

Restrictive Interventions for People with a Disability Exhibiting Challenging Behaviours: Analysis of a Population Database

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Background People with an intellectual disability whose behaviours are perceived to be of serious harm to themselves or others are at risk of being subjected to restrictive interventions. Prevalence rates are difficult to determine, as most research is unable to draw on the results of population-level data.

Method The current study reports on the use of chemical and mechanical restraint and seclusion in the State of Victoria, Australia, over a 12-month period.

Results The majority of people included were subjected to chemical restraint. The use of restraint was found to be routine rather than a strategy of last resort. Consis-

tent with findings in the UK and USA, those subjected to restrictive interventions were more likely to be young males with multiple disabilities, including autism.

Conclusions Systemic policy and procedural developments are needed to address current use of restrictive interventions, together with a longitudinal study to evaluate the effectiveness, of alternative, non-restrictive strategies.

Keywords: challenging behaviour, human rights, intellectual disability, restraint, restrictive interventions, seclusion

Introduction

Some people with an intellectual disability show behaviours of concern that place the person with a disability or others at risk of serious harm and which can result in damage to property. Depending upon which behaviours are included in jurisdictional specific definitions, prevalence rates for these behaviours of concern are reported to manifest in 4–17% of people with an intellectual disability (Emerson *et al.* 2001; Roberston *et al.* 2005; Holden & Gitlesen 2006; Tyrer *et al.* 2006; Lowe *et al.* 2007; Matson *et al.* 2009). Definitions aside, behaviours perceived by those providing support as harmful to self or others, destructive or disruptive, are likely to result in some form of restrictive intervention that can impact on the liberty of the person with a disability (Emerson 2002; Roberston *et al.* 2005; McVilly 2008), despite skill development and environmental enhancements being the preferred, evidence-based intervention options (e.g. Ball *et al.* 2004; McVilly 2007). These issues are no longer restricted to debates about the relative clinical merits of

such procedures, but rather are now also considered to be a human rights concern (cf. United Nations Convention on the Rights of Persons with Disabilities, 2006; Victorian Charter of Human Rights and Responsibilities Act, 2006).

Those at most risk of being subjected to restrictive interventions include people who show self-injurious behaviour (Emerson 2002; McGill *et al.* 2009), aggression (Sturmeay 2009) and destructive behaviour (McGill *et al.* 2009). In addition, certain types of restrictive interventions appear to be used for specific types of behaviours; for example, McGill *et al.* (2009) found that mechanical restraint is more likely to be used for people who showed self-injurious behaviour.

Prevalence rates of restrictive interventions are difficult to determine. This is partly because restrictive interventions are defined differently across jurisdictions, and the means by which these data are collected also vary (McGill *et al.* 2009). Emerson *et al.* (2000) examined the prevalence rates of restrictive interventions in 500 people with disability who lived in supported residential

facilities in the UK. They found that just over half of the participants were reported to have shown at least one 'moderately serious' or 'severe' form of challenging behaviour in the previous month. The most commonly used restrictive interventions were as follows: (i) physical restraint (used with 44% of people showing moderately to severe challenging behaviour), (ii) sedation (35%) – generally used as a PRN intervention for behaviour, (iii) seclusion (20%) and (iv) mechanical restraint (3%). In addition, they reported that antipsychotic medications were used as a 'treatment' rather than restrictive intervention on a routine or regular basis for 49% of the group showing challenging behaviour.

In a recent review of restrictive intervention use in services in the UK, McGill *et al.* (2009) reported that physical restraint was the most common response, with 28% of their sample subjected to routine physical restraint on a daily or weekly basis. Sturmeay (2009) surveyed the experience of 3904 people with an intellectual disability using a mailed questionnaire completed by service providers. The responses showed that although 80% of service units reported using medication on an 'as required' (PRN) basis and half used personal or mechanical restraints over the previous 6 months in their units, not every client in each unit was restricted.

Sturmeay (2009) reported that, on average, 10% of service users within the units had been secluded. Of these, 81% had also been physically restrained and 51% had been mechanically restrained at some time during the 6 months. It should be noted that the author cautions these data were only collected from NHS and related health service sector providers and might not be representative of other settings such as those provided by Social Services, the private and voluntary sectors. Service settings might therefore influence average incidence rates.

However, average rates of restrictive interventions might not necessarily provide the most informative data because it appears that a relatively small proportion of people are subjected to a large proportion of restrictive interventions (Chaplin *et al.* 2009; Finn & Sturmeay 2009). For example, Finn & Sturmeay (2009) found that in one-day service, 13 people, or 17% of the total group, were subjected to 100% of the restrictive interventions. Analyses of data therefore need to take into account both episodes of restrictive intervention and numbers of individual persons subject to these interventions.

In terms of the type of restraint used, it appears that apart from physical restraint, chemical restraint is among the most common (Emerson *et al.* 2000; Matson & Neal 2009; Sturmeay 2009), with the use of psychotropic medica-

tions the most frequently reported form of chemical restraint (Emerson 2000; Matson & Neal 2009). In addition, it appears that for many people, the use of chemical restraint is a routine procedure, rather than as a PRN or emergency intervention (McGillivray & McCabe 2006). McGillivray and McCabe's Australian study reported that approximately 5% of the people receiving an intellectual disability service were reported to be receiving chemical restraint on a regular basis, with the majority prescribed antipsychotic medication for routine use. In addition, they reported that approximately one-third of the sample was prescribed more than one different type of chemical restraint. It should be noted that the classification of a medication as either a 'restrictive practice' in relation to behaviour or a 'treatment' in relation to a mental health problem remains controversial. In some instances, 'problem behaviour' has been understood as a mental health condition, potentially legitimizing the use of medication as a treatment (cf. Cooper *et al.* 2007). In some jurisdictions where a behaviour of concern is attributed to a psychiatric illness, the use of medication is not considered to be a chemical restraint.

There appear to be several personal and health-related characteristics of people associated with the routine use of restraint. For example, Sturmeay *et al.* (2005) found that people who scored high on irritability and on acting impulsively and had more elimination disorders were more likely to be subjected to restrictive interventions than those who scored lower on these characteristics. McGill *et al.* (2009) found that people with a diagnosis of autism spectrum disorder were more likely to be subjected to seclusion than those without autism.

There have been numerous calls to identify and prioritize resources to more safely and humanely support people who are subjected to restraint and seclusion (Broadhurst & Mansell 2007; McVilly 2008; Sturmeay 2009; Webber *et al.* 2010). In addition to policy development and education in alternative support strategies, one systemic level strategy proposed is that of monitoring and auditing of service practices (Miller *et al.* 2006). Although Sturmeay concedes that it is likely that repeated on-site visits are necessary to induce changes in managers' behaviours, frequent feedback to staff based on service statistics might be effective.

In the State of Victoria (the second most populous state in Australia, with a population of approximately 5.3 million people – Australian Bureau of Statistics, 2008), the recent implementation of the Disability Act (2006) established the role of the Senior Practitioner (Part 3, Division 5). The Senior Practitioner is a specialist in the field of disability whose main function is to

independently monitor, research and educate around the use of restrictive interventions and compulsory treatments in disability funded services. The establishment of the Senior Practitioner provides a unique opportunity to examine the prevalence of restrictive interventions used within government and community sector disability services and, in the longer term, to evaluate the impact of a sector-wide monitoring system. All disability service providers in Victoria providing government-funded services are by law required to have in place an identified Authorised Program Officer who provides approval and reporting of all such practices within their organization. Furthermore, the law requires that the use of specified restrictive interventions (chemical, mechanical restraint and seclusion) is reported to the Senior Practitioner monthly. At the time of this study, there was no requirement in law to report the use of physical restraint.

Using data reported to the Senior Practitioner during the period 1st July 2007–30th June 2008, the purpose of this study was threefold: (i) to provide a baseline measure of the use of restrictive interventions within a single jurisdiction, accounting for both episodes of intervention and number of people subjected to these interventions; (ii) to identify the characteristics of people who are subjected to restrictive interventions; and (iii) to begin to identify the systemic changes necessary to monitor and evaluate changing patterns of restrictive intervention use, as part of a wider strategy of change management intended to reduce the use of restrictive interventions and promote the human rights and dignity of people with disability.

Method

These analyses of a de-identified population database were authorized through the provisions of the Disability Act 2006 and in accord with a protocol approved by the Department of Human Services Ethics Committee. Data reported in this paper were those reported by government and community service organizations (not-for-profit organizations who received government funding) in keeping with their statutory obligations. Reports covered the months of July 2007–June 2008. As of July 1st 2007, there were 152 service providers who had registered to use restrictive interventions. These included all government service providers (organized in eight administrative regions) and 144 community service organizations. The potential client group predominantly consisted of people with an intellectual disability receiving disability services funding from the

government, approximately 0.5% of the population in Victoria (Australian Institute of Health and Welfare, 2009).

Measures and procedure

Every time a restrictive intervention was used when a person was in receipt of a disability service, staff (i.e. staff authorized by the organization to approve restrictive interventions) were required to complete a standard form (either paper or electronic) describing its use. It should be noted that the Senior Practitioner does not have jurisdiction over the use of restrictive interventions in schools, family homes or prisons. Consequently, the reports related mainly to adults with disability and a smaller group of children and adolescents who accessed respite services that did fall within the jurisdiction of the Disability Act 2006. For reporting purposes, consistent with the Disability Act 2006, there were three kinds of restrictive interventions defined: chemical restraint, mechanical restraint and seclusion. As mentioned earlier, the use of physical restraint is not currently mandated for reporting. *Chemical restraint* referred to the use of medications where the primary purpose was to control a person's behaviour. This precluded the use of medications for the treatment of an identified/diagnosed medical illness or condition. *Mechanical restraint* referred to any device (e.g. gloves and socks) that was used to control a person's movement. This precluded devices used for therapeutic purposes or to enable safe transport (e.g. buckle guard on a seat-belt in a car). *Seclusion* referred to the sole confinement of a person with a disability at any hour of the day or night in any room or area where disability services were being provided.

It should be noted that education sessions were run for service providers about what constituted restraint and seclusion and the Office of the Senior Practitioner provided ongoing support to service providers about the 'grey' areas of restraint and seclusion; for instance, whether a medication constituted 'treatment' for an underlying mental illness or a 'restrictive intervention'. In addition, the Office facilitated reviews by psychiatric specialists in developmental and intellectual disability for those people for whom the intended purpose of their medication use was unclear.

For each episode of restrictive intervention reported, staff were requested to provide the following information: (i) demographic information about the person subjected to the restrictive intervention, reported using both mutually exclusive categories such as gender and non-mutually exclusive categories such as disability type

(note: no identifying information was available to the researchers, with a departmental officer responsible for de-identifying all data prior to analyses); (ii) the type of restrictive intervention (chemical, mechanical or seclusion – not mutually exclusive) and type of administration (routine – administered on an ongoing basis, e.g. daily, weekly but reported once a month if it had been used one or more times in that month; PRN – administered in response to an incident when authorized within a behaviour support plan (BSP) and reported at each instance of use; or emergency – administered in response to an incident, but not pre-authorized within a behaviour support plan, and reported at the time of use); (iii) the reason for restraint use (harm to self, harm to others, harm to self and others, property damage with harm to self, property damage with harm to others, property damage with harm to self and others).

Data were in paper-based forms or electronic forms. The paper-based forms ($n = 18265$ or 59% of the sample) were coded into the Restrictive Interventions Data System by several departmental officers. Reliability was established by an independent departmental officer checking 10% of all office-based electronic entries against the original paper-based submissions. Subsequently, entries were found to be 97% accurate. It was not possible to check the accuracy of the direct electronic submissions ($n = 12667$ or 41% of the sample) as these were entered by the disability service provider at the point of service delivery. However, the electronic submission system contained a number of safeguards to minimize data entry error (e.g. menus providing pre-formatted responses from which staff selected appropriate descriptors). Prior to submission to the Restrictive Intervention Data System, all restrictive intervention transactions were subject to scrutiny by a senior manager who was authorized by law to monitor and review the use of restrictive interventions in their organization.

Data analysis

Analyses reported in this paper used whole population data for the period July 2007–June 2008, the first full year of operation of the Restrictive Interventions Data System. Data reported here were those collated in April 2009. The analyses were generally limited to descriptive statistics due largely to the manner in which data had been gathered. In particular, the independence of various groups could not be assumed, as in most instances, individual persons were represented on multiple occasions across the data set in terms of both time intervals (i.e. monthly reports) and the types of restrictive

interventions to which they were subjected. An *Access* data base was used for data management. Tabulations were undertaken using MS-Excel, with additional analyses using SPSS (Statistical Package for the Social Sciences, version 17; SPSS Inc., Chicago, IL, USA).

Results

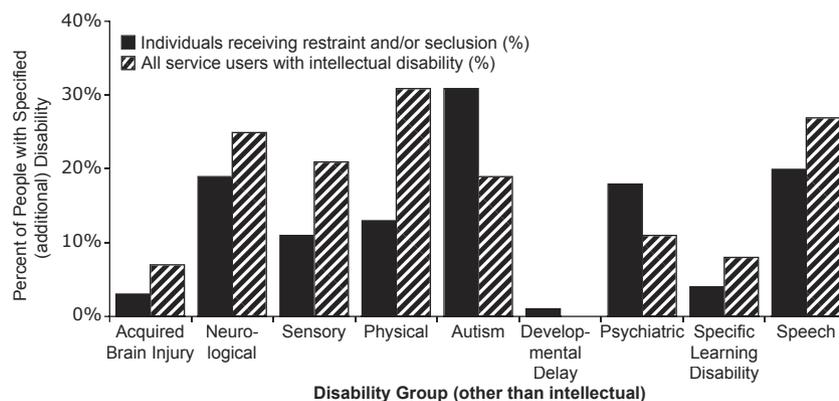
Demographic characteristics of people with a disability

A total of 30 932 episodes of restrictive interventions were reported, relating to behaviour interventions involving some 2102 people during the year June 2007–July 2008. This represents approximately 9% of all persons in Victoria in receipt of a government-funded disability support service who have an intellectual disability (cf. Australian Institute of Health and Welfare, 2009). The proportion of males (65%) reported to be subjected to restrictive interventions was greater than the proportion of males with an intellectual disability receiving a funded service in Victoria (58%) (χ^2 (1, $n = 23258$) = 35.29, $P < 0.001$).

The mean age of people reported as subject to restrictive interventions was 36 years (SD = 15.6 years), compared with the mean age of the people receiving an intellectual disability funded service in Victoria ($M = 31.3$, SD = 16.7 years). However, as noted earlier, anyone living at home or attending schools who did not access respite services would not be reported; therefore, it is not appropriate to conduct any statistical comparison between the age differences of all those known to be receiving a disability service and those reported to the Senior Practitioner. There were 288 people who were 18 years of age or younger (14% of the total group). People aged 18 and younger were subjected to a total of 3554 incidents of restrictive interventions (11% of the total number of restrictive intervention incidents). The majority of people lived in community-based group homes (62%), with the majority of these operated directly by the government service provider (62%).

As can be seen in Figure 1, people with autism or a psychiatric disability were over-represented when compared with the relative proportions of these people who were registered for a funded disability service. People with autism comprised 31% of those reported as subject to restrictive interventions, compared with a base rate of 19% of all persons receiving a funded service reported as having autism; χ^2 (1, 24520) = 208.11, $P < 0.001$, or approximately 62% greater than might have otherwise been predicted. People with a psychiatric disability comprised 18% of those reported as subject to restrictive

Figure 1 Percentage of people subjected to a restrictive intervention by disability type/s compared with the percentage of people registered for a disability service by reported disability type/s. Disability type is not mutually exclusive.



interventions, compared with a base rate of 11% of persons receiving a funded service identified as having a psychiatric disability; $\chi^2(1, 24520) = 39.58, P < 0.001$, or approximately 37% greater than might have otherwise been predicted. People with a speech or neurological impairment were under-represented when compared with people in the population with an intellectual disability receiving a funded service. Speech: 20% compared to a population base rate of 26.5%; $\chi^2(1, 24520) = 49.81, P < 0.001$, or approximately 24.5% less than might have otherwise been predicted and neurological: 19% compared to a population base rate of 25%; $\chi^2(1, 24520) = 39.34, P < 0.001$, or approximately 22% less than might have otherwise been predicted. No other significant differences were found.

Type of restraint

Routine administration was identified for a total of 20 252 incidents (i.e. 65.5% of incidents reported), involving 1974 people (i.e. 94% of those reported). *PRN* administration accounted for 8319 incidents (i.e. 27.0% of incidents reported), involving 573 people (i.e. 27% of those reported). *Emergency* responses accounted for 2361 incidents (i.e. 7.5% of incidents reported), involving 474 people (i.e. 23% of those reported). It should be noted that these administrative categories are not mutually exclusive; that is, a single person could have been subjected to either a single type or multiple types of restrictive intervention. This will be discussed later.

The majority of people were reported as having been subjected to some form of chemical restraint (96%), with 9% subjected to some form of mechanical restraint and 7% subjected to seclusion. These percentages do not add to 100% because some individuals were subjected to multiple types of restrictive intervention. The use of

each of these three types of restrictive practice, as identified in the Disability Services Act (2006), are further analysed below.

Chemical restraint

In the 12-month period, there were 25 578 reports of chemical restraint, involving 2023 people with disability (ranging between 1324 and 1457 persons per month; $M = 1378.5, SD = 41.8$). There were 1309 males and 711 females subject to chemical restraint. (The gender of three people was not reported). A total of 1180 people (i.e. 58.7% of people reported as being subject to chemical restraint) were subjected to more than one type of chemical restraint in any one-month period (see Table 1). This consisted of 49% of children compared with 61% of adults who were reported to be subjected to chemical restraint. Overall, the incidence of chemical restraint varied from 1932 to 2312 reports per month.

As shown in Figure 2, there were fluctuations in the monthly reporting of the use of all three forms of chemical restraint; however, only emergency chemical restraint showed significant monthly change increasing in the second half of the year. This trend is possibly attributable to a combination of changes to the electronic reporting system and the implementation of education programmes. However, longer-term analysis is required to interpret this trend more comprehensively.

As shown in Table 2, the most commonly used medications for chemical restraint were atypical antipsychotics with half of all people subjected to chemical restraint being administered atypical antipsychotics (e.g. risperidone, olanzapine and quetiapine fumarate). (Percentages do not add to 100% because 58.7% received more than one type of chemical restraint). Additional medications in common use included antidepressants (e.g. sertraline hydrochloride, fluoxetine hydrochloride

Table 1 Number of people reported to be receiving one or more specified chemical restraint medications by age group

Number of medications ¹	Less than 18 years	18 years and over	Age missing	Total	Per cent (%)
One	137	676	5	818	58.7
Two	87	432	3	522	26
Three	26	300	4	330	16.5
Four	17	162	0	179	9
Five	2	79	0	81	0.04
Six	0	37	0	37	0.02
Seven	1	23	0	24	0.02
Eight	1	7	0	8	0.004
Nine	0	5	0	5	0.002
Ten or more	0	1	0	1	0.0005
Total number of people receiving a specified chemical restraint ²	271	1722	12	2005	100

¹Number of different types of medications received by individuals as chemical restraint (that is, for controlling behaviour) during the year July 2007–June 2008.

²Where a specific name for the chemical restraint used was provided.

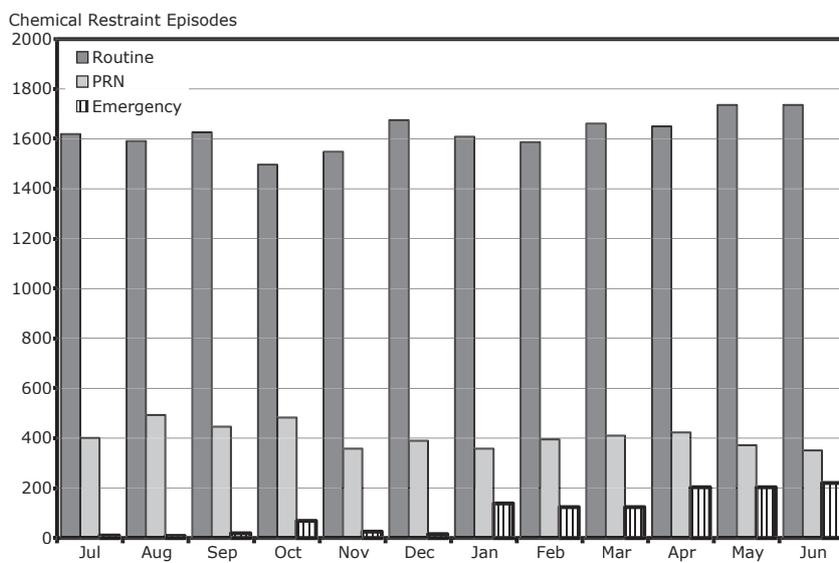


Figure 2 Number of incidents of chemical restraint reported monthly, according to the type of administration (routine, PRN or emergency).

and citalopram hydrobromide), mood stabilizers (e.g. sodium valproate, carbamazepine, lithium carbonate and lamotrigine) and typical antipsychotics (e.g. chlorpromazine hydrochloride, haloperidol, pericyazine and thioridazine hydrochloride). Benzodiazepines were also in common use (e.g. diazepam, temazepam and oxazepam).

The reasons reported for having used chemical restraint are shown in Figure 3. This figure shows that the main reasons for chemical restraint were to prevent harm to self (20 571 incidents) and harm to others

(19 863 incidents). To a lesser degree, harm to property was also reported as a reason for using chemical restraint (12 489 incidents). However, these reports were not mutually exclusive, as multiple reasons could be reported for the use of the same restrictive intervention at different reporting times.

Mechanical restraint

In the 12-month period, there were 3476 reports of mechanical restraint, involving 190 people with disabil-

Table 2 Types of medications and proportion of people

Medication	Number (people) ¹ (%)
Antiandrogen	26 (1)
Anticholinergic	52 (3)
Antidepressants	673 (33)
Atypical antipsychotics	1078 (53)
Benzodiazepines	534 (26)
Hormonal	22 (1)
Intramuscular injections of antipsychotic medications	20 (1)
Menstrual suppression	57 (3)
Mood stabilizers	654 (32)
Psychostimulants	156 (8)
Sedative ²	26 (1)
Typical antipsychotic medications	622 (31)
Other medications ³	254 (13)

¹Individual clients may be reported as receiving more than one class of medication in the period. Where this happens, they are counted once for each type of medication received and once within the total.

²Not including any medication with sedative effects mentioned in the table (e.g. antipsychotic).

³Other medications include those medications that are clearly defined as a chemical restraint, e.g. aspirin and Panadol.

ity. These reports involved between 63 and 83 persons per month ($M = 70$, $SD = 6.37$). However, over the 12 months, there were almost twice as many males ($N = 120$) compared to females ($N = 70$) who were mechanically restrained. Males aged between 15 and 34 were those most frequently subjected to mechanical restraint involving 56% of the group of people subjected

to mechanical restraint. Approximately one-third of people subjected to mechanical restraint had a diagnosis of autism (34% compared to the base rate of 19%), a physical disability (36% compared to a base rate of 31%), a speech impairment (32% compared to base rate of 26.5%) and/or a neurological impairment (32% compared to base rate of 25%). It should be noted that people could have more than one disability reported.

Overall, the incidence of mechanical restraint varied from 216 to 341 reports per month. As can be seen in Figure 4, these trends are most evident in the second half of the 12-month (see Figure 5) reporting period. As with the reported use of chemical restraint, these trends are possibly attributable to a combination of changes to the electronic reporting system and the implementation of education programmes. Longer-term analysis is required to interpret these trends.

As shown in Table 3, the most common forms of mechanical restraint included the use of belts, harnesses, splints, bodysuits and gloves. Belts, harnesses and straps were used for the single largest group of people ($n = 70$) on 742 occasions, but gloves and socks were used most frequently on 1209 occasions, but involving only 21 people. Splints and braces also showed relatively high frequency use (946) for a small group of people ($n = 27$). Here, it should be noted that on further investigation, there were 82 incidents where seatbelt buckles were reported as a mechanical restraint (included under 'other'). These would not ordinarily be considered mechanical restraint according to the definition used in the Disability Act (2006), but appeared to have been reported owing to a misinterpretation of the Act's requirements.

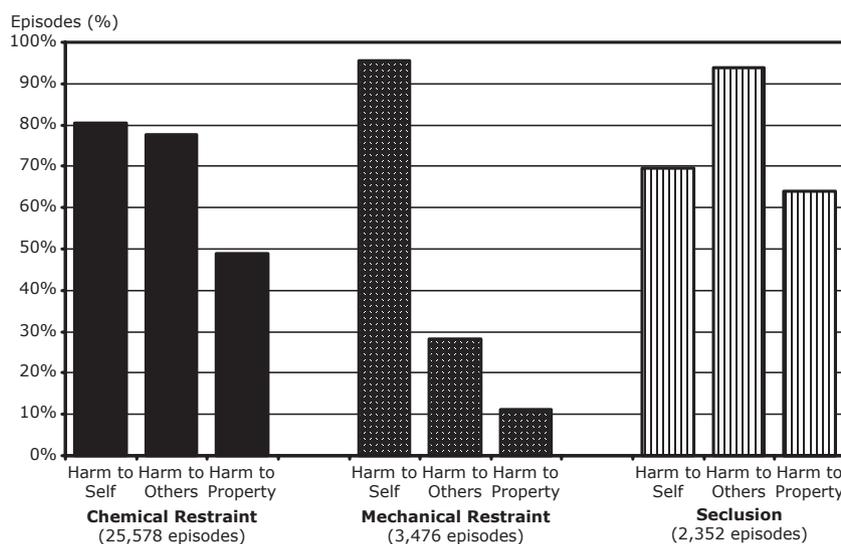


Figure 3 Individuals reported to be receiving restraint and/or seclusion by restraint type and reason for restraint.

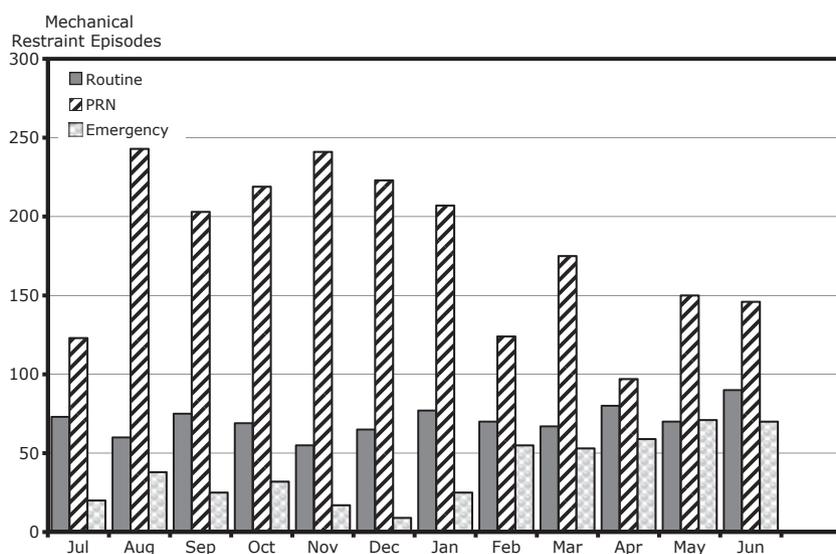


Figure 4 Number of incidents of mechanical restraint monthly, reported according to the type of administration (routine, PRN or emergency).

Table 3 The number of people subjected to different types of mechanical restraint and associated number of restraint episodes

Restraint type (not mutually exclusive)	People (%)	Episodes (%)
Bedding/linen	8 (4)	48 (1)
Belts/harnesses/straps	70 (37)	742 (21)
Clothing: distal (hand, foot coverings etc.)	21 (11)	1209 (35)
Clothing: headgear (helmets etc.)	6 (3)	85 (2)
Clothing: restrictive (bodysuits, jumpsuits etc.)	24 (13)	171 (5)
Splints and braces	27 (14)	946 (27)
Wheelchair	7 (4)	39 (1)
Other (multiple)	3 (2)	56 (2)
Other (single)	65 (34)	273 (8)
No details	31 (16)	43 (1)
Total	190 (100)	3476 (100)

As can be seen in Figure 3, some form of self-harm (3321 incidents) was the main reason for the use of mechanical restraint, followed by harm to others (984 incidents) and harm to property (394 incidents). As with instances of chemical restraint, these reports were not mutually exclusive.

Seclusion

In the 12-month period, there were 2352 reports of seclusion, involving 147 people with disability. These incidents involved between 34 and 51 people each

month ($M = 43.5$, $SD=6.1$). There were 96 males and 50 females subjected to seclusion across the 12 months. The majority of males who were subjected to seclusion (66%) were aged between 15 and 24 years of age. The majority of females who were secluded (68%) were aged between 25 and 44 years of age. Those persons subjected to seclusion were generally reported to have one or more of the following disabilities: autism (39% compared to a base rate of 19%), psychiatric disability (27% compared to a base rate of 11%), speech impairment (23% compared to base rate of 26.5%) and neurological impairment (20% compared to the base rate of 25%). For those people who reported it, seclusion tended to occur in the person's bedroom, the backyard, another room in the house (e.g. lounge room) or a specific seclusion room.

Overall, the reports of seclusion were observed to vary across the 12 months, from 137 to 268 reports per month. Reports of emergency and PRN seclusion also fluctuated across the 12 months (see Figure 5). The reason for the fluctuations in both emergency and PRN is not entirely clear but generally follows the same trends that were found for chemical and mechanical restraint with decreases in PRN and increases in emergency in the latter 6 months of the year.

The reasons reported for having used seclusion are shown in Figure 3. This figure shows that harm to others was the main reason given for the use of seclusion (2209 incidents), followed by harm to self (1635 incidents) and harm to property (1502 incidents). As with reasons reported for the use of chemical and mechanical restraint, these reports were not mutually exclusive.

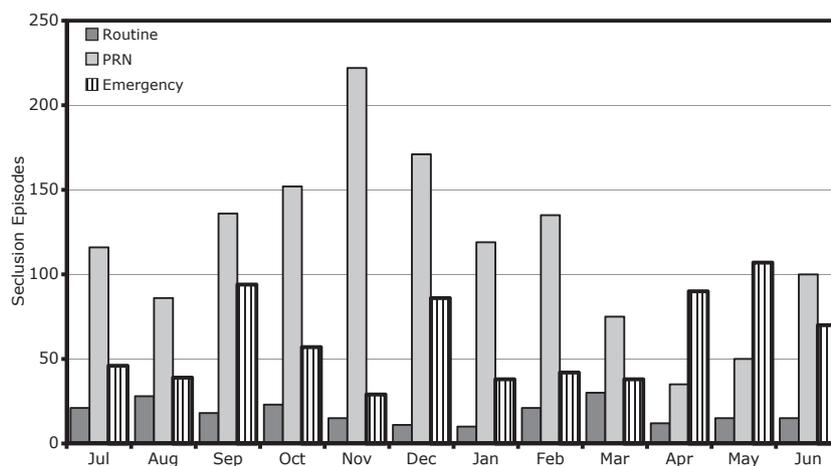


Figure 5 Number of incidents of seclusion monthly, reporting according to the type of administration (routine, PRN or emergency).

Reported use of multiple restraints and continuing use of restraints

Although most of the people (89%) were subjected to only one type of restrictive intervention, 225 people were subjected to more than one type of restrictive intervention, and the majority of this group ($n = 181$) were reported as having been subjected to both chemical and mechanical restraint or chemical restraint and seclusion. Another 33 people (33/225 – 15%) were reported as having been subjected to all three types of restrictive intervention. The majority of people (64%) who were subjected to multiple restrictive interventions had, in addition to a reported primary diagnosis of intellectual disability, some combination of the following diagnoses: autism (40% compared to a base rate of 19%), psychiatric illness (23% compared to a base rate of 11%) and speech impairments (21% compared to base rate of 26.5%).

For the 2102 people reported to have been subjected to any one or combination of the three restrictive interventions specified in the Disability Act 2006, 1,101 (52%) were the subject of regular reporting for, at least 10 months of the 12-month reporting period. A further 441 people (21%) were the subject of regular reports extending continuously for up to 3 months at a time.

Discussion

This paper reports on the use of three forms of restrictive interventions in Victoria, Australia: chemical restraint, mechanical restraint and seclusion. The analysis is based on a population sample using 12 months of data reported as a statutory requirement for both government services and community service organizations

during the year July 2007–June, 2008. It reports both incidents of restrictive interventions and numbers of persons subjected to these practices. The purpose of the analysis was threefold: (i) to provide a baseline measure of the reported use of restrictive interventions within a single jurisdiction, accounting for both episodes of intervention and number of people subjected to these interventions; (ii) to identify the characteristics of people who are subjected to restrictive interventions; and (iii) to begin to identify the systemic changes necessary to monitor and evaluate changing patterns of restrictive intervention use, as part of a wider strategy of change management intended to reduce the use of restrictive interventions and promote the human rights and dignity of people with disability.

A total of 2102 people were reported to have been restrained and/or secluded during the 12-month period. These individuals constituted approximately 9% of those people who had an intellectual disability who were receiving a funded disability service. This figure falls at approximately the mid-point of the range for rates of the restrictive interventions identified in several other studies (Emerson *et al.* 2000; Roberston *et al.* 2005; Holden & Gitlesen 2006; Tyrer *et al.* 2006; Lowe *et al.* 2007; Matson *et al.* 2009). It should be noted that the current study did not include instances of physical restraint, as these were not required to be notified to the Senior Practitioner.

The most common restrictive intervention used was chemical restraint on a routine basis. Episodes of chemical restraint accounted for 83% of all incidents reported and involved 96% of all persons reported as subject to restrictive intervention. The proportion of people who were reported to be subjected to chemical restraint (i.e. medication administered to modify behaviour, without

reference to a specific diagnosis) was approximately 8.7% of the population of people with an intellectual disability receiving a funded disability service in Victoria. This is greater than the 5 and 4.5% reported in an earlier Victorian study by McGillivray & McCabe (2006). However, McGillivray and McCabe based their findings on the analyses of two cross-sectional databases of $n = 762$ (collected in March 1993) and $n = 873$ (collected in March 2000), both of which consisted of data collected prior to the instigation of the most recent mandatory reporting procedures.

Mechanical restraint accounted for 11% of all incidents reported and involved 9% of all people reported as having been subjected to a restrictive intervention. Seclusion represented 7% of incidents reported and involved 7% of persons reported as having been subject to a restrictive intervention across the 12 months. Not surprisingly, most reports of mechanical restraint and seclusion were administered as PRN response or in an emergency rather than a routine use. Seasonal differences were also found for both mechanical restraint and seclusion but show a similar trend over the year with decreases in PRN and increases in emergency use of restrictive interventions in the latter 6 months of the year. This trend was most likely due to a system change that occurred in June, which meant that unless the person with a disability had a current behaviour support plan, the restrictive interventions had to be entered as an emergency.

There were more males than females subject to restrictive interventions. This proportion of males was 7% higher than that in the population of people with an intellectual disability receiving a funded service in Victoria. This pattern of experience could be due to a greater tendency of males to exhibit more outwardly aggressive or destructive behaviours than females (cf. McClintock *et al.* 2003) and in turn elicit more restrictive responses from staff. Alternatively, it might be that it is perceived as socially more acceptable to use restrictive interventions, such as restraint or seclusion, on males than on females. Having a better understanding of the relationship between gender and the use of restraint and seclusion could inform policy and staff development. However, the current data do not allow for conclusions to be made.

More adults than children were reported to be subjected to restrictive interventions; however, it should be noted that only children who received a disability funded service under the Disability Act 2006 were the subject of reports to the Restrictive Intervention Data System. Children either living at home or attending

school and subjected to restrictive interventions may not have been reported. For this reason, there needs to be a greater integration of data collection across child and adult services.

All people were reported to have either an intellectual disability and/or an acquired brain injury, and the majority of people (73%) were reported to have more than one disability. The most commonly reported secondary disability of those subject to restrictive intervention was autism. Overall, 31% of people subjected to restrictive interventions were reported to have autism. This figure is disproportionately larger than the 19% of people receiving a funded disability service in Victoria who are identified as having autism. The reported proportion of those with diagnosed psychiatric illness subject to restrictive interventions (18%) was also higher than the overall proportion of people in receipt of a funded disability service reported to have a diagnosed psychiatric illness (10.6%). Here though, the rates of diagnosed psychiatric illness among people with intellectual disabilities have been documented at 31.7% in a population database for Western Australia (Morgan *et al.* 2008), which would be consistent with reports from other jurisdictions. It is possible that the current data collection system in Victoria underestimates the prevalence of psychiatric illness among people with intellectual disability. Indeed, it is possible that the figures are likely to be a conservative estimate of the physical and mental health needs of this particular group because many health-related conditions are currently underdiagnosed in people with an intellectual disability (Lennox *et al.* 2007), and this includes the prevalence of autism in adolescents with an intellectual disability (Bryson *et al.* 2008). Conversely, it is also possible that the current data overestimate the prevalence of chemical restraint as at least some of those chemically restrained may in fact have an unidentified psychiatric diagnosis. In sum, and consistent with other research reported in the UK and USA, people who were subjected to restraint and/or seclusion are on the whole people who have high and complex health and support needs.

'Harm to others' was the major reason reported for services employing seclusion, whereas 'harm to self' was the major reason reported for services employing chemical and mechanical restraint. The high incidence of mechanical restraint in response to self-injurious behaviours is consistent with the findings of McGill *et al.* (2009). The prevalence of self-injurious behaviour in persons with intellectual disability is estimated at between 4 and 14% (Oliver 2008), with the incidence increasing with the assessed severity of disability. The

issue of restraint in situations involving people who engage in stereotypy and self-injurious behaviours requires specific attention. This area includes a complex and emerging literature concerning behavioural phenotypes that requires a biobehavioural understanding of both the genesis of behaviour and appropriate response strategies (Rapp & Vollment 2005; Barrera *et al.* 2007; Hall *et al.* 2008). Also, it needs to be noted that self-injurious behaviours not only cause harm to the person with disability, but also cause significant psychological distress to staff providing support (Duperouzel & Fish 2007). For these reasons, educational strategies for staff and organizational procedures governing the use of restrictive interventions need to accommodate appropriate preventative and reactive responses where self-injurious behaviours present and persist.

Limitations of the study and future directions for data collection and analysis

There were several limitations to this study. First, the administrative environment in which these data were collected was subject to a number of complications. Data were limited to restrictive interventions used by government-funded disability services (government agencies and funded community service organizations), but do not include restrictive interventions used in family homes, schools or prisons. In addition, data were collected during the first year of operation of a new disability act, and service providers had many changes to process in a short period of time. On review of individual cases, departmental officers reported some misunderstanding among service providers concerning definitions of restrictive interventions and associated reporting requirements. The mistaken reporting of seat-belt buckles is one example where an intervention was reported, but was in fact not a reportable intervention for the purposes of the Disability Act. Similarly, there was anecdotal evidence of confusion over the requirements whether to report the use of some medications. This was in part attributable to the fact that it was not a requirement to report specific medications *per se*, but rather to provide reports on the basis of the circumstances under which medications were used (i.e. reportable if used to control a person's behaviour, but not reportable if used as a medically sanctioned treatment for an identified diagnosis). Anecdotal reports suggested that many support staff, who were responsible for lodging restrictive intervention reports, were not necessarily equipped with knowledge of medications sufficient to make these determinations. Also, it was not possible

to check the accuracy of data entered at the point of service delivery by support staff. Future studies need to evaluate the impact of education and training about restrictive interventions and their impact on both the lodging of reports and, more importantly, professional practices relating to the use of these interventions.

A second limitation is that data were collected across different service types, the service context of which could have skewed reporting. For example, accommodation and day support services would ordinarily have regular and on-going engagement with clients and, consequently, established procedures to prevent or manage behaviours of concern (i.e. behaviour support plans). In contrast, this same level of knowledge and preparedness need not be the case for respite services, which usually only accommodate people on an episodic, short-term basis. Future analyses could benefit from the delineation of service type as a possible environmental setting influencing the use of restrictive interventions.

A third limitation relates specifically to the reporting of routine restrictive interventions. Routine interventions were only required to be reported as a single episode on a monthly basis, regardless of their actual frequency of use across the month. The topography of use of routine restrictive interventions remains unknown.

Fourth, data accounting for the use of *physical restraint* were not available. Physical restraint was not a defined restrictive intervention in the Act and consequently was not subject to mandatory reporting. Given that Emerson *et al.* (2000) and McGill *et al.* (2009) found physical restraint to be the most commonly reported restrictive intervention, it would be important to examine the use of physical restraint in the future.

Fifth, the variables captured in the database, like most other databases established for statutory surveillance, were generally limited to basic demographic characteristics of clients and details necessary for monitoring compliance with statutory obligations. Many individual characteristics that could feasibly be associated with a person's behaviour support needs were not collected by Restrictive Interventions Data System. For example, it was not possible to identify people according to core indicators of their support needs, such as skills and abilities in relation to self-care, mobility, communication, interpersonal interactions, learning and applying knowledge, participation in education, community and civic life, domestic life and work skills (cf. Australian Institute of Health & Welfare, 2009). Similarly, it was not possible to identify people according to standardized measures of cognitive ability or adaptive behaviour (cf. AAIDD, 2010). This level of analysis would have

required linking the data collected on Restrictive Interventions Data System with individual service documentation and behaviour support plans which is recommended for future data collection.

Finally, these data tell us nothing of the service context in which the various restrictive interventions were used. Given the long established importance of the service environment as mediating client behaviour (cf. LaVigna *et al.* 1994; Carr, *et al.* 1999), it is possible that the service environment also plays an important part in mediating and influencing staff behaviour and their use of restrictive interventions and other behaviour support practices (i.e. acting as an authorizing environment). Future data analyses could be enhanced if it were possible to link reports of the use of restrictive interventions, and other behaviour support practices, to a range of environmental, service and staffing variables.

In conclusion, notwithstanding the limitations, these population data provide a baseline measure of the use of chemical restraint, mechanical restraint and seclusion in one state of Australia. The number of people subjected to restraint and seclusion is generally consistent with other findings from UK and USA. They indicate that the most widely used form of restraint is chemical restraint and that this is administered on a regular routine basis (cf. Emerson *et al.* 2000). Furthermore, these data highlight that those most at risk of being subject to restrictive interventions are younger males with multiple disabilities and in particular autism. These findings are consistent with those of McClintock *et al.* (2003), in their meta-analytic study of risk markers associated with challenging behaviours in people with intellectual disabilities. Finally, the current analyses demonstrate the utility of population-level surveillance, to both monitor service systems and inform policy and service developments, and suggest future enhancements for these surveillance systems.

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