Australian Prison Reform Journal

Excited Delirium Syndrome

Australian Prison Reform Journal

Volume 2, Issue 3, Article 3, 2022

Cameron I Russell

View ORCID profile

URL: www.aprj.com.au/articles/APRJ-2(3)-3-Excited-delirium-syndrome.pdf

Abstract

Excited Delirium Syndrome (ExDS) is a controversial diagnosis that has mostly emanated from the USA and found its way into Australian media and even coronial reports. The syndrome is said to be characterised by severe agitation, incoherent speech, hallucinations, paranoia, uncontrollable aggression, dangerously elevated body temperature, profuse sweating, high pain tolerance and extraordinary physical strength. The two most common causes of ExDS are said to be drug use and mental illness. In the USA, ExDS has often been used as a defence following a death in custody that involved a police shooting or police restraint, pepper spraying or Tasering. This article examines whether the spread of ExDS to Australia is of assistance in policing people with these symptoms.

Table of Contents

1. Introduction

1.1 Police at the coalface

The combination in the 1990s of psychiatric deinstitutionalisation by Kennett and other Premiers (Rosenberg 2015; Dowse 2021:8; Gooding 2017); Howard's 'Tough on Drugs' strategy (Burton 2004:Commonwealth policy framework); and the rise of Taylor's crumbling public spaces segregated from privately protected walled-and-gated 'villages' (1995:263-264) led to increased responsibility of public police for people with mental illness (Martinez et al. 2005:27-32). There had been major failures in rehousing the influx of people with mental disabilities. New community care facilities had been forced by NIMBY ('Not-in-my-backyard') protests to relocate to declining inner-city neighbourhoods, and many people with psychiatric and intellectual disabilities left institutions only to be shuffled between emergency housing, marginal housing, mini-institutions in ghettos, drug court, prison, psychiatric hospital, mental health ward and homelessness (Bostock and Gleeson 2004:45-51). By the turn of the century, the NSW Police were struggling to adapt to the new challenges. They complained to the NSW Select Committee about being treated as 'de-facto mental health workers' and about the drain on their resources as they were called upon to escort people with mental disabilities or to find a hospital that would agree to assess them (SCMH 2002:235-236).

1.2 Policing people with ExDS

Martinez and colleagues, however, were early critics of this dangerous and ineffective segregation between police and mental health workers, calling on police to be better trained in recognizing mental conditions; in dealing with people with mental disabilities; in understanding relevant laws; and in adopting a more active role (Martinez et al. 2005:24-25). In the same year that the Select Committee heard the NSW Police, Brown and Boyle (2002) wrote an influential paper on 'Delirium', an acute confusional state characterised by agitation, paranoia, aggressive hyperactivity and sometimes sudden death (Mash 2016; Takeuchi 2011:77). This delirium is today more commonly referred to as 'Excited Delirium Syndrome' [ExDS]. The focus of this paper is on policing people with ExDS, which is relevant

to criminology because the extreme agitation can flare up quickly, brought on by a mental condition, drugs or the stress of police being present. The clinical history of ExDS and how the diagnosis is controversial shall be briefly outlined. In the United States, ExDS has often been described in autopsy reports as the cause of death during arrest, especially when tasering or restraint was involved (Takeuchi et al. 2011). Other western nations including Australia have been far more reserved in attributing deaths in custody to ExDS. With the US propensity to label cause of death as ExDS, the inclination may be to suspect that ExDS is being blamed for police brutality, and this shall be one of the issues examined. The relationship that ExDS has with tasers and restraint, and the relationship between ExDS and police shootings in Australia shall also be considered. These matters are of crucial concern for people with mental disabilities who become caught up in the criminal justice system.

2. Clinical ExDS

2.1 Brief clinical history

ExDS (or 'delirious mania' was first described by French psychiatrist, Louis-Florentin Calmeil in 1832 as a rare, life-threatening psychosis involving extreme hyperactivity and fear followed by stuporous exhaustion (Calmeil 1832; Mash 2016:2). American psychiatrist, Luther Bell described similar symptoms in 1849 in the 'lunatic asylum' setting, and the condition was referred to as Bell's Mania (Bell 1849; Roach et al. 2014; Takeuchi et al. 2011:77). At that time, the condition had a 75% mortality rate (Mash 2016:2). Others observed the same symptoms and deaths following 'mischievous struggles with attendants' (albeit with different nomenclature), including Maudsley ('acute maniacal delirium' in 1867) and Stauder ('lethal catatonia' in 1934). The first modern mention of 'excited delirium' was in 1985 in connection with cocaine-induced psychosis and sudden death (Wetli and Fishbain 1985).

2.2 Semiology

This delusional mental dysfunction is characterised by severe agitation, shouting, incoherent rambling speech, hallucinations, paranoia, psychotic behaviour, sleeplessness,

uncontrollable aggression and violence, an extreme fight-or-flight response, dangerously elevated body temperature, profuse sweating, high pain tolerance and extraordinary physical strength (Barbour 2008:17,18; Brown and Boyle 2002; Kutcher et al. 2009:i-ii; Mash 2016; Roach et al. 2014). Canadian police found that of 698 encounters using force in a two-year period, 24 cases with ExDS symptoms were identified (3.4% of encounters involving force) (ACEPEDTF 2009:7). The frequencies of the ten main pre-hospital symptoms were recorded with 95% Confidence Intervals:

Table 01: ExDS pre-hospital symptoms and features observed and their frequencies

Symptom/Feature	Frequency (%)
Pain Tolerance	100
Tachypnea	100
Sweating	95
Agitation	95
Tactile hyperthermia	95
Non-compliance with police	90
Lack of tiring	90
Unusual strength	90
Inappropriately clothed	70
Mirror/glass attraction	10

The media has often reported cases of ice-fuelled attacks where the delusional attacker (often naked due to hyperthermia – Ordoobadi and Kivlehan 2017:26) has acted with 'superhuman strength' and 'zombie-like' aggression (for example, Mills 2016; Willacy 2015). 10% of cases end in cardiac arrest (Ordoobadi and Kivlehan 2017:26; Sengstock and Curtis 2022) and resuscitation is usually unsuccessful (Bathgate 2022; one study found 8.3% of ExDS cases ended in death – ACEPEDTF 2009:6; also Dawes estimate of 8-10% in the Galeano Inquest – Clements 2012). Between 66% (Takeuchi et al. 2011:77,79) and 75% (Roach et al 2014) of deaths attributed to ExDS occur either at the scene or during transport to hospital, so rapid paramedic attention is essential (Roach et al. 2014).

2.3 Causality

The two most common triggers for ExDS are drug-taking followed by psychiatric illness (usually involving either sudden cessation of psychotherapeutic medications, or new-onset mania or psychosis and partial treatment or mistreatment – ACEPEDTF 2009:7). It is significant that the drugs that most commonly induce ExDS ('ice' or crystal methamphetamine, and 'crack' or cocaine in rock form) are themselves highly correlated with poor mental health (Mash 2016:4; Massey and Verikios 2019:2-6,16-19; Sengstock and Curtis 2022). ExDS is not necessarily related to overdosing. Wetli and Fishbain found that, unlike cocaine overdoses, ExDS often involves low blood cocaine levels (1985). Post-mortems of people exhibiting ExDS symptoms have found that drug concentrations are similar to those of recreational drug users, suggesting there is a different cause of death. Cocaine and methamphetamine use increases extracellular dopamine (Mash 2016:4; Roach et al. 2014; Takeuchi et al. 2011:78-81) and a loss of dopamine transporter regulation for any reason (Mash 2016:1,7) leads to a surge of catecholamines (a group of chemicals associated with adrenaline – Kurmelovs 2021) and a "lethal cascade of neural activities" that may end in asphyxia and sudden cardiac arrest (Mash 2016:1,7).

2.4 Disputed diagnosis

ExDS is a controversial diagnosis for seven main reasons:

Firstly, there is no standardised definition of ExDS and it is usually described in terms of a syndrome or an altered mental state (Sengstock and Curtis 2022). The problem with a syndrome or group of symptoms is that it may blind us to the possibility of underlying conditions having an effect, as noted by Professor Duflou in the inquest into the death of Carmelo Galeano, the first in Australia finding ExDS; and by Professor Brown in the inquest for Odissea Vekiaris, the first to strongly reject ExDS (Jamieson 2013).

Secondly, critical analyses of ExDS have suggested a discriminatory application of the diagnosis. For example, the American Psychiatric Association [APA] has noted that the term ExDS has been disproportionately applied to African American men (2020:1) and has called

for the Department of Health and Human Services to investigate whether there has been a disproportionate application of the term by law enforcement personnel to people with 'mental illness, Black people, or other racial and ethnic groups' (APA 2020:2). Others have outlined the racist, misogynistic and unscientific origins of ExDS (Da Silva Bhatia et al.2022; O'Hare et al. 2020), referring to Wetli's application of his and Fishbain's case series on cocaine-induced ExDS to his work as deputy chief medical examiner in Miami. Twelve Black sex workers had been found dead one after another in a section of Miami. Wetli claimed the autopsies 'conclusively' indicated they had not been murdered. Wetli publicly speculated that while using cocaine males become psychotic and females die in relation to sex. He also postulated that the fact that all the women were Black might be because cocaine in combination with a certain blood type more common in blacks was lethal. Wetli applied his cocaine-and-sex ExDS theory to a girl found dead, but the toxicology report was negative for cocaine. Under pressure, Wetli's boss, the chief medical examiner then checked all autopsies and concluded that all 19 women to that point had been murdered with clear signs of strangulation and/or asphyxiation. Police identified a primary suspect eventually believed to be responsible for murdering 32 women, but he died before standing trial. A year after this, Wetli was still finding it hard to believe that someone can be killed without a struggle when they are on cocaine because cocaine is a stimulant and the women were streetwise. Wetli also noted that 70% of people dying from coke-induced delirium were black males even though most users are white because of genetics. Wetli went on to promote ExDS in interviews and as a 'highly paid defense witness' (Whitman 2013), including at more than a dozen lawsuits with fees paid by Taser International (now Axon).

Thirdly, the term ExDS is considered 'too non-specific to meaningfully describe and convey information about a person' (APA 2020:1). The APA and American Medical Association [AMA] recommend that the term ExDS not be used until a clear set of diagnostic criteria are validated (APA 2020:1).

Fourthly, little has been known about ExDS, although the doctors employed by Axon (previously Taser International) would contend that considerably more is now known about the neurochemical pathology (Mash 2016:1).

Fifthly, only a few medical bodies in the world recognise ExDS as a condition (Barbour 2008:18). They are the American College of Emergency Physicians [ACEP] (which has written a white paper on ExDS, describing it as a "subcategory of delirium" – ACEPEDTF 2009:1); the National Association of Medical Examiners [NAME] (which wrote a position statement on cocaine-related deaths in 2004); and the Royal College of Emergency Medicine (in the UK, where it is known as 'acute behavioural disturbance'). No Australian medical associations have recognized ExDS, although Safer Care Victoria, an administrative office of the Department of Health and Aged Care, provides advice on how to care for people displaying 'acute behavioural disturbance' (DOHAC 2022).

Sixthly, there is substantial overlap between the symptoms of ExDS and other well described psychiatric and medical conditions (Kutcher et al. 2009:ii; ACEPEDTF 2009:6).

Seventhly, because autopsies fail to find a definite cause of death (ACEPEDTF 2009:6), there is often the suggestion that ExDS does not exist, but is rather a convenient excuse to exonerate a death in police custody (ACEPEDTF 2009:6; Dickerson 2020; da Silva Bhatia et al. 2022; O'Hare et al. 2020). This suggestion is explored in the following section.

3. ExDS and accountability

3.1 Semantics

Journalists and medical associations have almost unanimously considered that ExDS is not a recognized medical condition and, further, that the diagnosis has been used as an excuse by police for avoiding accountability for deaths in custody (Anaïs 2014; Kutcher et al. 2009:3; Saadi et al. 2022; Yeung 2009; AMA 2021; APA 2020). However, the ACEP 'Excited Delirium Task Force' made the valid point that the 'issue of semantics does not indicate that ExDS

does not exist, but it does mean that this… specific terminology may not yet be accepted within some organizations…' (ACEPEDTF 2009:6). Indeed, when ACEP confirmed recognition of ExDS in 2021, they used a less archaic term that was more descriptive of the range of symptoms: 'hyperactive delirium with severe agitation' (ACEPTF 2021). Anaïs, however, argues that whether or not ExDS exists is a distraction from the more important question of whether the police are using legitimate force (2014:47-48).

3.2 Beyond semantics

There is bountiful evidence that thousands of people worldwide who are under the influence of drugs and/or with mental illness are coming into contact with law enforcement authorities. They are exhibiting hyperactive and aggressive symptoms (no matter how these are diagnosed – for example Daniel McDonald's comments in Ganeva 2020). When police arrive on the scene, the person is a danger to him/herself, the police, paramedics and others (Willacy 2015). The police therefore try to restrain the person in some way, for example putting them in a headlock, pinning to the ground, using batons, a chemical spray, sedation, physical restraints or Taser. In the United States many cases of death have involved 'hog-tying' the person (forcing the person face down and tying their handcuffed hands to their bound feet using a belt). People in a confused and agitated state often continue to struggle against the restraints, and one or more police officers hold them down, or even sit or stand on the person. Breathing becomes difficult, they lose consciousness and resuscitation fails. To what extent the police use of force and tasering contributed to the death will be assessed by the coroner and courts. In the United States particularly, the cause of death is often ascribed to ExDS. A medical expert will argue that there was a genetic disposition in the victim to ExDS and that the reasonable and necessary application of restraint by police triggered an adrenal overload that led to cardiac arrest and death. A violent person without ExDS, it is argued by the police medical witness, would not have died under such restraint. The judge agrees and homicide is not found. Whether ExDS exists (with such symptoms as superhuman strength, extreme body temperature and lack of pain) is a medical question, but a number of criminological questions also arise, as examined in the remainder of this section.

3.3 Whether ExDS becomes a 'catch-all' label

With the predominance of American ExDS deaths in custody, there are signs that ExDS is becoming a catch-all label for any mentally-ill, drug-affected, intoxicated or even rude or 'different' person who acts in a difficult manner or fails to comply with police. An example was Elijah McClain, a 23-year-old African American with slight build and gentle personality who played violin at animal shelters because they were lonely. McClain was stopped by police while walking home from a convenience store. McClain was non-compliant, saying he had no gun, that he was an introvert and just different. He said he needed his personal space and could not understand why he was being attacked. Police had been called because McClain had been wearing a ski mask and his arms were flailing (he felt cold due to anaemia and his friends thought he would have been dancing to music). McClain was slammed against a wall then handcuffed behind his back and held down by the three officers for 15 minutes. He was sobbing and vomiting and kept repeating 'I can't breathe.' A carotid control hold was applied twice by police. This hold cuts the blood flow to the brain. McClain was also threatened with being bitten by a police dog.

The cause and manner of death in the first autopsy were undetermined (Broncucia-Jordan 2019), but ExDS was thought possible as signified by 'agitated behaviour and enhanced strength' as well as the sudden collapse after struggle. The intense physical exertion and a narrow left coronary artery contributed to arrhythmia and death. Two carotid control holds that were applied by police could also have caused arrhythmia and death (Reid 2021). A subsequent autopsy found that the cause of death was the 'massive overdose' of the potent sedative ketamine with only a brief visual observation (500mg instead of 315mg for his body weight) (Solomon and de Yoanna 2020). The police officers and paramedics are presently charged awaiting arraignment (Sherry 2022).

3.4 Whether ExDS becomes a 'go-to' defence

After thousands of incidents between police and agitated people which were subsequently labelled as ExDS, investigations into American police brutality have raised the automatic defence of ExDS. This was the case in the trial of police officers for the death of George Floyd, even though there were no symptoms of ExDS (discussed below).

When ExDS is considered to be relevant, it tends to blind judge and jury to police actions that could have contributed to the death. The death of Sterling Higgins was found to involve ExDS and the DA noted that this cause of death absolved the officers of wrongdoing. The grand jury was not shown the video of Higgins being beaten by the police and the officers were not indicted. However, two independent investigations by forensic experts found no evidence of ExDS. Following arrest, Higgins had been taken to prison, which had no medical professionals. Handcuffed behind his back, the drug-affected Higgins temporarily took hold of an officer's hair. There followed police brutality including stepping on him and beating prior to his death. Both investigations found homicide and the cause of death was positional and mechanical asphyxia, with no CPR (Ganeva 2021).

3.5 Neo-liberal populism

Professor Anthony Brown researched ExDS when it came to Australia following the death of Antonio Galeano in 2009. He reported being 'quite amazed that [ExDS] seemed to be this created condition. And what bothered [him] was a small group of physicians advocating for it all seemed to be cross-referencing each other' (Kurmelovs 2021). They not only reference each other and provide mutual peer reviews, but they collaborate to discredit opposing views (for example, Remsberg 2014).

ExDS may or may not be a real condition, but clearly a small number of entrepreneurial doctors have worked closely (as a 'self-referencing ecosystem' – Valentino-DeVries et al. 2021) to popularise ExDS amongst police, coroners, courts and medical associations worldwide (especially as a valid cause of death). As medical experts in court, they testify that ExDS rather than positional asphyxia, Tasers or police heavy-handedness was the cause of death. In doing so, they are paid handsomely by Axon and other multinational corporations, publishers, universities, police training companies like Lexipol, police unions and cities; arguably at the expense of the most vulnerable in society – people with addictions and mental illnesses and their families. Another consequence is that police instructors believe their testimonies, for example that positional asphyxia does not exist, which is why Chauvin's defense (Lagoe et al. 2021; Wright 2021) and the other three officers (Helmore 2022) raised such evidence from Dr Kroll (FSI 2019; refer Kroll below) about

positional asphyxia not existing and ExDS and his 'arrest-related death syndrome' existing in the trial for George Floyd's murder (Ganeva 2020; Karnowski 2022a, 2022b; Santo 2020). In this case, no ExDS symptoms were found and Chauvin was sentenced to 22.5 years for second-degree murder (Laughland 2021). The following table touches on the interrelationship of these doctors described by the New York Times as a 'cottage industry of exoneration', with links to sample documents (Valentino-DeVries et al. 2021).

Table 02: Interconnectedness of the doctors behind ExDS (refer key below table)

	CW	VD	TD	DM	MK	SK	JH	MG	GV	TC	DD	CH
Employed by Axon on Corporate Bd					Yes 1		Yes1 Yes 2				Yes	
Axon medical expert for ExDS & Taser safety, & other alleged conflicts of interest	Yes	Yes	Yes	Yes 1 Yes 2	Yes 1 Yes 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Australian cases: Expert for ExDS & Taser safety						Yes			Yes 1 Yes 2		Yes 1 Yes 2	Yes
Am J Forensic Med Pathol (editor, publisher, writer)	Yes	Yes		Yes	Yes	Yes			Yes	Yes		
Force Science (staff instructor, contributor/cited)	Yes	Yes	Yes	Yes	Yes 1 Yes 2	Yes 1 Yes 2	Yes	Yes	Yes	Yes	Yes	Yes
Co-author of ACEP white paper				Yes			Yes		Yes	Yes	Yes	Yes
Co-author of NAME position paper	Yes			Yes		Yes						
Book/articles on ExDS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Book on TASER®	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	
ExDS Checklist	Yes			Yes	Yes	Yes	Yes	Yes				

Key to initialled names:		
CW = Charles Wetli	VD = Vincent JM DiMaio	TD = Theresa DiMaio
DM = Deborah Mash	MK = Mark Kroll	SK = Steven Karch
JH = Jeffrey Ho	MG = Michael Graham	GV = Gary Vilke
TC = Theodore Chan	DD = Donald Dawes	CH = Christine Hall

Articles about the 'cottage industry of exoneration'; how the doctors reference each other; the money they are paid for their services; and alleged conflicts of interest include: Kelly 2019; Kurmelovs 2021; Lagoe et al. 2021; Morris 2019; Szep et al. 2017; Szep et al. 2022; Valentino-DeVries et al. 2021; Yueng 2009. These articles tell of how Axon briefs police in what to say and do soon after a Taser-related death, including to get medical examiners (relations with them are cultivated) to send a brain sample within 24 hours to Dr Mash's Brain Bank for assessment of whether ExDS is involved. Very telling was the story of one medical examiner who sent the brain sample to Mash as usual even though he knew one case had no symptoms of ExDS at all. He was surprised that Mash still found ExDS. The medical examiner ignored Mash's finding, resulting in the first death in Florida attributed to a stun gun. The State Attorney sent investigators to interview Mash and, not knowing that she had previously been paid by Taser on at least eight occasions, decided not to prosecute the officer (Reuters 2017). The story of how the ExDS team bullied the coroner into accepting Mash's findings in the Glowczenski inquest is similar (Reuters 2017). Taser International was even known to successfully sue medical examiners for linking the weapon to a number of deaths (Trexler 2007 re two deaths; AAJ 2008 re three deaths). Up until 2008, Taser International had never lost a lawsuit (out of 70 lawsuits), but social justice lawyers say that is because Taser gathers their normal lawyers and medical experts to blame ExDS and the affected families cannot afford to do the same so drop the lawsuit (AAJ 2008).

3.6 ExDS comes to Australia

Australian coroners appear far more professional than American medical examiners (who have a medical background but not necessarily the legal training and independence) and American coroners, who are elected lay people. Axon does not dare to send information to the Australian coroners or to suggest, as they do in the USA, that a brain sample be sent to

Dr Mash's Brain Bank in Miami for her to determine whether the victim had ExDS. As a result, Australian coroners have generally rejected ExDS, finding causes of death such as restraint asphyxia or excessive Tasering or other force. The table below summarises four selected cases in Australia.

Table 03: Important Australian inquests involving ExDS considerations

Name & age	Date & place of death	Circumstances	Cause of death
Antonio Carmelo Galeano, 39	12/06/2009, Brandon residence	Galeano was naked and acting in a bizarre manner. Police tried to control him for 25 mins, then he was handcuffed face down on the floor with 2 officers holding him. His face went black and CPR was performed (Clements 2012)	The autopsy revealed severe coronary artery narrowing and toxicology showed toxic drug levels. The American experts asserted that ExDS rather than Tasering or positional asphyxia was the cause of death. The coroner found the cause of death was drug-induced ExDS, contributed by the Tasering, drug use and heart condition
Odisseas Vekiaris, 29	21/12/2009, in police van on way to Dandenong Police Station	During his arrest for unprovoked aggression in a public place, Vekiaris struggled with police for a long time. He was sprayed with OC foam and spray and was handcuffed. Ambulance Victoria paramedics cleared him for transport in the van still handcuffed. On arrival at the police station, Vekiaris was deceased. The autopsy assigned cause of death to ExDS. (Jamieson 2015)	The coroner requested a report on ExDS from the Coroners Prevention Unit which noted (a) divided opinion on whether it exists; (b) the Braidwood Commission in Canada that concluded in favour of underlying causes rather than ExDS as a cause; and (c) and concern re Taser International's promotion of ExDS including suing medical examiners and funding experts to testify that ExDS was the cause of death where Tasers were deployed. The coroner found that the death was multifactorial with unascertained causes. ExDS was rejected as cause and it was recommended that ExDS be avoided as a cause and also removed from its training manuals
Roberto Laudisio-Curti, 21	18/03/2012, Sydney	Curti drank a little then took LSD. The LSD caused bizarre behaviour. Curti was assaulted by 4 men and became paranoid. An armed robbery was misreported which cause polic to give chase. Curti was Tasered multiple times including after subdued along with OC spray (Jerram 2012)	The autopsy report did not provide a direct cause. The five experts agreed. None put ExDS forward as a cause and the coroner decided on undetermined causes, but recommended police disciplinary charges, and for all NSW officers to be made aware of the dangers of positional asphyxia, multiple Tasers and multiple use of OC spray.

			A report by Dr Dawes stating ExDS was the likely cause was rejected because of his links with Taser International
Wayne "Fella" Morrison, 29	26/09/2016, Royal Adelaide Hospital	Up to 18 guards place Morrison in the van. 8 guards were with Morrison in the back of a prison van on the 3.5-min trip to court. He was restrained on his chest with a spit hood. Morrison was not drug-affected. There was no CCTV in the van and the guards refuse to talk (NITV 2021)	The pathologist found no single cause. Factors: exertion, stress, ExDS, genetics, a potential positional element and potentially partial asphyxia from the spit hood. She rejected positional asphyxia based on her reading of US literature that prone restraint was unrelated to death. She agreed ExDS was controversial but it was the consensus of SA pathologists

3.7 ExDS and police shootings

Besides using Tasers, restraint and sedatives to control ExDS, police may use guns when the confused person acts in a threatening manner. The three tables below provide statistics on shooting deaths in police custody.

Table 04: Persons shot by police by mental illness 1989-90 to 2010-11

Year	Persons shot by police (*n*)	In possession of a weapon (*n*)	Persons with mental illness (*n*)	Proportion with mental illness (*n*)
1989–1990	2	2	0	-
1990–1991	5	5	1	20
1991–1992	4	2	2	50
1992–1993	4	2	0	-
1993–1994	9 (5-yr ave: 4.8)	8	5 (5-yr ave: 1.6)	56 (5-yr ave: 25.2)
1994–1995	6	5	4	67
1995–1996	4	3	2	50
1996–1997	7	6	3	43
1997–1998	5	5	1	20
1998–1999	2 (5-yr ave: 4.8)	1	0 (5-yr ave: 2.0)	- (5-yr ave: 36)
1999–2000	11	11	3	27
2000–2001	3	2	1	33
2001–2002	2	2	2	100
2002–2003	5	3	2	40
2003–2004	7 (5-yr ave: 5.6)	7	5 (5-yr ave: 2.6)	71 (5-yr ave: 54.2)
2004-2005	6	4	3	50
2005–2006	3	3	1	33
2006–2007	3	3	2	67
2007–2008	3	3	2	67

2008–2009	5 (5-yr ave: 4.0)	5	2 (5-yr ave: 2.0)	40 (5-yr ave: 51.4)
2009–2010	3	3	2	67
2010–2011	6	4	1	17
Total (22 yrs)	**105**	**89**	**44**	**41.9**
Average	**4.77**	**4.05**	**2.00**	**41.73**

Sources: AIC 2013:2,3; AIC 2021:Table E25

Table 05: Shooting deaths in police custody by mental illness, 2006-07 to 2016-17

	Shot by police (n=47)		Shot by self (n=35)		Total (n=47)	
	n	%	*n*	%	*n*	%
Diagnosed mental illness	15	32	15	43	30	37
Undiagnosed mental illness	10	21	6	17	16	20
Diagnosed and undiagnosed mental illness	4	9	0	0	4	5
No mental illness	6	13	11	31	17	21
Not recorded	12	26	3	9	15	18
Total mental illness ('not recorded' excluded)	**29**	**82.9**	**21**	**65.6**	**50**	**74.6**
Ave with mental illness (11 yrs)	**2.64**	**82.9**	**1.91**	**65.6**	**4.55**	**74.6**

Source: Doherty and Bricknell 2020:8

Table 06: Shooting deaths in police custody by substance use, 2006-07 to 2016-17

	Shot by police (n=47)		Shot by self (n=35)		Total (n=47)	
	n	%	*n*	%	*n*	%
Alcohol	4	9	4	11	8	10
Drugs	12	26	11	31	23	28
Alcohol and drugs	8	17	1	3	9	11
None	17	36	18	51	35	43
Not recorded	6	13	1	3	7	9
Total substance use ('not recorded' excluded)	**24**	**58.5**	**16**	**47.1**	**40**	**53.3**
Average (11 yrs)	**2.18**	**58.5**	**1.45**	**47.1**	**3.6**	**53.3**

Source: Doherty and Bricknell 2020:8

A comparison of Tables 04 and 05 reveal little improvement with the number of people shot by police at 4.27/year. The statistics for people shot with mental illness are astounding: 41% who have been diagnosed with mental illness, but that does not take into account another 21% who are undiagnosed but thought to be mentally ill and the proportion of the unrecorded 26% who have mental illness. Excluding the unrecorded figures, 82.9% of people shot by police had diagnosed or undiagnosed mental illness. Table 05 also indicates that 65.6% of people shooting themselves have diagnosed or undiagnosed mental illness, and Table 06 shows the concurrent impact of alcohol and drugs, a combination that will continue to fuel hyperactive presentations that need to be dealt with by police. If people with mental disabilities are to be in the community, Australia is duty-bound to stop killing them with Tasers, batons, dangerous restraint, dangerous sedatives, escalation and guns.

4. The way forward

Professional, independent and capable Coroners Courts (that cannot be sued) have been Australia's first line of defence against neo-liberal bullying for profit and disintegration of police accountability. However, coroners courts varied in the extent to which the conflicts of interest of American expert witnesses were entertained. Taser use is widespread, so care needs to be taken with regard to police conflicts of interest, such as payments to police officers to train in Taser or payments for providing inside information.

The coroner's recommendations in the Vekiaris inquest are wise with regard to removing ExDS materials from police training manuals as a protection for the most vulnerable in society; and avoiding ExDS as a cause of death since the underlying causes can vary, requiring different procedures. Tasers and prone restraints are two of these underlying causes, and the insistence of American consultants on their harmlessness has been ridiculed by most scientists and is responsible for the "I can't breathe" tragedies that have arisen.

Policing reforms may stem from listening to people with mental illnesses and their advocates; grassroots campaigns and media activism (Venters 2019:138-140); and legal action (Venters 2019:138,141-149). Police reforms may include improve training and

protocols for police with respect to mental illness, including possible causes of all states/conditions that have been labelled as ExDS (Kutcher et al. 2009: 19-24; Pitts 2015; Martinez et al. 2005:16-21,33,34; Morgan 2022). There also needs to be far more than the 1-2 days of training dealing with people with mental disabilities and substance issues (Wild et al. 2018). Mental health knowledge, de-escalation tactics and crisis response management (including making available a mental health history of ahigh-risk offenders) need to be reinforced and refined as perhaps the most important area of policing since so many distressed people are dying from injury and shootings. It is also important that health professionals be part of every team of first responders for people known to be confused or agitated (Abramson 2021). This requires a coordinated, collaborative approach (Kutcher et al. 2009: 19-24; Martinez et al. 2005:12). The Memphis Model of community policing with help from mental health professionals has been highly successful where rolled out in individual cities, but far more can be done in Australia (Martinez et al. 2005:27-34).

References

AAJ (American Association for Justice) (2008) 'Court orders medical examiner to strike Taser from autopsy reports', The Free Library, accessed 17 September 2022.

Abramson A (1 July 2021) 'Building mental health into emergency responses: More cities are pairing health professionals with police to better help people in crisis', *American Psychological Association,* accessed 27 August 2022.

ACEPEDTF (American College of Emergency Physicians Excited Delirium Task Force) (2009) 'White paper report on excited delirium syndrome', accessed 28 August 2022.

ACEPTF (American College of Emergency Physicians Task Force) (2021) 'White paper report on hyperactive delirium with severe agitation in emergency settings', accessed 15 September 2022.

AIC (Australian Institute of Criminology) (2013) 'Police shootings of people with a mental illness', (Research in practice No.34), Canberra.

—(2021) 'Deaths in police custody in Australia 2020-2021', accessed 26 August 2022.

—(2021) 'Deaths in prison custody in Australia 2020-2021', Table E25.

AMA (American Medical Association) (2021) 'New AMA policy opposes "excited delirium" diagnosis', accessed 31 August 2022.

Anaïs S (2014) 'Making up excited delirium', *Canadian Journal of Sociology,* 39(1):45-64.

APA (American Psychiatric Association) (2020) 'Position statement on concerns about use of the term "excited delirium" and appropriate medical management in out-of-hospital contexts', accessed 31 August 2022.

Ashworth A and Zedner L (2014) *Preventive Justice,* Oxford University Press, Oxford.

Barbour B (2008) 'The use of Taser weapons by New South Wales Police Force: A special report to Parliament under section 31 of the *Ombudsman Act 1974*', NSW Ombudsman, accessed 28 August 2022.

Bathgate B (06 January 2022) 'It causes superhuman strength, and it kills: Excited delirium', *Stuff,* New Zealand, accessed 03 September 2022.

Beer B (2013) 'Excited delirium syndrome', *Pathology,* 45(S1):S23-S25.

Bell LV (1849) 'On a form of disease resembling some advanced stages of mania and fever…', *American Journal of Insanity,* American Psychiatric Association, 6:97–127.

Bonner MD (2020) 'What democratic policing is … And is not', *Policing and Society: An International Journal of Research and Policy,* 30(9):1044-1060.

Bostock L and Gleeson B (2004) 'Contested housing landscapes? Social inclusion, deinstitutionalisation and housing policy in Australia', *Australian Journal of Social Issues,* Australian Council of Social Service, 39(1):41-62.

Broncucia-Jordan M (2019) 'Autopsy report: Elijah McClain', Office of the Coroner, Adams & Broomfield Counties, ME#: A19-02434.

Brown TM and Boyle MF (2002) 'Delirium', *British Medical Journal,* 325:644-647.

Burton K (2004) 'Illicit drugs in Australia: Use, harm and policy responses', E-Brief to Australian Parliament, Canberra.

Calmeil L (1832) *Dictionnaire de Medicine: Our repertoire general des sciences medicales considerees sous le rapport theorique et pratique,* Bechet, Paris, France.

Canadian Press (2010) 'Excited delirium concept challenged at Taser inquiry', *CTV News,* accessed 24 September 2022.

Clements C (2012) 'Inquest into the death of Antonio Carmelo Galeano', Queensland Coroner's Court, Brisbane.

Da Silva Bhatia B, Heisler M, Naples-Mitchell J, Saadi A and Sherwin J (2022) '"Excited delirium" and deaths in police custody: The deadly impact of a baseless diagnosis', Physicians for Human Rights, accessed 31 August 2022.

Dickerson J (2020) 'Excited delirium: The controversial syndrome that can be used to protect police from misconduct charges', *CBS News,* accessed September 2022.

DiMaio TG and DiMaio VJM (2005) *Excited delirium syndrome: Cause of death and prevention,* CRC Press, Boca Raton.

Disability Royal Commission (Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability) (Current), Australian Government Publishing Service, Canberra.

DOHAC (Department of Health and Aged Care) (2022) *Poisons Standard June 2022,* Australian Government, Canberra.

Doherty and Bricknell (2020) 'Shooting deaths in police custody', Statistical Bulletin 19, Australian Institute of Criminology, Canberra.

Douglas H (2019) 'Policing Domestic and Family Violence', *International Journal for Crime, Justice and Social Democracy*, 8(2):31-49, DOI: 10.5204/ijcjsd.v8i2.1122.

Dowse L, Rowe S, Baldry E and Baker M (2021) 'Research Report: Police responses to people with disability', Submission to Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability.

FSI (2009) 'Research roundup: Latest on TASERs, arrest-related deaths, excited delirium' Police 1, Lexipol, accessed 26 September 2022.

—(2019) 'New study: More evidence against the myth of "restraint asphyxia"' Police 1, Lexipol, accessed 26 September 2022.

Ganeva T (11 June 2020) 'George Floyd's death puts spotlight on controversial syndrome called "excited delirium"', *The Appeal,* accessed 08 September 2022.

—(10 March 2021) 'The medical examiner said he died of "excited delirium." Medical experts say police strangles him to death', *The Appeal,* accessed 08 September 2022.

Gooding P (2017) 'The government is the cause of the disease and we are stuck with the symptoms': deinstitutionalisation, mental health advocacy and police shootings in 1990s Victoria', *Continuum* 31(3):436–446.

Hawkins D (24 September 2022) 'Elijah McClain died of ketamine shot from medics, amended autopsy says', *The Washington Post,* accessed 16 September 2022.

Helmore E (15 February 2022) '"Excited delirium" emerges as key issue in trial of officers accused over George Floyd death', *The Guardian (Australia),* accessed 26 September 2022.

Jerram M (2012) 'Inquest into the death of Roberto Laudisio Curti', NSW State Coroner (2012/00086603, Glebe, NSW.

Joyce G (13 May 2008) 'Taser maker 'brainwashing' police, probe told', *Toronto Star,* accessed 01 September 2022.https://www.theguardian.com/australia-news/2021/jul/04/excited-delirium-how-a-disputed-us-term-found-its-way-to-australian-deaths-in-custody-inquests

Karnowski S (27 January 2022a) 'Drugs, "excited delirium" didn't kill Floyd, toxicologist says', CTV News, accessed 17 September 2022.

—(10 February 2022b) 'Drugs, "excited delirium" didn't kill Floyd, toxicologist says', CTV News, accessed 17 September 2022.

Kelly TC (2019) 'Controversial Taser expert accused of having conflict of interest', ExpertPages Blog, accessed 27 September 2022.

Kroll M, Wetli C, Mash D, Karch S, Graham M and Ho J, 'Excited delirium checklist', Springer Link.

Kurmelovs R (04 July 2021) '"Excited delirium": How a disputed US term found its way to Australian deaths-in-custody inquests', *The Guardian (Australia),* accessed 04 September 2022.

Kutcher S, Ayer S, Bowes M, Ross J, Sanford F, Smith L, Teehan M and Theriault S (2009) 'Report of the panel of mental health and medical experts review of excited delirium', Report to Ministers of Health and Justice, Nova Scotia, accessed 29 August 2022.

Lagoe AJ, Eckert S and Dunnaville N (06 April 2021) 'Kare 11 investigates: Officers get mixed messages about dangers of prone restraint', Kare 11, access 22 September 2022.

Laughland O (26 June 2021) 'Derek Chauvin sentenced to 22.5 years in prison for murder of George Floyd', *The Guardian (Australia),* accessed 25 September 2022.

Lexipol (2022) 'Mission-critical solutions: Empowering first responders & public servants to serve their communities safely and responsibly', accessed 26 September 2022.

Logan A (26 November 2013) 'Tasers: The 'non-lethal' weapon reckoned to have caused more than 500 deaths', *The Justice Gap,* accessed 01 September 2022.

Martinez AM, Somerville C, Quimbo C, Chow C, Jefferson D, Ananthapavan G, Kusnadi F, Seremetis H and Nguyen T (2005) 'Police training and mental illness – A time for change', Springvale Monash Legal Service, Springvale, Vic.

Mash DC (2009) 'Biochemical brain markers in excited delirium deaths', in Kroll M and Ho J (eds) *TASER® Conducted Electrical Weapons: Physiology and Pathology, and Law,* Springer Kluwer, New York.

Mash DC (2016) 'Excited Delirium and Sudden Death: A Syndromal Disorder at the Extreme End of the Neuropsychiatric Continuum', *Frontiers in Physiology,* 7:435.

Massey T and Verikios G (2019) 'Australia's ice epidemic and the detrimental mental health effects of recent use', Discussion Paper Series, Department of Accounting, Finance and Economics, Griffith University, Brisbane.

Maudsley H (1867) 'Acute mania and acute maniacal delirium', *British Journal of Psychiatry,* 13(61):59–65.

McGuinness T and Lipsedge M (2022) '"Excited Delirium", acute behavioural disturbance, death and diagnosis', *Psychological Medicine,* 52(9):1601-1611.

Michael P (2010) 'Inquest to focus on Taser use', *The Courier Mail,* accessed 20 September 2022.

Michaud A (2016) 'Restraint related deaths and excited delirium syndrome in Ontario (2004–2011)', *Journal of Forensic and Legal Medicine,* 41:30–35.

Mills A (27 April 2016) 'Wagga man victim of ice-fuelled attack from "naked zombie"', *The Examiner,* accessed 10 September 2022.

Morgan MM (2022) 'Contradictions Between Community-Oriented Police Training and Paramilitary Police Training: Implications for Police Recruit Mental Health Response Training', Journal of Police and Criminal Psychology, Springer (online).

Morris S (2019) 'Police policy for sale', *The Appeal,* accessed 07 September 2022.

NITV (2021) 'Spithood potentially had role in Wayne Fella Morrison's death: pathologist', *NITV News,* accessed 26 September 2022.

Obasogie O (2021) 'Excited delirium and police use of force', *Virginia Law Review* 107(8):1545-1620.

O'Halloran RL and Lewman LV (1993) 'Restraint asphyxiation in excited delirium', *The American Journal of Forensic Medicine and Pathology,* 14(4):289–295.

O'Hare M, Budhu J and Saadi A (17 July 2020) 'Police keep using "excited delirium" to justify brutality. It's junk science', *The Washington Post,* 1

Ordoobadi A and Kivlehan SM (2017) 'Excited delirium', *EMS World,* 46(5):26-32.

Pachon A and Abramson TM (2022) 'Excited delirium: The Long Beach integrated medical response', Police 1, Lexipol, accessed 19 September 2022.

Parveen N (01 July 2021) '"Excited delirium": Term linked to police restraint in UK medical guide condemned', *The Guardian,* accessed 05 September 2022.

Peeters R (2015) 'The price of prevention: The preventative turn in crime policy and its consequences for the role of the state', *Punishment & Society,* 17(2):163-183.

Pitts B (30 September 2015) 'Meet police officers trained to respond to mental illness calls', *ABC News* (San Antonio, USA), accessed 27 August 2022.

Pollanen MS, Chiasson DA, Cairns JT and Young JG (1998) 'Unexpected death related to restraint for excited delirium: A retrospective study of deaths in police custody and in the community', *Canadian Medical Association Journal,* 158(12), 1603–1607.

Pratt J (2017) 'Risk Control, Rights and Legitimacy in the Limited Liability State', *British Journal of Criminology*, 57(6):1322–1339.

RCMP (Royal Canadian Mounted Police) (2022) 'Week 24: Puzzle pieces coming together: Excited Delirium Syndrome', accessed 31 August 2022.

RCIADIC (Royal Commission into Aboriginal Deaths in Custody) (1991) 'Final report', Australian Government Publishing Service, Canberra.

RCVMHS (Royal Commission into Victoria's Mental Health System) (2021) 'Final report', Australian Government Publishing Service, Canberra.

RCOP (Royal College of Pathologists) (2020) 'The use of "excited delirium" as a cause of death', *Forensic Science Regulator Guidance,* 231(2):1-7.

Reid J (02 September 2021) 'Elijah McClain's father tells Joy Reid "all Blacks in Colorado" have a fear of police', The Reidout, MSNBC, accessed 16 September 2022.

Remsberg C (2007) 'Is Excited delirium a fake condition invented to whitewash abusive force? A critical look at NPR's recent reports', *Force Science News,* accessed 21 September 2022.

—(2014) 'Controversy sparks anew over alleged risks of prone positioning', *Force Science News,* accessed 21 September 2022.

—(2019) 'New study: More evidence against the myth of "restraint asphyxia"', *Force Science News,* accessed 21 September 2022.

Reuters (22 August 2017) 'Reuters finds 1,005 deaths in U.S. involving Tasers, largest accounting to date', accessed 24 September 2022.

Roach B, Echols K and Burnett A (8 July 2014) 'Excited delirium and the dual response: Preventing in-custody deaths', FBI Law Enforcement Bulletin, accessed 03 September 2022.

Rosenberg S (15 September 2015) 'From asylums to GP clinics: the missing middle in mental health care', *The Conversation,* accessed 09 August 2022.

Saadi A, Naples-Mitchell J, da Silva Bhatia B and Heisler M (2 March 2022) 'End the use of "excited delirium" as a cause of death in police custody', *The Lancet,* 399(10329):1028-1030.

Safer Care Victoria (2022) 'Acute behavioural disturbance', accessed 15 September 2022.

Santo A (06 April 2020) 'As George Floyd died, officer wondered about "excited delirium": Now experts say the controversial diagnosis may become part of the police defense', *The Marshall Project,* accessed 26 September 2022.

SCMH (Select Committee on Mental Health) (2002) 'Mental health services in New South Wales: Final Report', Legislative Council (Chapters 1-5), Sydney, NSW.

Sengstock B and Curtis J (2022) 'Excited delirium syndrome', *Journal of Paramedic Practice,* accessed 02 September 2022.

Sherry A (12 August 2022) 'Cops, paramedics accused in the death of Elijah McClain push arraignment to November', *CPR News,* Accessed 21 September 2022.

Solomon R and de Yoanna M (2020) 'Medics in Colorado dosed 902 people with ketamine for "excited delirium" in 2.5 years', *The Colorado Sun,* accessed 23 September 2022.

Stephens BG, Jentzen JM, Karch S, Wetli CV and Marsh DC (2004) 'National Association of Medical Examiners [NAME] position on the certification of cocaine-related deaths', *American Journal of Forensic Medicine and Pathology,* 25(1):11-13.

Strömmer EMF, Leith W, Zeegers MP and Freeman MD (2020) 'The role of restraint in fatal excited delirium: A research synthesis and pooled analysis', *Forensic Science Medical Pathology,* 16:680-692.

Stuart B and Lawrence C (2007) 'Report on conducted energy weapons and excited delirium syndrome', Royal Canadian Mounted Police.

Szep J, Reid T and Eisler P (24 August 2017) 'How Taser inserts itself into investigations involving its own weapons', Reuters, accessed 11 September 2022.

Szep J, Reid T and Eisler P (2022) 'Shock tactics: The experts', Reuters, accessed 27 September 2022.

Takeuchi A, Ahern TL and Henderson SO (2011) 'Excited delirium', *Western Journal of Emergency Medicine,* 12(1):77–83.

Taylor I (1995) 'Private homes and public others: An analysis of talk about crime in South Manchester in the mid-1990s', *British Journal of Criminology,* 35(2):263-285.

Trexler P (2007) 'Taser sues Summit medical examiner', *Democratic Underground,* accessed 21 September 2022.

Truscott A (2008) 'A knee in the neck of excited delirium', *Canadian Medical Association Journal,* 178(6): 178(6)669-670.

Valentino-DeVries J, McIntire M, Ruiz RR, Tate J and Keller MH, (26 December 2021) 'How paid experts help exonerate police after deaths in custody', *The New York Times,* accessed 10 September 2022.

Venters H (2019) *Life and Death in Rikers Island,* Johns Hopkins University Press, Baltimore.

Vilke GM, DeBard ML, Chan TC, Ho JD, Dawes DM, Hall C, Curtis MD, Costello, MW, Mash DC, Coffman SR, McMullen MJ, Metzger JC, Roberts JR, Sztajnkrcer MD, Henderson SO, Adler J, Czarnecki F, Heck J and Bozeman WP (2012) 'Excited delirium syndrome (ExDS): Defining based on a review of the literature', *Journal of Emergency Medicine,* 43(5):897-905.

Wetli CV and Fishbain DA (1985) 'Cocaine-induced psychosis and sudden death in recreational cocaine users', *Journal of Forensic Science,* 30(3):873-880.

Wikipedia (2022) 'Legal status of ibogaine by country', accessed 14 September 2022.

Wild K, Miskelly G and Wakatama G (05 March 2018) '"A potent, tragic, fatal mix": More than half of people shot dead by NSW Police have a mental illness', *ABC News,* accessed 26 September 2022.

Willacy M (2015) '"Unpredictable, superhuman strength": Frontline paramedics facing violence from ice users say they fear for their safety', *ABC News,* accessed 02 September 2022.

Wright W (14 April 2021) 'Takeaways from Day 13 of the Derek Chauvin trial', *New York Times,* accessed 26 September 2022.

Yeung B (2009) 'Taser's delirium defense', *Mother Jones,* Mar/Apr 2009.