Subject restraint by law enforcement officers and sudden unexpected death.

Sudden and unexpected death either during or following a vigorous encounter with law enforcement, corrections or medical personnel is stressful to everyone associated to the incident. Officers are left to wonder what went wrong, the employer comes under increased scrutiny by the public, and the family wants reasonable answers as to why their family member died. It is the intent of this paper to provide police, correctional officers, medical personnel as well as the greater community with an update on the issue of "excitation delirium," (Cotton, 2004) or what the forensic and police literature call "excited delirium."

"Excited delirium can be caused by drug intoxication or psychiatric illness or a combination of both. Cocaine is the best known cause of drug-induced excited delirium. Cocaine users in excited delirium struggle violently when restrained and can suffer cardiac arrest at any time during or after the struggle. Alcohol is another common drug that may be a factor in the development of excited delirium. Some psychiatric illnesses have the potential to suddenly worsen to the point of excited delirium. There are persons living in community settings who have recurrent bouts of excited delirium particularly if they neglect to take their antipsychotic medication. Many cases of excited delirium are caused by a combination of drugs, alcohol and psychiatric illness" (Young, 1995). Excited delirium has also been described as "a state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, epiphoria (excessive tearing of the eyes), hostility, exceptional strength and endurance without apparent fatigue" (Morrison & Sadler, 2001). Exceptional strength and endurance without apparent fatigue are all signs associated with significant sympathetic nervous system arousal (Tortora & Anagnostakos, 1990). Excited delirium is considered a medical emergency (Farnham & Kennedy, 1997; Lawrence & Cairns, 2001; Wetli & Fishbain, 1985; Young, 1995).

The subject of sudden and unexpected deaths after a significant struggle with law enforcement officers has been the subject of the author's extensive investigation over the past 5 years. The result has been the creation of an investigative protocol (Lawrence & Mohr, 2004) intended to assist investigators based on information collected from several bodies of research. The problem of a sudden death proximal to restraint is not confined to policing and corrections but occurs in psychiatric facilities, hospitals and within geriatric settings (Joint Commission for Accreditation of Healthcare Organizations, 1998; Mohr, Petti, & Mohr, 2003; Weiss, 1998). Even within such controlled settings, where medical staff deployed restraint methods and devices, patient deaths still occurred.

Debate with respect to the safety of the prone position continues (Chan, Vilke, Neuman, & Clausen, 1997; Hick, Smith, & Lynch, 1999b; Pollanen, A., Cairns, & Young, 1998; Reay & Howard, 1999; Roggla et al., 1997). Patients have been restrained in the prone (face-down), supine (face-up), and seated position safely within an emergency medical setting (Zun, 2003) however, when police officers are called to deal with a person experiencing excited delirium they are usually on the street. In cases where police have been called to a hospital it has been because hospital staff are unable to control the individual. Rather than enter into the debate of subject position, focus was been shifted toward developing a better understanding of the overall problem. The creation of the investigative protocol, designed to ensure that consistent detailed evidence is collected to better assist the pathologist (Lawrence & Mohr, 2004).

One of the reasons why the face down or prone position is so closely connected with subjects who die "proximal to restraint" has to do with two common features shared by both issues: everyone who dies has vigorously resisted; every person who vigorously resists a police officers effort to gain control ultimately ends up in the prone position. The reason for this has to do with the construction of the human body. Human beings are bilaterally symmetrical bipeds. We most efficiently move on our two legs. The left side of our body is the same as our right side. If we must fight we will do so with the "threat" to our front. This position allows us to use all of our "evolutionary weapons" (i.e. our hands, arms, feet, teeth, etc.).

Police officers around the developed world will make concerted efforts to force a significantly struggling subject off their feet, thereby reducing the danger posed by the collection of the subject's strongest muscles (the legs). Having the subject on the ground also assists the officers in applying control holds. The ground can be used as a stable, consistent platform that an officer can use to establish a mechanical advantage. Officers will work to position themselves behind the subject where the danger posed by the subjects "weapons" is significantly reduced and the officer is best able to manipulate control of the subject safely and efficiently.

Another fact is that the subject can be expected to be exerting their maximal effort to defeat the officer's efforts to gain control and/or escape. History suggests it can be expected to take several persons to establish control of an individual in excited delirium (Barbour & Langley, 1994; Karch, 1997).

Two particular groups are associated with the sudden onset of excited delirium and their sudden and unanticipated death; people who suffer from schizophrenia (Farnham & Kennedy, 1997) and people who have used cocaine (Wetli & Fishbain, 1985). Other psychiatric illnesses have been implicated as well as other drugs of abuse. The scope of the problem is beyond the confines of this article. What is common is that certain problems can develop within both groups:

- overheating (hyperthermia);
- a change in the acidity of the blood that can be life threatening (lactic acidosis);
- electrolyte imbalances; (diet, Rhabdomyolysis);
- breakdown of muscle cells and leaching of the cellular contents into the blood stream making the heart susceptible to an arrhythmia; (Rhabdomyolysis)

all of which can make the heart very susceptible to ventricular fibrillation (an uncoordinated heartbeat that causes the heart to become an inefficient pump). These problems can result from drugs of abuse (Bunn & Giannini, 1992; Karch & Stephens, 1998; Mittleman & Wetli, 1987) (including alcohol alone), physical exertion (Armstrong, 2003) including exertion against restraints during transport (Kupas & Wydro, 2002), known side effects of psychiatric medication properly taken ("Prevention and treatment of heat injury," 2003), as well as without an identifiable cause (idiopathic) (Dhawan, Jyothinagaram, & Schwartz, 2000; Welte, Bohnert, & Pollak, 2004). These events can occur independent of any restraint at all (Di Maio & Di Maio, 1989; Karch, 1997; Ruttenber et al., 1997; Welte et al., 2004).

Struggling with law enforcement officers can worsen the situation due to the exertion put forth by the subject and the resultant expenditure of energy and its byproducts. Subjects may not be in optimum physical shape as poor general health has been linked to schizophrenia (Brown, Barraclough, & Inskip, 2000; Lambert, Velakoulis, & Pantelis, 2003; Lubman & Sundram, 2003; McCreadie, Blacklock, Tilak-Singh, Halliday, & Paterson, 1998; Ösby, Correia, Brandt, Ekbom, & Sparén, 2000) as well as mental illness ((Ruschena et al., 1998)) and drug abuse (Greenwell & Brecht, 2003; Kallan, 1998; Monteiro, 2001; World Health Organization, n.d.).

The significance of the subject's struggle with law enforcement officers should be examined in light of the subject's apparent ability to sustain the level of exertion experienced.

Excited delirium has been identified as a medical emergency. Life saving treatment will likely not occur on the street. Getting an agitated subject to hospital requires gaining control of the subject. The subject can be expected to vigorously resist. Force sufficient to overcome the resistance of the subject will be necessary to gain control. When officers finally establish control of the subject he or she will likely be placed in the prone position. Once control is established the subject should be rolled off their stomach and "placed in a position that least compromises their ventilatory efforts so long as it is safe to do so" (Hick et al., 1999b), preferably onto their left side (Maggiore & Palmer, 2002). The efforts of police officers in such cases should culminate with the subject's receiving medical attention at an emergency department where they can be treated (Allam & Noble, 2001; Hick, Smith, & Lynch, 1999a; Zun, 2003). Transport should be via ambulance wherever practical. In several recently reported cases, both agitated and non-agitated subjects suffering from schizophrenia died suddenly and unexpectedly, making the condition a potentially lethal disorder (Rosh, Sampson, & Hirsch, 2003).

In cases where law enforcement officers are called to protect a subject experiencing excited delirium, and restraint of the subject becomes necessary, the only thing that a police officer can do is restrain the subject quickly and effectively within the limits of the law. In order to assist officers in establishing safe and effective control tactics police officers are being trained in the use of simple restraint methods and equipment in an effort to reduce the subject's ability to struggle. These methods can be used to assist in efficiently transporting the subject, via ambulance, to a medical facility. The same methodology can be used to reduce the level of force required to transport an aggressive and resistive subject. This methodology is now in place with several agencies in Ontario including police services in Guelph, Waterloo Region, and Orangeville.

The reasons for a death in cases of excited delirium are multifactoral (Lawrence & Mohr, 2004; Mohr et al., 2003). The investigation into the causes of sudden death conducted to date may also assist in explaining the role of pepper spray, neck restraints and batons in such instances where death is not the direct result of the force option used.

The general information on this topic has been presented at several conferences throughout North America and in Australia. This article is a very simple, direct explanation of the relationship between excited delirium and sudden, unexpected deaths.

"Promoting mental health … calls for the willingness of each of us to educate ourselves and others about mental health and mental illness, and thus to confront the attitudes, fear, and misunderstanding that remain as barriers before us" (Surgeon General, 2002). Police trainers are working to assist in this effort and reduce, to the extent possible, the incidence of sudden death as it relates to excited delirium.

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Opinions in this article are those of the author and do not necessarily reflect the official position or policies of the Ontario Ministry of Community Safety and Correctional Services, the Ontario Police College.

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