends that methods of restraint, other than single handcuffs behind the back, be explored for use on persons in medical distress such as excited delirium.

The testimony showed that there are significant challenges and risk of injury when placing a handcuffed person on his or her back.

Michaud (Re), 2007 CanLII 82680 (ON OCCO), <<http://canlii.ca/t/fzs3r>> retrieved on 2014-02-17

A.13 Verdict of Coroner's Jury – Basil Carl McIntosh (2004)

Cause of Death: Status epilepticus due to recent cocaine use

Jury Recommendations:

2. That the Ontario Police College and/or the Waterloo Regional Police Service consider using the facts surrounding the death of Mr. Basil Carl McIntosh in their training of officers with respect to Excited Delirium.

3. That the Ministry of Community Safety and Correctional Services consider adding, under “Training,” the recognition and response to Excited Delirium to the “Police Response to Persons who are Emotionally Disturbed or have a Mental Illness or a Development Disability” Adequacy Standard (LE-013).

McIntosh (Re), 2008 CanLII 89690 (ON OCCO), <<http://canlii.ca/t/fzrxk>> retrieved on 2014-02-17

A.14 Verdict of Coroner’s Jury – Robert Walker (2004)

Cause of Death: Acute Cocaine Intoxication

Recommendation #8:

It is recommended that the Basic Life Support Standards and the Standard Operating Procedures for Toronto Emergency Medical Services on the topic of Excited Delirium Syndrome be reviewed with all Paramedics at the next Continued Medical Education training sessions being provided by the Toronto Emergency Medical Services.

Coroner's Comment:

The descriptive term "Excited Delirium Syndrome" may have several and overlapping known or unknown causes. Here, the cause was evidently acute cocaine intoxication. It represents a serious and dangerous situation for all involved. Here, the jury is recommending a higher profile for training about this syndrome. Evidence established that regular continuing education and training sessions were provided by Toronto Emergency Medical Services, frequently using case-based scenarios.

12) It is recommended that dispatchers are included in the distribution of all updates on Excited Delirium Syndrome and Emotionally Disturbed Persons.

Walker (Re), 2008 CanLII 89762 (ON OCCO), <<http://canlii.ca/t/fzs2m>> retrieved on 2014-02-17

A.15 Verdict of Coroner’s Jury – Peter Lamondy (2004)

Cause of Death: Cocaine induced excited delirium

7. The Ministry of Community Safety and Correctional Services and the Ontario Police College and all Municipal and Regional Police Services in the province of Ontario should continue to ensure that all police officers under their supervision receive up to date training with respect to the signs and risks of excited delirium.

Reasoning: To ensure that the level of knowledge and understanding of the risks associated with excited delirium are current and to ensure that any new developments relating to excited delirium are incorporated into the training. In conjunction with recommendation #12 and #13, this will also ensure that there is standardized language between police and hospital staff when patients are being transferred.

8. The Ministry of Health and Long Term Care and the Ministry of Community Safety and Correctional Services should conduct a study of municipalities where chemical restraints are administered at the scene for early intervention in situations involving suspected cases of excited delirium in order to determine if there is a benefit.

Reasoning: Early intervention with a chemical restraint in suspected cases of excited delirium potentially increases the chance for a positive outcome. Early intervention with chemical restraints is already used in Toronto.

9. Based on the results of the study outlined in recommendation #8, police services, the ambulance services and emergency room clinical staff in London should collaborate to explore the possibility of using chemical restraint for the early intervention in situations involving suspected cases of excited delirium.

Reasoning: In light of the successful training of tactical paramedics who administer chemical restraint in other Ontario cities (E.g. Toronto) this technique should be explored in London as a method of ensuring that the subject is brought under control and can be given medical assistance as quickly as possible.

12. The Ministry of Colleges and Universities ensure that all institutions responsible for the education of health care professionals in the province of Ontario provide education and training with respect to excited delirium.

Reasoning: To ensure that graduates from health care courses including nursing schools and medical schools have received education regarding excited delirium. In conjunction with recommendation #7, this will also ensure that there is standardized language between police and hospital staff.

14. The National Research Council and the Ontario Provincial Government should consider funding for continued research into sudden, unexpected death during police custody.

Reasoning: Excited delirium is linked to sudden, unexpected death that may occur in police custody. This is a public trust issue and the public needs better information to provide them with answers when a sudden, unexpected death occurs.

Lamonday (Re), 2005 CanLII 79175 (ON OCCO), <<http://canlii.ca/t/g07r2>> retrieved on 2014-02-17

A.16 Verdict of Coroner's Jury –Gary Spurn (2004)

Cause of Death: Methamphetamine Overdose, Complicated by starvation, hyperthermia, hyperkalemia

Recommendation #6:

Specific training to emergency workers of the signs to look for in cases of excited delirium and drug overdose including methamphetamine overdose. (e.g. Ambulance personnel, security guards and correctional officers.)

Jury's Rationale: None Given.

Coroner's Comments:

At the beginning of the Inquest, the jury had a presentation about Excited Delirium from Dr. Cairns. They found it very informative and useful. While a course on Excited Delirium is offered at the Ontario Police College, and recently at some Community College Paramedic Courses, the jury felt that this information should be more widely disseminated to include all Ambulance personnel in the Province of Ontario, as well as security guards, correctional officers, and any other group who may be first responders to an individual suffering from this condition.

Spurn (Re), 2005 CanLII 79159 (ON OCCO), <<http://canlii.ca/t/g07sj>> retrieved on 2014-02-17

A.17 Verdict of Coroner's Jury – Jerry Knight (2004)

Cause of Death: Restraint Asphyxia following prolonged struggle, due to Cocaine-induced Excited Delirium

To the Ministry of Community Safety and Correctional Services-Policing Service Division (MCSCS):

1. To provide hand restraint devices to all Tactical, Supervising and frontline Officers which allow the subject to be restrained with the hands of the subject to the side of the hips.

To the Ministry of Health and Long Term Care-Emergency Health Services Branch (MHLTC-EHSB) and to the MCSCS:

2. To reinforce and identify through regular and refresher training, the risk of death associated with Excited Delirium.

To the MCSCS and the Ontario Police College (OPC):

3. To create a dispatch code, or call, to announce that officers are dealing with a subject whom they suspect is suffering from Excited Delirium and that EMS dispatch be notified.

4. To reinforce, through regular and refresher training, the risk of death associated with the use of prone restraint and the Hog-tying restraint.

5. To encourage increased research and training in Excited Delirium and restraint; including, the advisability of using the Taser in drive stun mode and pepper spray.

6. To encourage all police services currently using Tasers to update their Taser technology.
7. To reinforce, through regular and refresher training, the risk of death associated with the use of neck restraint techniques.
8. To encourage the development of better forms of leg restraints and have all Police vehicles equipped with such device. i.e.) flexicuffs
9. To encourage the development of a coordinated approach to rapidly restrain non-compliant subjects. i.e.) starfish technique
10. If possible, when multiple Officers are dispatched, the more experienced Officers should take the lead role in dealing with the situation. The senior Officer in charge, or designate, should be responsible for communicating with Officers newly arriving to the scene as to the status of the situation and remain on scene for the full duration.
11. Development of alternate standardized procedures to replace hog-tying and once these procedures are in place, hog-tying be banned altogether.
12. Development of procedures and policies for Police Officers to communicate to the subject during a violent struggle, to include instructions of a potentially hazardous or fatal outcome if resistance continues.

To all Local Governments:

13. To encourage development of a protocol whereby Advanced Paramedics and/or Tactical Paramedics would attend during cases involving excited and non-compliant subjects.

To the MCSCS:

14. To consider authorizing all front line Police Officers to carry a Taser or have access to a Taser.

To the National Research Council and the Ontario Government:

15. Encourage funding for continued research into sudden death that may occur in police custody.

Knight (Re), 2008 CanLII 89722 (ON OCCO), <<http://canlii.ca/t/fzs2d>> retrieved on 2014-02-17

A.18 Verdict of Coroner's Jury – William Steven Davidson (2003)

Cause of Death: Cocaine Induced Excited Delirium

Davidson (Re), 2005 CanLII 79610 (ON OCCO), <<http://canlii.ca/t/g07v7>> retrieved on 2014-02-17

A.19 Verdict of Coroner's Jury – Nicholas Blentzas (2002)

Cause of death: Excited Delirium/Restraint Asphyxia associated with an underlying psychiatric illness

These Recommendations are not necessarily in order of priority.

1. That the Chief of Police of the Toronto Police Service and Toronto Police Services Board:

- (i) Enhance and continue to ensure that new recruits are taught:
 - (a) The signs and symptoms of excited delirium;
 - (b) That excited delirium constitutes a medical emergency; and
 - (c) The risks associated with the physical restraint of persons experiencing an episode of excited delirium.
- (ii) Enhance and continue to ensure that all police officers and court officers receive a yearly refresher, during their training on oleoresin capsicum (pepper spray), emphasizing:
 - (a) The signs and symptoms of excited delirium;
 - (b) That excited delirium constitutes a medical emergency; and
 - (c) The risks associated with the physical restraint of persons experiencing an episode of excited delirium.

RATIONALE:

The evidence presented at this inquiry overwhelmingly supports the need for continuing training and awareness for front line police services and medical emergency personnel on the medical condition known as "excited delirium".

2. That the Ontario Police College:

- (i) Enhance and continue its efforts to ensure that new recruits are taught:
 - (a) About the signs and symptoms of excited delirium;
 - (b) That excited delirium constitutes a medical emergency; and
 - (c) The risks associated with the physical restraint of persons experiencing an episode of excited delirium.
- (ii) It is recommended that the Ontario Police College enhance and continue to include in the training program the practice of requiring all healthy trainees to experience firsthand the process of being physically restrained in the prone position.

RATIONALE:

The evidence presented at this inquiry overwhelmingly supports the need for continuing training and awareness for front line police services on the medical condition known as "excited delirium".

3. That the Ontario Police College, the Chief of Police of the Toronto Police Service and the Toronto Police Services Board:

Consider the inclusion of the facts surrounding Nicholas Blentzas' death in the scenario role-playing exercises or case studies they use to train officers on excited delirium. Any such reference to the facts in this case shall ensure complete anonymity on behalf of Nicholas Blentzas.

RATIONALE:

The events leading up to the unfortunate death of Nicholas Blentzas should serve as a teaching scenario for future training case studies.

Blentzas (Re), 2005 CanLII 79148 (ON OCCO), <<http://canlii.ca/t/g07t9>> retrieved on 2014-02-17

A.20 Verdict of Coroner's Jury - Barry John Webster (2001)

Cause of Death: Coronary Atherosclerosis with Myocardial Ischemia and acute Alcohol/Drug withdrawal syndrome

11. Medical Considerations -Sick and Injured Detainees

g. While awaiting transportation to hospital, detainees suspected of suffering from Excited Delirium shall not be permitted to lie on their stomachs and should not be handcuffed behind the back, as this position increases the risk of a fatality.

Recommendation 9.1 speaks to the need to educate officers about a common group of medical conditions that they will face on a frequent, if not daily basis. This expands on the existing list of conditions that currently includes excited delirium and positional asphyxia, to include alcohol and drug withdrawal.

Webster (Re), 2003 CanLII 71838 (ON OCCO), <<http://canlii.ca/t/g0677>> retrieved on 2014-02-17

A.21 Verdict of Coroner's Jury – Otto Vass (2000)

Cause of Death: Sudden unexpected Cardiac Death due to: Acute Myocardial Infarction, Excited Delirium, in a man with long-standing bi-polar disorder; In association with Cardiovascular Stress resulting from violent struggle and morbid obesity.

18. The Canadian Police Research Centre, National Research Council, and Ontario Ministry of Community Safety and Correctional Services should consider funding of

further research into issues relating to sudden, unexpected death during police custody, including excited delirium.

Vass (Re), 2006 CanLII 81574 (ON OCCO), <<http://canlii.ca/t/fzt8f>> retrieved on 2014-02-17

A.22 Verdict of Coroner's Jury – Patrick Shand (1999)

Cause of Death: Restraint asphyxia with the following contributing factors, chronic and acute effects of cocaine use

Recommendation #4:

Training program Curriculum

The Ministry should create a curriculum for the mandatory training program, through consultation with stakeholders to create industry standards based on best practices.

For those security practitioners whose duties may include making arrests or the lawful application of force, the minimum level of training should include First Aid, CPR and Use of Force training which identify the hazards of Restraint Asphyxia and Excited Delirium.

For a security practitioner to receive a license allowing them to carry or use handcuffs or expandable batons they must have received and completed relevant training.

Rationale: There should be multiple levels of training for security practitioners in the Province, depending upon job requirements, the expectation of the use of force and the use of hand cuffs and expandable batons. The system should be transparent in the interest and the safety of the public. The public should expect a high standard of professionalism by all security practitioners in the Province. The curriculum should provide the basis for the professional standards.

Recommendation #19:

Excited delirium memorandum

The Coroner's Office should update Memo #636, dated June 19, 1995, exhibit 4 at the Inquest, for distribution to the security industry.

Rationale: This is a document that contains vital and possibly lifesaving information. It is of the utmost importance that the security industry and all persons dealing with use of force and restraint are aware of its contents.

Shand (Re), 2004 CanLII 72783 (ON OCCO), <<http://canlii.ca/t/g07qq>> retrieved on 2014-02-17

A.23 Verdict of Coroner's Jury – Teddy Peter Raamat (1998)

Cause of Death: Cocaine induced Excited Delirium associated with physical struggling and restraint

Raamat (Re0, 2000 CanLII 29129 (ON OCCO), <<http://canlii.ca/t/g0zkb>> retrieved on 2014-02-17

A.24 Verdict of Coroner's Jury – David Neil Schlaht (1998)

Cause of Death: Excited Delirium associated with restraint

Recommendation #1:

Police services provide ongoing in-service training to all police personnel in dealing with individuals in an extreme agitated state caused by alcohol, drugs or a mental illness. Evidence was heard at the Inquest from police officers at the scene of this death that it was obvious to them that Mr. Schlaht was in an extremely agitated state. It was unclear whether this was induced by alcohol, drugs, mental illness or other causes. The point of this recommendation is to assist the police when they face these very difficult circumstances, with state of the art training, to defuse these situations in as safe a way as possible for all involved. Evidence was heard that public safety was a key concern of Police and is important to consider in ongoing training.

Recommendation #2:

Such in-service training would include:

- a) Recognition of the signs of an individual in an extreme agitated state.
- b) The awareness of the possible sudden onset of a potential respiratory and/or cardiac problem.
- c) A protocol for accessing ambulance and/or medical services.
- d) A review of tire procedures for dealing with all extremely agitated person.

Coroner's Comment:

This recommendation is an elaboration of the first. It seeks to give the Police Department guidance in terms of the nature of training the Jury feels, after hearing the evidence, would be helpful. An understanding of excited delirium and its complications by police officer might help to prevent a similar death. It was suggested at the Inquest, if a similar situation occurred in the future, an ambulance could have been called as a precaution when the police extraction had begun and not waited until Schlaht collapsed.

Schlaht (Re), 1999 CanLII 20087 (ON OCCO), <<http://canlii.ca/t/g1wqg>> retrieved on 2014-02-17

A.25 Verdict of Coroner's Jury – Beverly Arnold Ingraham (1996)

Cause of Death: Mixed Overdose of Amitriptyline, Alcohol, and other drugs

4. The Policing Services Division and the Office of the Chief Coroner of the Ministry of the Solicitor General should continue ongoing research into this syndrome of excited delirium.

Ingraham (Re), 2000 CanLII 29135 (ON OCCO), <<http://canlii.ca/t/g0zls>> retrieved on 2014-02-17

A.26 Verdict of Coroner's Jury – Osvaldo Aldamo Varona (1995)

Cause of Death: Cardiopulmonary Arrest, caused by cocaine toxicity and Excited Delirium

Recommendation #1:

That continuing education to all personnel who are involved in situations where positional asphyxia be a factor continue.

Coroner's Comments:

The Jury heard evidence that shortly before this incident occurred in 1995, the Office of the Chief Coroner had issued a memo (Memo #636) dealing with the matter of excited delirium and positional restraint. This had been forwarded to all coroners, pathologists and policing agencies across the Province. Subsequent to that memo, the Toronto Police Force issued a Routine Order to all detachments so that they would be familiarized with this potentially serious situation.

During the period of September 1996 to December 1997, the "use of force" training program, provided to all officers within Toronto Police, included teaching about excited delirium and positional asphyxia. The jury also heard evidence that all new recruits to the Police Force have also received this training.

With this recommendation, the jury intends that not only should Policing agencies continue with their efforts to educate their personnel about the dangers of positional asphyxia in situations where excited delirium may be encountered, but that all other organizations and agencies that may encounter individuals presenting with similar symptoms, and who may be required to restrain these individuals, should also be aware of the dangers that it presents.

Recommendation #2:

That forensic studies be conducted on positional asphyxia.

Coroner's Comments:

The jury heard evidence that recent research into the matter of positional asphyxia has caused some doubt that the prone position alone may not contribute to the deaths of individuals. The jury heard that studies to date have not exactly reproduced the

circumstances that would be present when an individual is experiencing excited delirium because the subjects are healthy, drug-free and exercising moderately. This is in contrast to an individual who may be intoxicated, in a frenzy and exerting himself almost to a state of exhaustion. The jury also heard that studies to reproduce such an environment may be difficult to conduct as they may cause death and would therefore not be ethical. Nevertheless, the jury was impressed that further research into the matter is warranted, in an attempt to differentiate and understand the factors that may contribute to death.

Varona (Re), 1998 CanLII 18881 (ON OCCO), <<http://canlii.ca/t/g1zz6>> retrieved on 2014-02-17

A.27 Verdict of Coroner's Jury – Kenneth Allen (1991)

Cause of Death: Asphyxia due to the external application of mechanical force, while in a state of cocaine toxicity

2. Command officers should be responsible for verifying that officers reporting to them have read and understood routine orders. The meaning of routine orders should be discussed thoroughly at "parade". Special attention must be paid to those routine orders that deal with issues relating to the safety of the public, for example: Routine Order - Excited Delirium - June - 99.

In conclusion, the death of Mr. Kenneth Allen illustrates the need for ongoing vigilance in the treatment by the police of the mentally ill and of those who are under the influence of drugs. We commend the Coroner's Office and the Toronto Police Force for issuing revised memoranda and routine orders regarding 'Excited Delirium and the Use of Restraint'. We encourage the Coroner and the Chief of the Toronto Police to keep this issue front and center with the force.

Allen (Re), 1999 CanLII 20094 (ON OCCO), <<http://canlii.ca/t/g1wq7>> retrieved on 2014-02-17

A.28 Report to the Minister of Justice and Attorney General Public Fatality

Inquiry – Gordon Bowe (2008)

Medical Cause of Death: Excited Delirium Syndrome as a consequence of cocaine toxicity.

The Court thereby incorporates into this Fatality Inquiry Report the following recommendations:

(1) That all Call Takers and Dispatchers providing services to police agencies in Alberta receive updated training on the identification and management of potential Excited Delirium incidents. That this training be mandatory for all existing and newly hired staff.

Rationale: The early identification of potential ExD subject is critical. In many events, the call taker is provided information from the caller(s) which often clearly point to the fact that the subject may be in a state of ExD. By identifying this possibility at the call-intake stage, the Call Taker can ask further probing questions as required to further enhance the risk management and the quick deployment of the appropriate resources. If they are not trained, and not knowledgeable about which questions to ask, a person in a state of ExD might not be identified at this stage resulting in a delayed deployment of police and/or EMS resources, or a lack of proper preparedness on the first responders part upon arrival at the scene.

(2) That all police agencies in Alberta would train their officers annually in the identification and management of ExD incidents. Training should involve real case studies and/or scenario-based training where possible. (Note: CPS is already meeting this standard but it is not being done consistently throughout Alberta).

Rationale: Not all police agencies are training officers in the most current knowledge about the identification and management of ExD. This training should be delivered annually because the research and understanding of ExD is changing and thus police officers need to be kept abreast of the most upto-date information in managing these events in such a manner as to maximize the survivability of the afflicted person. Real case studies from Alberta incidents heighten the training experience and experiential training such as scenario-based training has been shown to result in the maximum retained skill and competency.

(3) That all police agencies in Alberta would collect identical data, with common terminology, for reported use of force and ExD incidents.

Rationale: The collection of identical use of force and ExD data is essential. Data which lacks common terminology and is not consistent cannot be used for research purposes. In order for Police Chiefs and researchers to examine the relationship between police/public interactions and use of force as well as the incidence of ExD, the collection of identical data with common terminology is essential.

(4) That all police agencies in Alberta and Alberta Health Service's EMS create a common terminology and inter-disciplinary training relating to the management of ExD incidents.

Rationale: In order to enhance the survivability of persons afflicted with ExD, a close cooperative relationship between frontline police officers and EMS responders is important.

(5) That frontline police officers are able to communicate directly with responding EMS members on a common radio channel. Further that police officers and EMS responders use the term 'Excited Delirium' over the radio when they communicate with one another.

Rationale: The timely transmission of critical information is essential during a medical emergency. The ability of police officers at the scene to communicate directly with the responding EMS personnel eliminates the need for core information to be transmitted from police at the scene, to police dispatch; from police dispatch to EMS dispatch; from EMS dispatch to EMS responders in the ambulance. The direct transmission of information between police and EMS will result in information being relayed much more timely and without risk of the detail being contaminated.

(6) Nationally consistent and enforced reporting on police use of force and possible incidents of ExD. That such reporting includes consistent data and terminology.

Rationale: For the same rationale as a Provincial system is required, similar reporting on a National scale would provide an enormous amount of data upon which the Canadian Police Chiefs could conduct research.

A.29 Report to the Minister of Justice and Attorney General Public Fatality

Inquiry - Ted James Meiorin (2006)

Medical Cause of Death: Cocaine-Induced Excited Delirium

While it appears that Mr. Meiorin stopped breathing while he was restrained, the evidence of the Chief Medical Examiner of Alberta, Dr. Dowling, was clear that the trigger for Mr. Meiorin's "excited delirium" was the high level of cocaine in his system and his cause of death was the "excited delirium", not the restraint. As such I find the Cause of Death to be Cocaine-Induced Excited Delirium.

During the Fatality Inquiry I heard evidence from Dr. Christine Hall, who is an Emergency Medical Specialist with a particular interest in "excited delirium" and is in fact involved in research and education involving the state of "excited delirium". She gave evidence that "excited delirium" is not a diagnosis, but instead a descriptor of a state in which someone presents themselves. While the manifestations of "excited delirium" are variable depending upon the individual and the actual cause, many or all of the following may be observed in an individual in the state of excited delirium:

Dr. Hall gave evidence that, in her opinion, in the attempt to prevent deaths from "excited delirium", it is critical for front line personnel to have the knowledge and information necessary for them to recognize that something is not right, and that they are dealing with a medical emergency and not just a behavioral problem. Dr. Hall identified the need to educate all front line professionals, including physicians, EMS personnel, law enforcement professionals, and dispatchers for both EMS and the police about what "excited delirium" is, how it can be identified, and the immediate action(s) that should be taken. In addition Dr. Hall gave evidence of the need to establish protocols for such things as level of response for various emergency personnel and the ultimate treatment for subjects exhibiting "excited delirium".

It was clear to me from all the evidence that I heard that, if implemented, the following list of recommendations could assist in dealing with persons who are exhibiting “excited delirium” and potentially prevent some deaths from excited delirium:

- (a) Educate physicians, EMS personnel, law enforcement personnel and dispatchers for EMS and the police, with respect to the manifestations of “excited delirium”;
- (b) Establish a list of producible signs or manifestations of “excited delirium”;
- (c) Establish a protocol for each group of front line professionals who could come in contact with subjects who are displaying signs of potential excited delirium, including physicians, EMS personnel, law enforcement personnel and dispatchers for both EMS and the police;

A.30 Report to the Minister of Justice and Attorney General Public Fatality

Inquiry – Ronald Ashley Perry (2003)

Medical Cause of Death: Hypoxic ischemic encephalopathy due to cardiorespiratory arrest due to Excited Delirium (ED)

Recommendations for the prevention of similar deaths:

Excited Delirium is a medical condition describing physiological symptoms of increased heart rate and blood pressure, erratic combative behaviour, incomprehensible or inappropriate speech, purposeless destruction of property, constant activity, yelling, screaming or keening, imperviousness to pain, unawareness of police or medical attendants who are on scene, superhuman strength and frequently inappropriate state of dress. It involves an altered level of consciousness affecting thinking and perception.

People suffering from this condition need medical help. They need to be restrained to get that help. Death frequently ensues once they are restrained. This condition although rare, arises from several different causes including illicit drug use.

This condition is difficult to study as it is usually not known that a person is in such a condition until brought to the attention of the police. Death frequently ensues. More information is needed about the causes and treatment of this condition and I am recommending that a central reporting and data management system be implemented such that any sudden and unexpected death after police restraint be reported to the system. I recommend that research funds be made available to qualified medical personnel with an interest in this area to study the information.

I recommend that when further information is obtained it be provided to Police, Ambulance and Emergency Medical Personnel so they can create suitable procedures to more successfully deal with people in this condition.

A.31 Findings and Recommendations as a Result of an Inquiry into the Death of

Ropinder Singh Gill (2010)

Medical Cause of Death: Sequelae of cocaine-induced agitated delirium during restraint.

Provide mandatory in-service training on sign, symptoms and best practices regarding agitated delirium.

Two of the attending police officer reported that they were unfamiliar with Excited/Agitated Delirium and did not recall having had any training on the subject prior to interacting with Mr. Gill.

A.32 Findings and Recommendations as a Result of an Inquiry into the Death of

John Ian Rice (2009)

Medical Cause of Death: Cocaine-induced agitated delirium during restraint.

To: Solicitor General and BC Chiefs of Police

2. That the British Columbia Association of Chiefs of Police consider training be provided to all police officers respecting excited delirium consistent with that provided to officers of the Victoria Police Department.

Coroner's Comments: The jury heard evidence that the Victoria Police Department has developed a training module on the subject of excited delirium; however, this is unique to that force.

To: Solicitor General, BC Chiefs of Police, BC Ambulance Service and Union of British Columbia Municipalities

3. That a training bulletin be issued to all dispatch personnel for the BC Ambulance Service, police department and fire departments. This bulletin would indicate the possible signs and possible symptoms of excited delirium to assist dispatch personnel in their initial assessment when receiving calls from the public. Critical information would then be passed to first responders to facilitate dispatch of adequate emergency resources at the earliest opportunity. All police departments, fire departments and the BC Ambulance Service should adopt a policy similar to that developed by the Victoria Police Department requiring the simultaneous dispatch of police, fire and ambulance in cases of suspected excited delirium.

Coroner's Comments: The jury heard evidence that cases of excited delirium should be considered a medical emergency and that a quick response by medical personnel can prevent deaths. Police officers are more often the first to respond to cases of excited delirium and need to ensure public and officer safety prior to provided the necessary medical treatment of these individuals. The jury heard that restraint has to be used in order to provide efficient medical assistance to the individual and that a coordinated response with law enforcement and medical personnel is considered best practice.

**A.33 Findings and Recommendations as a Result of an Inquiry into the Death of
Robert Thurston Knipstrom (2007)**

Medical Cause of Death: Anoxic encephelopathy and rhabdomyolysis due to or as a consequence of Acute Methylenedioxymethamphetamin (MDMA) Intoxication and Excited Delirium with Physical Restraint

1. We recommend that enhanced training and regular orientation on the subject of Excited Delirium be provided for all firefighters, paramedics, peace officers and police, under the authority of your agency.

Coroners Comment: The jury heard from police officers, firefighters and paramedics that training on the subject matter of Excited Delirium is sporadic and, for the most part, it is not part of any of their organizations' ongoing in-service regimen. The jury also heard Dr. Christine Hall testify that this type of training is highly recommended.

Appendix B

B.1 Tactical Restraint and Multiple Handcuffing Techniques (Paulus 2014)







