

The evidence base for the management of imminent violence in learning disability settings

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Contents

Authors	4
Introduction	5
Method	7
Results: review of research	10
Conclusions	34
Appendix I: Basic search strategy	38
Appendix II: Definitive search terms	39
Appendix III: Further search terms	40
References	41

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Introduction

'The true principles of managing the insane in a *psychologically sensitive manner* are also well understood ... I mean a kind of supervision adapted to the danger of their madness, the *prevention of dangerous consequences* of their impetuous outbursts *without any mistreatment* ... If a madman suddenly experiences an unexpected attack and harms himself ..., the director – always mindful of his maxim to control the insane *without ever permitting that they be hurt* – would *present himself in the most determined* and threatening manner but without carrying any kind of weapon ... At the same time the servants converge on him at a given signal, from behind or sideways, each seizing one of the madman's limbs ... Thus they carry him to his cell while thwarting his efforts and chain him if he is very dangerous or merely lock him up ... The *employers are expressly forbidden to retaliate even if they are hit.*' [authors' italics]

Philippe Pinel, 1793, translated by Weiner (1980)

The principles for the management of imminent violence among people who have mental health problems remain the same today as postulated by Philippe Pinel over 200 years ago. The American Psychiatric Association (Tardiff, 1999) guideline suggests that the use of restraint in the management of imminent violence in a psychiatric setting should be geared to prevent imminent harm to the patient and/or others, if other means are not effective and appropriate, and to prevent serious disruption of the treatment programme or significant damage to the environment. In the UK, the Department of Health (2002) guideline also adds that the management of imminent violence within a mental health setting should be done within the legal framework, in the best interests of the patients, using the least restrictive method to minimise harm to patients and staff. The management of imminent violence should not be carried out in isolation, but should be implemented within the context of an overall care plan for the person.

The Royal College of Psychiatrists (1998) produced guidelines (Occasional Paper OP41) for the management of imminent violence in mental health services. In 2001, the College Research Unit (CRU) decided to develop a similar guideline for the management of imminent violence in learning disability settings and also carry out a multicentre national audit on this topic. Maureen McGeorge and Kim McLellan led the project on behalf of the CRU. They approached the Royal College of Psychiatrists' Learning Disability Faculty to help them with the project, in particular with establishing the evidence base for the topic. As the lead of the 'Evidence-based Practice' group in the Learning Disability Faculty, Professor Shoumitro Deb was asked by the Faculty to help the CRU on this project.

The evidence base for the subject was subsequently created with the help of the Department of Information Services in the University of Wales College of Medicine (Dr Alison Weightman, the Deputy Director of the centre, and Katherine Roberts, the Systematic Reviewer) and Professor Shoumitro Deb. We held a stakeholder meeting in Cardiff in the summer of 2001 in order to develop guidelines and audit criteria for the management of imminent violence in learning

disability settings, based on evidence and consensus. The scoping meeting was chaired by Professor Shoumitro Deb and was attended by the representatives from the CRU (Maureen McGeorge and Kim McLellan), the Department of Health (David Ellis), the British Institute of Learning Disabilities (BILD) (Chris Harris), a forensic psychiatrist (Dr Susan Johnston), the University of Wales College of Medicine (Alison Weightman and Katherine Roberts), the manager of the local Intensive Support Service (Tony Doyal), a clinical psychologist, a social worker, a parent of a person who has a learning disability, a clinical director of a local learning disability National Health Service (NHS) trust, a nurse practising in the field of learning disability, a pharmacist with a special interest in the field of learning disability, a care manager of a home for people with learning disabilities, and a representative of the mental health charity Mencap.

In this Occasional Paper we present the evidence base on the topic, the literature search for which was updated until February 2003. The CRU has conducted its four-stage national audit on the topic and is now analysing the data. We have presented the evidence under headings such as 'the environment', 'staff training', 'organisational issues', 'physical intervention' (including seclusion) and 'rapid tranquillisation'. At the beginning of each section, we state the hypotheses that were drawn from Occasional Paper OP41 (Royal College of Psychiatrists, 1998), on which our search for the evidence was based.

Method

Development of search strategies

Search methods

We decided that the information research process should include:

- a literature search
- follow-up research from a list given by a specialist in the field (David Allen, clinical psychologist, Cardiff)
- research and location of documents published by councils, authorities and other institutions, as well as periodical articles.

Literature search

We chose databases for their relevance to the subject area to be covered:

- Medline
- PsycInfo
- Embase
- Cochrane Library Database.

Sample searches

In order to be able to set up the initial search strategy, we searched various sources to acquire a list of keywords relevant to the subject. We carried out a basic PsycInfo search (see Appendix I).

We compiled a further list of search terms, combining the results of this search with a list of terms from other sources:

- 'silver-platter' terms used in the original publication
- terms from the Clinical Guidelines – a series of papers ordered between May and October 1997 for the publication of Occasional Paper OP41 (Royal College of Psychiatrists, 1998), provided by Maureen McGeorge
- terms from existing audit guidelines (recommended by David Allen)
- MeSH headings from the chosen electronic databases.

We developed a list of terms that could be roughly divided into four sections:

- aggression and violence
- learning disabilities
- design/architectural terms
- treatment – therapeutic and emergency terms.

Database searching

We developed a definitive strategy from the searches and the lists above (see Appendix II) and applied it to the following databases:

- Medline
- PsycInfo
- Embase
- the Cochrane Library Database (which cannot withstand long strings of search terms in the way that the other databases can, so we carried out searches on it in groups of two or three terms at a time).

Table 1 Selection of abstracts and papers

Action	Number of papers
Searches of databases and bibliographies and contact with experts	c.1500
Review of citations and abstracts for relevance and design	935
Review of papers for relevance and design	110
Critical appraisal of papers by review team	103
Critical appraisal of papers by working group	96

David Allen's lists

As well as the database search results, we also checked the bibliography used in the BILD document (edited by David Allen). We found some of those listed in one or other of the electronic databases, others were new to the search process. We located and added the latter to the papers deemed suitable for review.

Location of relevant information from other sources

Some information relevant to these guidelines has been published elsewhere, for example by the Home Office Prison Department, the Scottish Office Research Unit and various county council social services divisions, mainly as in-house documentation as part of the organisation's own research. Many of these documents were provided free of charge following letters and telephone calls to the relevant source. Interest was expressed on many occasions as to the nature of and reason for this project.

Ordering of papers

We compiled a comprehensive list of relevant articles and papers both from the electronic database searches and from the printed list (from David Allen) and passed this over to one author (S.D.). We then chose papers for review that were obtained from several sources:

- Duthie Library, University of Wales College of Medicine

- Postgraduate Library, Whitchurch Hospital, Cardiff
- British Library Document Supply Centre, Boston Spa
- Papers that were located at individual sources (see above), which were sent directly to one author (K.R.) for review.

Further searches

Later in the project we required further searches to trace additional papers on acute drug treatment. We set up a basic search strategy on Medline and the ClinPsych database (see Appendix III). (We used the ClinPsych database to carry out this search because the PsycInfo database was temporarily unavailable at the time.) We found 554 papers, of which approximately 200 were considered relevant in their abstract form. We chose 14 of these from their abstracts, obtained in the same way as before.

The appraisal process

Abstract summaries

As each paper arrived, one author (K.R.) made a summary from the abstract. This aided the process of dividing the papers into the relevant subject groups within the guidelines. These were:

- acute drug treatment
- practices of control and restraint, and seclusion
- environmental factors
- staff training in the contexts of management of aggressive behaviour, control and restraint, and behavioural issues
- management, policy and planning issues.

Method of appraisal

On initial inspection, we placed each paper into one of five categories, depending on the nature of the paper and what was being discussed. The five categories were taken from the template used for Critical Appraisal by the Health Evidence Bulletins Wales team (<http://hebw.uwcm.ac.uk>):

- I systematic review, including at least one randomised controlled trial
- II randomised controlled trial (RCT)
- III other experimental study
- IV observational study
- V expert opinion.

We (K.R. & S.D.) further summarised each paper and appraised the results, and compiled five tables, one for each of the subject groups described above. The tables include the evidence type for each paper and a summary of the methods and results where appropriate (see Results chapter).

Results: review of research

Control and restraint, seclusion and management of aggressive behaviour

Hypotheses formed to structure the research (from OP41)

- Restraint, when skilfully applied by trained and supervised staff according to monitored protocols and in the context of other methods of care, is an effective and safe means of coping with overtly violent behaviour.
- When properly used and explained, restraint can be acceptable to both users of services and staff.
- Seclusion is unnecessary if restraint is properly applied in association with other methods of good clinical practice.

Research appraisal

The 27 documents reviewed are summarised in Table 2.

Table 2 Practices of control, restraint and seclusion (27 documents)

Reference/ design	Focus	Summary of findings
Allen, 1999 (type III evidence)	A 6-year natural group comparison designed to look at potential differences between two groups of people: one experiencing placement breakdown ($n=14$) and one that was successfully maintained ($n=33$). Three forms of data were collected and assessed in relation to these two groups	The two groups had almost identical age ranges and there were few behavioural or psychiatric differences. There was no significant difference between the mean Psychopathology Inventory for Mentally Retarded Adults scores of each group (maintained group range 2–30, breakdown group 7–27). On the Disability Assessment Schedule, differences were found only relating to frequency ($P<0.02$) and severity ($P<0.01$) of behaviours. Carers in the breakdown group were also significantly less likely to have received training in emergency management techniques
Biersdorff, 1994 (type IV evidence)	Observational study. Third-party reporting of injury or illness incidents was used to estimate the incidence of pain insensitivity or indifference	An altered pain threshold was noted in 48% and elevated threshold in 25% of 123 individuals with disabilities. These risk avoidable death and increased physical disability as a result of failure to recognise and respond to illnesses and injuries

Chan <i>et al</i> , 1997 (type III evidence)	Experimental study to determine if 'hobble' or 'hogtie' restraint positions can result in respiratory dysfunction. Controlled trial in which 15 healthy men (aged 18–40 years) took exercise for a measured period, followed by a period in restraint. Breathing patterns and blood oxygen were monitored	The restraint position resulted in a restrictive pulmonary function pattern but did not result in clinically relevant changes in oxygenation or ventilation
Dowson <i>et al</i> , 1999 (type IV evidence)	Evaluation of incidents involving both 'serious' and 'mild' injury in general psychiatry and learning disability settings; 384 incidents of violence were evaluated by interviews with staff and the examination of records. Each incident was classified and then judged	Results demonstrated that recording of violent acts towards the self are often inadequately expressed or details are omitted. Often mild incidents turned out to be serious. Also, there was deficiency in documentation of incidents, in training of staff in physical restraint techniques, and in policies for victim support
Duncan <i>et al</i> , 1999 (type IV evidence)	A study that measured differences in social skills between four groups of individuals with severe learning disabilities. The comparison groups were people who showed self-injurious behaviour, aggression, both, and neither. Social skills were measured using the Matson Evaluation of Social Skills for Individuals with Severe Retardation	Results indicated that individuals displaying maladaptive behaviours showed a restrictive range of social behaviours compared with the control groups
Edwards, 1999 (type IV evidence)	Qualitative study exploring how 11 staff members evaluated the methods of physical restraint within a learning disability setting. A wide selection of staff was used. Staff interviews were transcribed and analysed	The main themes that emerged were the teamwork, with clear responsibility for each member of staff involved in the restraint process, practice and training, communication with the patient, and risk assessments. Conclusions were that staff should physically interrupt aggressive events before they got out of hand; hence physical restraint would not be the last resort.
Emerson, 1998 (type IV evidence)	Book chapter providing guidelines for working with challenging behaviour	Focuses on aggression, disruption and self-injurious behaviours. Prominence shown in behavioural models and behavioural approaches to assessment and intervention are demonstrated

Flannery <i>et al</i> , 1998 (type III evidence)	This is a replication study of effectiveness of the Assaulted Staff Action Programme to address the psychological sequelae of patient assault on psychiatric healthcare staff in three state hospitals in the USA	The study showed a significant decline in the assault rates during the first quarter after implementation and no additional decline in the next three quarters
Guthiel, 1984 (type V evidence)	A review of nine descriptive studies on the use of seclusion in psychiatric units. None of these was an experimental study. The author highlighted the lack of empirical evidence of the effectiveness of seclusion	Author considers seclusion as an event of multivariate aetiology. The frequency of seclusion is reduced with an increased number of staff, increased number of experienced senior staff, increased number of male staff, increased staff morale and sense of security, and availability of alternatives. The rate of seclusion is higher among young, male, acutely disturbed patients with schizophrenia or mania
Harris, 1996 (type V evidence)	A non-systematic review of 25 published reports concerning the use of physical interventions	The author concludes that there are numerous (often poorly understood) processes that contribute to the outcome associated with restraint. There are (negative) reinforcing consequences for staff who use restraint procedures in service settings, and both staff and patients risk injury, especially from emergency or unplanned restraint
Hill & Spreat, 1987 (type IV evidence)	The rates of staff injury were evaluated at a 284-bed facility. All study participants were direct care staff members ($n=465$). Data were collected over two 6-month periods of all personal and mechanical restraint procedures. Information was also taken from standard reporting forms and procedure logs	Results showed a reduction in the use of restraint. Overall rate of staff injury attributable to contingent restraint was low, though costs associated with certain injuries were substantial. Mechanical restraint incurred less risk to staff than personal restraint, and planned restraint was safer than emergency use of restraint
Jacobson & Ackerman, 1993 (type IV evidence)	Study reports on the extent that pharmacological and behavioural consequences occur in the developmental services system of one US state: a population of 31 000. Subjects were learning-disabled people aged 22 years and over. Variables studied were the degree of intellectual disability, residential setting type, type and	The variables examined appeared to bear a significant role on the extent to which the consequences are applied as part of treatment. Although pharmacological and restrictive behaviour techniques were applied at similar rates, it was found that generally time-out procedure was applied at rates less than those for psychoactive medication in each subgroup that was examined.

	extent of problem behaviour and age. Data were collected using the Developmental Disabilities Profile	
Kellner & Tutin, 1995 (type III evidence)	A descriptive study of cognitive-behavioural therapy in one female and three male students aged 15–18 years with borderline learning disability. A group programme at a school used daily logs, role-playing, skill building, group reinforcement and relaxation techniques	Older adolescents and young adults with a diagnosis such as pervasive developmental delay, learning disability or autism can benefit from cognitive-behavioural therapy if it is modified to meet their special learning needs. This treatment also increased their prospect of entering protected work in the future
Kiely & Punkhurst, 1998 (type IV evidence)	Explored the violence experienced by staff in a learning disability service of an NHS Trust. Areas researched included: background details, frequency of violence against the staff and reporting mechanisms	Findings included that 81% of staff had experienced violence in the workplace in the previous 12 months. Many had experienced numerous incidents, new and inexperienced staff in particular. Training and support were limited. The need for human resource strategies was highlighted
Kuehnelt & Slama, 1984 (type V evidence)	An expert opinion that highlights methodological and clinical considerations that influence the effectiveness of seclusion and restraint procedures with developmentally disabled populations	Successful reduction of aggressive and self-injurious behaviours may require the use of seclusion and restraint procedures if preventive efforts are unsuccessful. Some of the important factors are the appropriate environment, consistent and clear strategy regarding the use of seclusion and restraint, careful behavioural analysis, implementation of training in alternative appropriate behaviours, protection of patients and others from harm, and regular careful monitoring of the effectiveness of seclusion and restraint policies
Lion & Soloff, 1984 (type V evidence)	An expert opinion that outlines different restraint procedures and some good practice guidelines	The paper highlights the need for physical examination of the person restrained, and other factors such as having a team leader at the time of restraint, making the immediate environment safe, having enough personnel, prior training and rehearsal in the procedure, and regular visual checks during the procedure
Lutzker <i>et al</i> , 1998 (type IV evidence)	An expert opinion of the description of an eco-behavioural model for treating the challenging behaviours	Research, case studies and case examples demonstrate successful use of the model in reducing challenging behaviours. Its

	<p>of adults with psychiatric disorders and developmental disabilities</p> <p>The various models that have been used in this context include planned activities training, making changes in the immediate and social environment, picture/audio prompting, training parents, behavioural relaxation procedures and staff-directed verbal coaching</p>	<p>disadvantages are that it is 'cumbersome' and requires constant efforts in staff training</p>
<p>Martin-Causey & Hincle, 1995 (type IV evidence)</p>	<p>An observational study discussing the use of the single-subject accountability model as an assessment of outcome of therapeutic interventions. This is used as an alternative to experimental models of assessment</p>	<p>A review of the data showed many points to be considered in a future treatment plan. Staff control some components, so counsellors need to meet with staff to regulate these elements of treatment</p>
<p>McDonnell & Sturmey, 2000 (type III evidence)</p>	<p>The treatment acceptability of three forms of physical restraint (i.e. personal restraint in a chair v. two methods of personal restraint on the floor) was evaluated with three groups of raters (i.e. special education staff, residential staff and a group of young adults with no experience of residential services)</p>	<p>Ratings of videotaped role-play using the Treatment Evaluation Inventory (Kazdin, 1980) revealed that the chair method of restraint was rated as more acceptable than the other methods to all three groups</p>
<p>McDonnell <i>et al</i>, 1993 (type III evidence)</p>	<p>Three methods of physical restraint were videotaped and presented to two groups (undergraduate students and teenagers) to measure their social acceptability. Two of the methods recommended restraining a person with a learning disability on the ground; the other method proposed seating the individual in a chair</p>	<p>The chair procedure was rated as more acceptable than the other two methods ($P < 0.01$)</p>
<p>Paterson, 1998 (type IV evidence)</p>	<p>Discussion paper about how restraint of a violent patient or prisoner can lead to death from asphyxia. A case study lays out guidelines and examines the evidence</p>	<p>Training in non-confrontational limit setting and de-escalation skills may reduce but not eliminate need for people to be restrained. Asphyxia is a rare consequence. Restraint training should follow guidance both in initial training and updating techniques. All restraint techniques should be evaluated to identify positions that may cause risk of positional asphyxia</p>

Pollanen <i>et al</i> , 1998 (type IV evidence)	A study to determine the frequency of death <i>possibly</i> due to restraint; 21 cases of unexpected death were investigated (18 in police custody) in Ontario between 1988 and 1995	Results demonstrate that restraint <i>may</i> lead to death in people with excited delirium. In all 21 cases of unexpected death associated with excited delirium, the deaths were associated with restraint, with the victim in the prone position (86%; $n=18$) or by applying pressure to the neck (14%; $n=3$). Delirium was caused by psychiatric disorder in 12 people (57%), and cocaine induced psychosis in 8 (39%)
Rangecroft <i>et al</i> , 1994 (type IV evidence)	An open-label descriptive study of all incidents requiring emergency medication or seclusion in a hospital for learning-disabled people in the UK ($n=810$) over 6 months. In phase 2 of the study, staff in a 52-bed acute ward knew the incidents of seclusion and emergency medication use were monitored for 3 months	During the study period 286 incidents occurred; those requiring seclusion comprised 19% of all incidents. Six women accounted for 36% of all incidents, although two-thirds of the patients involved were men. During monitoring in phase 2, a reduction in the frequency of restraint and i.m. medication was noted. Patients who received seclusion during the study were deemed to have had a better outcome after 1 h than those given medication
Rosenthal <i>et al</i> , 1992 (type IV evidence)	A survey of 663 nurses in the USA about exposure to violence at work; 243 had faced violence. A self-report questionnaire was available on request. All information was anonymous, with no demographic details. Information was collected and analysed from all the returned questionnaires	More than a third (37%) of the total number had faced violence in the work-place. Staff recorded a variety of side-effects as a result. Between 20% and 50% of staff received no training in this area. Serious assault was negatively related to amount of training
Spreat <i>et al</i> , 1986 (type IV evidence)	An observational study in which 231 institutionalised learning-disabled people were used to evaluate the safety of four general classes of contingent restraint	The use of mechanical restraint resulted in a significantly lower injury rate than did personal restraint (48 of every 1000 applications of such restraint resulted in patient injury). The use of restraint in emergency situations was found to be more dangerous than the planned use of such procedures
Tardiff & Mattson, 1984 (type IV evidence)	This is a review of seclusion and restraint policies in 50 states in the USA (36 responded). The authors asked about written guidelines as well as any clinical problems and challenges to the guidelines	Nineteen had no definition for seclusion and 23 had no definition for restraint in their regulations. The definition varied. Twenty-five did not mention any difference of time out from other types of seclusion

Whittington <i>et al.</i> , 1996 (type IV evidence)	Exploratory study looking at the problem of aggression towards staff in a general hospital; 396 (39% response rate) members of staff provided information	A fifth (21%) of respondents had been assaulted, 90% of whom worked outside the accident and emergency department, e.g. in a medical ward. Employee factors (younger age, shorter NHS experience and attendance at violence training) were significantly associated with assault ($P < 0.05$)
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Comments

Many of the papers summarised in Table 2 are highly descriptive in nature and there are few in which any real statistics are produced. A variety of conclusions are offered, ranging from those that try to avoid seclusion at all costs to those that administer seclusion as the best way to treat patients showing violent and very aggressive tendencies. We noted that it is mainly the American papers that still conclude that seclusion is the best option in certain situations.

Conclusions

The main conclusion that can be gleaned from this section is that training and advanced knowledge of the uses of seclusion and other control and restraint techniques enable staff and other carers to develop confidence and feelings of ability and empathy towards the patient, lessening necessity for severe treatment or punishment.

Staff training

After collation of documents for review (24 relevant documents), this subject was divided into three sections of importance:

- training in management, policy and intervention implementation (Table 3)
- training in behavioural issues (Table 4)
- training in the techniques of control and restraint (Table 5).

Table 3 Training in management, policy and intervention (14 documents)

Reference/design	Focus	Summary of findings
Allen & Tynan, 2000 (type III evidence)	Experimental study assessing a staff training programme using 109 staff members in community services supporting people with learning disability and challenging behaviour, 51 of whom had training, 58 had not. A within-participant	Training significantly improved participants' knowledge of reactive behaviour management and their confidence to work with aggressive individuals

and between-participant design was used

Anonymous, 1996a (type V evidence)	This expert opinion in the form of a book chapter explores some general personal qualities that are necessary for the professional development of a crisis clinician	Some personal qualities mentioned are empathy, honesty, toughness, compassion, resourcefulness, creativity, tolerance, humour, tenacity and intrepidity. Good aspects of team building and general positive goals for staff supervisors are also discussed
Aylward <i>et al</i> , 1995 (type IV evidence)	A programme for increasing staff (<i>n</i> =12) effectiveness in implementing a group home behaviour management programme was evaluated. The programme consisted of self-recording and supervisor feedback. A multiple-baseline design was used to measure outcome	Following intervention, the staff increased consistency in implementing response cost for the occurrence of physical and verbal aggression, setting guidelines for successful task completion, and providing feedback to residents
Baker & Bissmire, 2000 (type IV evidence)	Study in which all care staff in an independent residential service (<i>n</i> =17) for people with learning disability and challenging behaviour participated. A questionnaire was given to staff prior to training in Strategies in Crisis Intervention and Prevention (SCIP) and again 3 months later. The pre-training rate of physical intervention was high, and staff confidence in their ability to prevent and respond to crisis situations involving challenging behaviours was low	Only 13 questionnaires were completed as four staff members left the unit. After training, the staff felt more confident in the management of crisis and more supported by their organisation. No significant effect on the number of incidents reported was found, although there was an increased tendency to use physical interventions relative to other methods following the training
Corrigan <i>et al</i> , 1995 (type IV evidence)	A pilot study of the effectiveness of Interactive Staff Training (IST) among 22 staff who cared for severely mentally ill patients. Baseline data were collected over 9 months. The IST meetings took place weekly	The study showed that IST significantly increased staff and patient participation in rehabilitation programmes such as 'token economy', and decreased the rate of physical restraints and aggression
DeRoos & Pinkston, 1997 (type IV evidence)	A study in which adult day-care direct-service staff were taught to be more effective caregivers. Data were gathered on 13 caregivers. A pre-test, post-test single-group design was used, with data gathered before and after 10 training sessions	Data revealed different rates of success. On the pre-test scores, a mean of 45% of the steps were performed correctly. Post-test this rose to over 81%. The overall results indicate a substantial change for the better, and success for those who took part

	Observation of their work focused on task analysis, cueing, contracting and reinforcement	
Gertz, 1980 (type IV evidence)	A 2-day training workshop for mental health staff ($n=317$) in an American mental health centre on dealing with assaultive behaviour was followed by a smaller seminar ($n=15$) to identify components of successful interventions	Components identified to be the most successful interventions during the seminar and the follow-up sessions included keeping calm, being honest, suggesting alternatives to violent behaviour, and using positive reinforcement. The number of incidents fell from 174 to 117 per year
Goodykoontz & Herrick, 1990 (type IV evidence)	An evaluation of a four-part in-patient service training programme to improve nursing skills ($n=27$) in dealing with aggressive psychiatric patients. Designed to meet staff needs in cognitive emotional and psychomotor areas	The programme was successful in reducing extreme levels of burnout among the staff members, and reducing the frequency of aggressive incidents. Staff members reported they felt more confident in dealing with aggression
Infantino & Musingo, 1985 (type III evidence)	This study examined in a Florida state hospital the impact of staff training in aggression control on the rate of assaults to staff and assault-related injuries	Of the 31 staff who received training, only one was assaulted, whereas 24 of the 65 who did not receive training were assaulted. The trained staff member who was assaulted did not receive any injury, yet 19 of the 24 untrained staff who were assaulted were injured
Meador & Osborn, 1992 (type IV evidence)	A survey of seven public facilities and 27 community programmes. A sample of 10 364 persons with learning disability. A questionnaire was used to gain information	There was a higher rate of moderate or severe behaviour disorders (particularly aggression and self-injury) in the institution than in the community. Community staff had less experience in dealing with severe behaviour disorders and designing interventions than institution staff. Institution staff were more likely to use restrictive behavioural procedures and found the overall effectiveness of intervention lower than the community staff
Murray <i>et al</i> , 1999 (type IV evidence)	An observational study of 50 social care staff caring for people with learning disability. A questionnaire gathered data on staff's experience of workplace aggression, staff training received and relationship of staff confidence with training for the management of aggression	The majority of staff experienced assault in the course of their work and less than half received training in the prevention and management of aggression. Trained male staff felt more confident in dealing with aggression but no such trend was noticed among the trained female staff. Staff reported withdrawal of themselves and others rather than any physical

		intervention as their main strategy for dealing with aggression
Paterson <i>et al</i> , 1992 (type III evidence)	An evaluation of a 10-day in-patient service training course in short-term management of violence; 25 nurses in two groups took part in the AB designed evaluation consisting of questions and video-rated role-plays	There was a significant increase in knowledge after the course. Improved skills in relation to de-escalation, breakaway and restraint technique, and reduced stress among staff were also reported after the training
Phillips & Rudestram, 1995 (type III evidence)	Three groups of male staff in two state psychiatric hospitals in the USA received didactic training or didactic and physical skills training or no training in the non-violent self-defence skills of protective profile, repel, and push-off, as well as in evasive movement	Behaviourally expressed fear and aggression were significantly reduced among staff who received both didactic and physical skills training. This group also had significantly fewer assaults following the training compared with the other two groups
Titus, 1989 (type IV evidence)	Study to assess the impact of therapeutic crisis intervention training of full-time direct service providers in child mental health services in Canada over a period of 17 months	The training reduced the frequency of restraint use (restraint duration may increase) but also resulted in an increased rate of staff injury

Table 4 Training in behavioural issues (4 documents)

Reference/design	Focus	Summary of findings
Allen <i>et al</i> , 1997 (type IV evidence)	A descriptive survey of the impact of a new training procedure for staff in a 6-place assessment and treatment unit for adults with learning disability and associated psychopathology. A pre-post comparison could not be carried out owing to unsatisfactory initial recording of results	There was some evidence to suggest that training reduced the number of behavioural incidents for most patients. The rates of major reactive strategy use (restraint and emergency medication) also declined over time, as did staff and resident injuries. Most of these changes were statistically non-significant
Carmel & Hunter, 1990 (type IV evidence)	A descriptive study that examined the relationship between staff training in dealing with assaultive behaviour and the subsequent rates of aggressive behaviour by patients and rates of staff injury. The study took place in a 973-bed psychiatric	No significant difference was detected in the number of aggressive incidents per bed between low- and high-compliance wards. However, the rate of injury to staff was significantly higher among the non-trained compared with the trained staff. The rate of staff injury in low-compliance

	hospital with 27 wards in the USA. Wards were divided into two groups: high-compliance (>60% staff had training) and low-compliance (<60% staff had received training)	wards was almost three times as high as in high-compliance wards
McDonnell, 1997 (type IV evidence)	Evaluation of a 3-day training course with four overall aims: better understanding, to teach verbal and physical skills, to teach non-violent methods, to increase staff confidence. Twenty-one care (primarily nursing) staff took part from a broad background. Three measures were used to evaluate the course: a multiple-choice test, a 15-item confidence scale and a restraint role-play test	There was a significant difference in self-confidence scores and a non-significant difference in the knowledge scores before and after the training course. Although there was no overall correlation between age and the outcome following the training, the older the participant the poorer the role-play
Thackrey, 1987 (type II evidence)	An 8-h training programme, 'Therapeutics of aggression', was provided to 183 professionals from various backgrounds (nurses, counsellors, psychologists and social workers) in community, prison and hospital settings. Clinicians were assessed for the level of their confidence in dealing with aggression at work pre- and post-training and at 18-month follow-up	Although the untrained group showed no change between pre-test and post-test or between post-test and follow-up, the trained group showed change both pre- and post-test, and post-test and follow-up

Table 5 Training in control and restraint (6 documents)

Reference/design	Focus	Summary of findings
Home Office, 1988 (type IV evidence)	A document that describes an evaluation of the effects of introduction of control and restraint techniques as well as training on prison officers at HMP Gartree	Implementation of control and restraint techniques resulted in the quick and effective relocation of violent and obstructive inmates without causing injury to anyone. There was also an improvement in physical well-being, self-image and self-confidence among the officers, and a reduction in the number of assaults made against staff

McGowan <i>et al</i> , 1999 (type IV evidence)	Benchmarking exercise in two psychiatric intensive care units in Western Australia to assess staff coping with patient aggression. Staff were asked to complete a questionnaire. The same questionnaire was completed after a safe physical restraint training course	An increase in staff confidence in dealing with aggression was noted in a benchmark hospital where regular training was given. Another hospital reported increased confidence to levels that equalled or bettered the original hospital following a training programme
Mortimer, 1995 (type IV evidence)	A 12-bed secure ward was observed for 31 months. Five of 23 nurses were trained in control and restraint techniques. A monthly audit was carried out	Increased number of staff trained in control and restraint was the only factor that could be associated with reduction in violence. However, patients attacked each other rather than nurses as violence decreased
Parkes, 1996 (type IV evidence)	A study to compare incidents involving manual restraint before and after training in control and restraint, using a 'repeat method' study design in a 44-bed medium-secure unit. Data were collected from 340 incidents of physical restraint over a non-continuous 30-month period, 18 months prior to training and 12 months after	After training there were more staff injuries (25) while restraining patients than there were before training (22). The study showed that breakaway training might be ineffective unless tailored to the needs of the population served. The study also highlighted that control and restraint training may require increased levels of staffing to manage incidents of restraint
Rice <i>et al</i> , 1985 (type III evidence)	A 5-day course designed to teach verbal and physical methods of prevention of violence and injury. Eighty-nine staff from maximum- and less-secure psychiatric wards in Canada were trained and their outcome was compared with that of a non-trained control group of staff who were working within similar settings	Questionnaires indicated positive course effects. Compared with the controls, the trained group showed significant improvement on four tests of crisis-related tests and knowledge. Assault frequencies decreased immediately after the course. Staff injuries on experimental wards were reduced after the course relative to control wards
Van Den Pol <i>et al</i> , 1983 (type III evidence)	A peer-training programme in which experienced staff trained new staff was evaluated. Thirteen institution-based direct-care staff participated in various aspects of the study. Three sets of skills were assessed, namely responding to fires, managing aggressive attacks and assisting residents in seizures	Results indicated that peer training is effective in developing safety-related care-giving skills among institutional direct-care staff. Multiple-baseline evaluation showed that training was responsible for skill acquisition. Those who acted as peer-trainers maintained their skills better at a 23-month follow-up compared with those who did not. Acceptability measures indicated that staff liked the programme

Comments on training

Training in many aspects of the management of imminent or current violence vastly increases staff confidence, awareness and perception of environment, improving the welfare of the patients in turn. It is obvious that many workers suffer from lack of training and knowledge, and that studies and interventions to determine whether a higher level of competence would improve circumstances have been justified.

Conclusions

Physical intervention when necessary should be implemented within an overall care plan for the individual, employed with the minimum of reasonable force, and applied for the shortest period of time consistent with the patient's best interest.

Acute drug treatment

Hypotheses to structure the research (from OP41)

- Medication (i.m. benzodiazepine or neuroleptics), administered by trained and experienced staff, can be used safely, rapidly and effectively to deal with violence in clinical settings when all other methods of management have failed and the patient or others around them are seen to be in imminent danger.
- Contraindications can be specified and avoided.
- Sedative and therapeutic effects of medication can be distinguished and appropriate regimens prescribed, taking into account the varied causes of violence.

Research appraisal

Fourteen relevant documents were found and are summarised in Table 6.

Table 6 Acute drug treatment (14 documents)

Reference/design	Focus	Summary of findings
Battaglia <i>et al</i> , 1997 (type II evidence)	Study to compare the use of i.m. haloperidol (5 mg) or i.m. lorazepam (2 mg) or a combination in rapid tranquillisation. A prospective RCT of 98 psychotic, agitated and aggressive patients over an 18-month period. Assessments were done using the Agitated Behavior Scale (hour 1), the modified Brief Psychiatric Rating Scale (hours 2 and 3), the Clinical Global Impression scale and the Alertness Scale	Effective symptom reduction was achieved in each treatment group, with significant mean decrease from the baseline symptoms. Tranquillisation was most rapid in patients receiving the combination treatment. The side-effect profile did not differ significantly between treatment groups
Bieniek <i>et al</i> , 1998 (type II evidence)	An RCT to compare the use of i.m. lorazepam (2 mg) (<i>n</i> =11) with a combination of i.m. lorazepam (2 mg) and i.m. haloperidol (5 mg) (<i>n</i> =9) to control acute aggressive behaviour. Patients were assessed with the Overt Aggression Scale, the Clinical Global Impression and a visual analogue scale of agitation and hostility	Both treatments were effective, but the combination treatment showed a significantly better result. Both groups showed similar side-effect profiles
Bisconer <i>et al</i> , 1995 (type IV evidence)	Examination of the impact of an established physical restraint review process and psychotropic drug management at an intermediate care facility (80 people with learning disabilities)	Over 6.5 years of study, there was a significant drop in the use of psychotropic medication as well as in the level of disturbed behaviours
Bond <i>et al</i> , 1989 (type IV evidence)	Administration of i.m. midazolam (5–10 mg) to three people with intellectual disability who had tendencies towards aggression and violence. All were receiving other psychotropic drugs concurrently	A dramatic control was achieved in all three cases
Dorevitch <i>et al</i> , 1999 (type II evidence)	An RCT of i.m. flunitrazepam (1 mg) (<i>n</i> =15) and i.m. haloperidol (5 mg) (<i>n</i> =13) for immediate control of agitated or aggressive behaviour in acutely psychotic patients. Assessments were made within 30	Both treatments exhibited acute anti-aggressive activity

	min of administering the drugs, using the Overt Aggression Scale	
Hughes, 2000 (type IV evidence)	Letters to the editor on Hughes' original paper (Hughes, 1999)	Intramuscular medication is preferred over oral medication in acute management because of the uncertain nature of drug absorption, delay in action and problems with liver enzyme induction in cases of oral medication. Acute treatment of drug-induced akathisia should include anticholinergic drugs, beta-blockers or benzodiazepines
Lader, 1995 (type IV evidence)	Expert guidelines regarding use of psychotropic medications in the treatment of acute aggression in psychotic patients	The toxicity of high doses of antipsychotic drugs should be borne in mind. Certain precautions, including thorough physical examination and some related investigations, are required prior to administering high doses of antipsychotics. In an acute disturbed state, the priority is rapid sedation, not the control of psychosis. Benzodiazepines either alone or in combination with antipsychotics should be considered
Mannion <i>et al</i> , 1997 (type IV evidence)	Literature regarding rapid tranquillisation demonstrates an inconsistency in practice. A survey of trainee doctors administering rapid tranquillisation was carried out to determine possible improvements. Fifty-five questionnaires returned reported on 108 incidents over the previous 6 months	On 45 occasions (46%) one drug was used, on 53 (54%) a combination. Drugs were administered in i.m. form on 88 (90%) occasions and zuclopenthixol acetate was prescribed on a total of 45 (46%) occasions. In 38 (39%) incidents, the trainee used a high-dose regimen
Nielsen <i>et al</i> , 1997 (type IV evidence)	Intravenous sedation of involuntary psychiatric patients is practised in almost all hospitals in New South Wales, Australia. A retrospective case-note study of involuntary psychiatric in-patients (<i>n</i> =495)	About a quarter of the patients (<i>n</i> =132) received i.v. sedation. Of these, 86% received a combination of haloperidol and diazepam (usually 10 mg each). The most common complications were dystonia (37%), hypotension (8%) and confusion (5%). The incidence of phlebitis and other extrapyramidal side-effects were probably underreported
Omerov <i>et al</i> , 1995 (type IV evidence)	Medical case notes of psychiatric in-patients were studied over a 3-year period (1987–1989)	After the introduction of treatment with i.m. zuclopenthixol acetate in 1988, there was an overall reduction in aggressive incidents and the peak incidents associated with medication times disappeared

Raja & Azzoni, 2000 (type III evidence)	Examination of replacement of standard neuroleptics with atypical antipsychotic agents in an intensive care unit	There was no significant difference in the rate of aggression or violent behaviour between those who regularly used the standard neuroleptics and those who used the atypical neuroleptics. As atypical neuroleptics are known to have fewer side-effects, they should be preferred over the standard neuroleptics
Tardiff, 1999 (type IV evidence)	An expert opinion on the prevalence of violence in modern society, manifested in psychiatric patients. Points are presented to help clinicians make accurate diagnoses	Suggests use of a benzodiazepine, particularly lorazepam, if acute sedation is needed; otherwise sedative neuroleptics if control of an acute psychotic symptom is needed
TREC Collaboration Group, 2003 (type III evidence)	A group of 301 aggressive or agitated psychiatric patients were given i.m midazolam 15 mg or haloperidol 5 mg and promethazine 50 mg together in an open trial	Both treatments were effective. Midazolam was more rapidly sedating than haloperidol with promethazine
Volavka & Citrome, 1999 (type IV evidence)	An expert opinion and discussion of psychopharmacology of aggression with regard to modern treatment	A distinction is made between the anti-aggressive, sedative and antipsychotic effects of drugs leading indirectly to reduction of aggression. Atypical neuroleptics such as clozapine and risperidone are shown to have a specific anti-aggressive property in the absence of sedation

Comments

Most of the papers quoted in Table 6 investigated people without learning disabilities. However, the conclusions drawn from these studies seem applicable to those who do have a learning disability. Like the other sections, most studies are either review articles or expert opinions. Two are RCTs, one is a case report and two are case-note studies.

Conclusions

A judicious use of i.m. medication in the acute stage along with other measures could be recommended in the management of acute aggression and violence in people with intellectual disability, where other methods of management have failed and the patient or others are in immediate danger, and it is done in the best interests of the patient. Either a benzodiazepine alone (such as lorazepam) or a combination with a neuroleptic (such as haloperidol) could be used. In all

cases, a thorough medical examination of the patient before administering the drug is desirable, along with regular medical monitoring after administration. The regimen should be monitored regularly.

Management, policy and planning issues

Many of the papers relevant to our study fell into a category of their own: the management of services, patient issues, the introduction of policies and implementation of interventions following successful training schemes or pilot projects. These papers are summarised in Table 7.

Table 7 Management, policy and planning issues (28 documents)

Reference/design	Focus	Summary of findings
Allen, 2000 (type IV evidence)	A comprehensive review of the literature on the aetiology, assessment and treatment of aggressive behaviours in people with learning disability	Among many factors, the author highlighted some environmental risk factors, such as excessive heat, noise, overcrowding, high turnover rates of younger-age patients, the presence of aggressive models, a lack of structured activity and intermittent reinforcement of aggressive behaviour. Staff factors included inexperienced staff with poor and/or inappropriate interactional styles, staff denying patient's request, activity demands, aversive social contacts and negative verbal statements. The author also questions the appropriateness of applying control and restraint techniques that inflict pain to people with learning disability
Anonymous, 1996b (type III evidence)	A four-part intervention programme was introduced to minimise the rate of seclusion used in an institution that cared for people with learning disability. The programme included regular weekly multidisciplinary planning meetings and a 3-day training course for staff in the management of challenging behaviour. The care philosophy was revised and emphasis was placed on managing (rather than changing)	Analysis of records of seclusion revealed a consistent pattern of behaviours (assaults, damage to property and threats). Following the intervention, the rate of use of seclusion decreased without an apparent increase in the use of physical restraint. The authors concluded that seclusion can be avoided in many cases, but staff support, appropriate staff training and resources appear to be necessary to achieve these aims

	behaviour, and low arousal (developing an awareness of and avoiding the verbal and non-verbal triggers to violence) approaches were encouraged in the ward	
Anonymous, 1996c (type V evidence)	This book chapter discusses various methods that could be used to deal with aggressive patients in an accident and emergency unit	There is emphasis on controlling the behaviour by using both physical and non-physical means, the need for a quick but appropriate assessment of the patient's physical and mental state, use of specific treatment and management, and the need for appropriate assessment of potential aggression in a patient
Anonymous, 1996d (type V evidence)	This book chapter discusses the management of aggressive patients in a different group within a general hospital and an accident and emergency setting	The chapter highlights the special assessment needs of patients with learning disability who have become aggressive, particularly an assessment of neurological and psychiatric conditions, seizure disorders, physical problems and current life events
Bell & Stark, 1998 (type IV evidence)	An assessment of a new instrument to assess the competence of residential child workers in using three different physical restraint techniques, namely the team, the single person, and basket hold restraint	The authors highlight the complexity of acquiring and retaining skills for physical restraint, and the need to practise these skills to saturation point during training and refresher training, and for effective monitoring and assessment of practice
Brasic & Fogelman, 1999 (type IV evidence with some expert opinion)	This is a review of possible risk factors associated with violence in various medical settings	The paper emphasises, among other factors, the need for interview rooms to be close to the nursing station, that there should be no dangerous object in the interview room, that doors should open outwards or revolve and should be unable to be locked from inside, that furniture with rounded and padded edges should be fastened to the floor or the wall, and that staff must provide constant visual and auditory monitoring of the interview room
Carlson, 1997 (type IV evidence)	This study presents an ecological model of domestic violence to women who have developmental disabilities	The author states that there is a consensus that women with developmental disabilities are at particularly high risk of sexual abuse both as children and adults

Carr <i>et al</i> , 1990a (type IV evidence)	A non-systematic literature review of causes, assessment and intervention of behavioural problems in people with developmental disability	Most outcome data on interventions are encouraging. Approaches more directly tied to functional analysis (e.g. skills acquisition, stimulus-based intervention) are somewhat more likely to produce a favourable outcome. The authors are in favour of combining positive approaches and of shifting the focus from crisis management to more prolonged planned management of behaviour
Carr <i>et al</i> , 1990b (type IV evidence)	A discussion as to whether aversive treatment is justified when non-aversive treatment has failed, or whether this question should be addressed at all	The authors argue that clinicians should have a reason to choose from various methods of behavioural interventions. They are in favour of functional analysis in this context and interventions such as reinforcement-based and stimulus-based treatments and maintenance
Davidson <i>et al</i> , 1984 (type IV evidence)	This paper compared the rate of use of seclusion, mechanical restraint and psychotropic drugs in a large institution (over 800 residents) for people with developmental disability in the USA before and after the introduction of clearly defined procedures on the use of such restraints and regular staff feedback	Two-and-a-half years following the adoption of the new policies, the use of seclusion, mechanical restraint and psychotropic drugs dropped significantly without a concomitant increase in violent incidents, staff turnover or use of other restrictive procedures
Edens, 1988 (type V evidence)	A discussion of the problems caused by children and adolescents who engage in aggression and other forms of externalising behaviour, and the pressure it puts on parents, teachers and the educational, health and justice systems as a whole	The long-term negative development of those who start externalising behaviours early in childhood has been stressed. Although not a panacea for all problems, consultation with parents and teachers in a collaborative problem-solving approach has been shown to be useful
Fisher, 1994 (type IV evidence)	A non-systematic but comprehensive review of the literature over the past two decades on studies concerning restraint and seclusion	Seclusion and restraints could prevent injury and reduce agitation; they have negative physical and psychological effects on patients and staff; demographic and clinical factors have limited influence on the rate of use of seclusion and restraint; more influential are local non-clinical factors (e.g. cultural biases,

		staff role perceptions and attitude of the hospital administration). Training in prediction and prevention of violence, in self-defence and in restraint procedures is valuable in reducing rates and untoward effects
Forster <i>et al</i> , 1999 (type III evidence)	Rates of seclusion and restraint were measured in a locked psychiatric ward in the USA before and after implementing recommendations of a multidisciplinary quality-improvement work-group. Interventions included mandatory staff training sessions on the management of assaultive behaviour, weekly discussion items during team meetings for each local ward, and hospital-wide publicity charting the ongoing progress of the effort	Results included a drop in the total annual rate of restraint by 13.8% and of seclusion by 18.8%. The average duration of restraint per admission decreased by 54.6%
Hopton, 1995 (type V evidence)	An exploration of attitudes towards restraint in psychiatric nursing. The main purpose of the paper is an evaluation of ethical justifications for and against the use of physical restraint. The paper also assesses the impact of the 1985 Ritchie Report and 1991 Report on the Ashworth Hospital Enquiry on the use of restraint	The author concludes that the number of situations where control and restraint techniques are used may be reduced by the introduction of new therapeutic approaches, allowing more negotiation between patients and nurses, with an acknowledgement of why patients resist some supposedly therapeutic interventions they find unhelpful
Kalogjera <i>et al</i> , 1989 (type IV evidence)	Observational study in which the use of seclusion and restraint on three in-patient adolescent psychiatric units in the USA was examined during two 5-month periods before and after the implementation of a 'therapeutic management' protocol. Under the protocol, staff classified disruptive behaviours in four stages and provided verbal and behavioural interventions to control behaviour at each stage. Patients restrained had significant latitude to determine the timing of their release and met with staff 1 h and after 24 h after their release to explore alternatives to aggression	The number of episodes of seclusion and restraint fell by 64% after the protocol was adopted, and the number of patients who required those interventions dropped by 39%. The mean duration of episodes of seclusion and restraint was reduced by 59%

Miltenberger, 1997 (type III evidence)	In this study 132 direct-care staff from community agencies rated the acceptability of two treatments: time out and guided compliance	Time out was rated as slightly more acceptable than guided compliance across the groups, but the function of aggressive behaviour (attention v. escape) did not significantly influence ratings
Sailas & Fenton, 1999 (type I evidence)	A systematic review to estimate the effects of seclusion and restraint compared with the alternatives and to estimate the effects of strategies to prevent seclusion and restraint in those with serious mental illnesses	Of 2155 citations found, only 24 were identified for potential inclusion; however, none of them met the critical review criteria used by the authors
Schloss <i>et al</i> , 1994 (type IV evidence)	This paper describes a community-living programme for youths with learning disability who also showed challenging behaviours. Short-term community-based programmes were provided that included a self-management log, with targets and scheduled breaks, assignments, awards, aggression management and relaxation techniques	The programme enhanced patients' social skills and reduced the rate of disruptive behaviours
Sprague, 1997 (type IV evidence)	A functional analysis of a non-compliant aggressive 10-year-old boy with severe disability was carried out. A neutralising routine or pre-correction was applied	The results showed that the neutralising event increased responsiveness and reduced problem behaviour during difficult instruction
Standing Nursing and Midwifery Advisory Committee, 1999 (type V evidence)	A non-systematic review of the literature on mental health nursing policies	The document highlights the emphasis on the community-based services, which leaves inadequately resourced in-patient services where there is a concentration of patients with severe mental illness and challenging behaviours
Stirling, 1998 (type IV evidence)	This paper describes the good practice guidelines for physical interventions, and the effectiveness of 'natural therapeutic holding' (NTH)	It is accepted that although physical interventions can be justified under some circumstances, they must be non-aversive in nature, and be considered as part of an overall programme that emphasises the development of positive alternative behaviours rather than violence. From a patient's point of view NTH causes no pain, injury or discomfort, although it could be

		argued that there is a psychological issue in being held against one's will
Stirling & McHugh, 1998 (type V evidence)	Development of a non-aversive intervention strategy in the management of aggression. Builds further on the research into 'natural therapeutic holding', which uses emotional and physical support to reinforce contact with the patient, with sensitive verbal and physical interactions	This paper illustrates that over time an individual who is aggressive can learn alternative coping strategies through NTH. This is an effective intervention strategy in that it provides staff with (a) safe professional, ethical skills, and (b) a therapy that can be taught to aggressive individuals
Sturmey, 1999 (type IV evidence)	Correlates of the use of restraint were analysed on a group of 300 residents in an institution who had developmental disabilities. Restraint frequency and duration were examined and predicted by behavioural variables	Thirty-three patients experienced relatively few short-duration restraints, and 11 had daily restraints for many hours. Those who had a longer duration of restraint were more withdrawn, showed more self-injury, and were of low weight compared with those who had a shorter duration of restraint
Tardiff, 1999 (type IV evidence with some expert opinion)	Discussion of the guidelines developed by the American Psychiatric Association for the use of restraint and seclusion in psychiatric patients	Indications for emergency use of restraint are (a) to prevent imminent harm to the patient and/or others, if other means are not effective and appropriate, and (b) to prevent serious disruption of the treatment programme or significant damage to the environment
Van Minnen <i>et al</i> , 1997 (type II evidence)	A randomised controlled study of specialised hospital treatment v. outreach treatment of patients with learning disability and serious mental illness. Fifty patients were randomly assigned to either hospital ($n=25$) or outreach treatment ($n=25$)	At most observation points up to 28 weeks, the two groups were equivalent with regard to psychiatric symptoms. Treatment costs were lower for the outreach group. The burden on carers did not increase significantly during the outreach treatment
Walker, 1997 (type IV evidence)	This study describes a way of measuring therapeutic effectiveness in a small group of people with learning disability. A self-report measure, the 'Provocation Inventory', can be implemented in everyday practice	Despite some limitations in the Provocation Inventory, the author documented some useful recommendations for its future use
Whitaker, 2000 (type IV evidence)	A non-systematic literature review of papers in six journals on challenging behaviour over a 10-year period;	It was found that most studies dealt with target behaviours of much higher frequency than is expected in most

	247 studies were located in which challenging behaviours were treated in 1247 patients, of whom 950 had learning disability	people with learning disability who show challenging behaviours. There was no clear relationship between the use of punitive or non-punitive interventions and the frequency of the target behaviour
Wright, 1999 (type V evidence)	A review of issues about the use of physical interventions in in-patient mental health settings. Considers the differences between control and restraint and other management systems, also ethical and legal issues	The author emphasises that physical management is only one aspect of the management of violence. In some situations there is no reasonable alternative to the use of physical restraint. Training must be provided in methods of disengagement from assault, and of restraint, which must be professionally acceptable as well as safe and effective

Comments

The papers reviewed in Table 7 constitute primarily type IV or V evidence, apart from one randomised controlled trial (type II evidence) and a systematic review (type I evidence).

Conclusions

Seclusion seems to be a preferred method of management of imminent violence in the USA but not in the UK.

Environmental factors and ward design

Hypothesis to structure the research (taken from OP41)

- Characteristics of the human and physical environment have a powerful effect in mitigating and preventing, or exacerbating and precipitating the manifestations of violence.

Research appraisal

There were three relevant documents; these are reviewed in Table 8.

Table 8 Environmental factors (3 documents)

Reference/design	Focus	Summary of findings
Anonymous, 1997 (type V evidence)	An expert opinion in a book chapter, describing need for appropriate design of the environment to take into account factors of safety, efficiency and comfort	It is emphasised that lessons can be learned from the recent emphasis on designing an appropriate work environment in business. The importance of training patients to make the best use of their environment and training staff to compensate for the apparent failures in the environment are emphasised
Anonymous, 1996e (type V evidence)	A book chapter that discusses the need for appropriate space and equipment necessary for a comprehensive emergency programme. Space and equipment requirements come high on the list for patients suffering from severe psychiatric disorders	The needs for facilities to examine disturbed patients where both patient and staff can feel safe and comfortable are emphasised. The space should be designed in a way that patients could exit easily if they felt agitated and staff could exit easily if need be. The need for a procedure for regular monitoring of a disturbed patient is also highlighted
Davies & Cuvo, 1997 (type V evidence)	A book chapter discussing the environmental factors that can affect the lives of people with learning disabilities	The authors emphasise the importance of a holistic approach combining systematic instruction, environmental and task modification, and personal supports

Comments

Most recent information regarding environment and ward design and their effects on patients seems to have been published in books as opposed to research papers. The importance of spatial design and other environmental factors is considerable, as these documents suggest.

Conclusions

It appears that the environmental factors discussed in this section are being taken into account more and more, and are being experimented upon to determine what, if any, outcome may influence the patients or users of the services involved, and if those outcomes have a positive influence on the aggressive or violent behaviour of those who use the facilities.

Conclusions

The evidence presented in this document primarily concentrates on the issues relating to the management of imminent violence in learning disability settings, not on the general management of violence and other behaviour disorders among people who have learning disabilities. We found that the literature on this topic comprises primarily type IV or V evidence, and therefore we found it difficult to judge the quality of this evidence.

Environment

It appears from the evidence presented in this document that environment plays a major role in the precipitation and perpetuation of violence. Although it is not always easy to find an alternative, bringing a disturbed person into an unfamiliar and restricted environment may lead to further deterioration in their condition. One suggested way of minimising the impact of environment on behaviour is to train both staff and the patient to make the best use of the environment. It was suggested that lessons could be learned from the recent experiment with office space in the business sector. Overall, open and private space is found to be therapeutic in the management of violence. Simple measures that could be adopted to minimise the effect of environment on the disturbed behaviour include training of staff to compensate for the apparent failures in the environment, reduction of excessive noise, heat and crowding, and proper facilities for examination of disturbed patients.

Staff-related factors

Like the environment, staff factors have a major role in the management of imminent violence in learning disability settings. Some of the important staff-patient interaction factors are staff denials of patients' requests and activity demands, the lack of appropriate activities for the patient, aversive social contacts and negative verbal statements. These have implications for staff training and support.

It was suggested that staff should be trained in alternative methods of behaviour management. It is important to train staff up to saturation, which should be aided by regular rehearsals. It is necessary for the maintenance of staff skills that they are given regular refresher training. Most studies have shown that staff training increases their knowledge and confidence, and decreases severe staff burnout, but controversial evidence exists as to whether in fact staff training decreases the rate of patient and staff injuries, and reduces the frequency and severity of violent incidents. In fact, some suggested that staff training might increase the tendency for the use of physical intervention. These issues could be

addressed with the help of regular monitoring of effectiveness. Some studies have drawn attention to the overlap between staff factors and other organisational issues such as the high turnover rates of younger patients and staff, the presence of aggressive role models within the environment, and an intermittent reinforcement of aggressive behaviour.

Policy issues

The staff-related factors are somewhat dependent on organisational policy issues such as cultural bias, staff role perception, and the attitude of management within the organisation. One study has shown improvement based on mandatory staff training sessions on the management of aggression, weekly discussion items during team meetings, organisation-wide publicity charting the ongoing progress of the effectiveness of a particular scheme, and negotiation between staff and patients. The presence of a clear policy, implementation of the policy, regular monitoring, communication between staff and management, training in the appropriate procedures, in-service training, and support and counselling for both staff and patients are proposed to be the hallmarks of an effective organisational policy framework.

Physical intervention

There is a growing literature on the use of physical intervention in the management of imminent violence in learning disability settings. The Department of Health (2002), the American Psychiatric Association (Tardiff, 1999) and the British Institute of Learning Disabilities (Harris *et al*, 2002) have published guidelines on this. In the UK terms such as 'control and restraint' or 'care and responsibility' are used for training schemes for the use of physical interventions. Most studies in the UK support the notion that physical intervention should invoke no pain or very little pain in the patient who is being restrained. This proposal is supported by the finding that a high proportion of people who have learning disabilities have an altered pain threshold. This, in combination with existing physical conditions such as heart or respiratory disease (conditions that are prevalent among people who have learning disabilities), contributes to the potential hazards associated with the physical restraint of a person with learning disabilities.

This highlights the issue of carrying out physical examination on those patients who are likely to be physically restrained, although it is not always easy to determine what physical examination to undertake, when and how often that should be done. One study has shown that the 'prone position' has caused more deaths among delirious patients. There is also the issue of how soon the physical intervention should be used. If it is used early in the incident, it may prevent a potentially serious situation; however, at the same time, the patient may perceive this approach as heavy-handed and punitive.

A planned rather than a non-planned physical intervention is always preferred. It is necessary to make the environment safe during the restraint, to work as a team under the guidance of a team leader, and to have enough resources. Other useful strategies are the use of clear 'behavioural analysis', training in non-confrontational (de-escalation) methods, and the reinforcement of alternative positive behaviour. The Mental Health Act Code of Conduct (1993) states that physical intervention should be used 'as a last resort and never as a matter of course. It should be used in an emergency when there seems to be a real possibility that significant harm would occur if intervention is withheld', and 'Any restraint must be reasonable in the circumstances. It must be the minimum necessary to deal with the harm that needs to be prevented'.

Although mechanical restraint is not favoured in the UK, some US studies have shown a significant reduction in staff and patient injury following the use of mechanical restraints. Similarly, some US studies have shown a significant reduction in the rate of physical restraints when seclusion is used. Seclusion is not a favoured method of management of imminent violence in the UK. Other issues related to the use of seclusion are the availability of appropriate resources, senior and experienced staff, more male staff, an alternative method of management of aggression, staff morale and staff support and training.

Rapid tranquillisation

It seems necessary in certain circumstances to use drugs in the form of a rapid tranquillisation for the management of imminent violence in learning disability settings. For rapid tranquillisation, the intramuscular route is preferred to the oral route because of the speed of action, reliability of absorption, and bypassing of the liver metabolism. In Australia there seems to be more frequent use of intravenous drugs for rapid tranquillisation. In the UK the intravenous route is not usually used outside accident and emergency departments.

The Royal College of Psychiatrists' guidelines, set out in Occasional Paper OP41, suggest:

'benzodiazepines which act rapidly and are quickly eliminated (e.g. lorazepam 2–4 mg orally, intramuscularly or slowly intravenously) are generally safe and effective for rapid tranquillisation when prescribed and monitored by an experienced physician...The same can be said for antipsychotics (e.g. haloperidol 5–10 mg) which are usually effective and safe. There are, however, risks associated with these medications' (Royal College of Psychiatrists, 1998).

Some studies have shown a marginally better efficacy when a benzodiazepine such as lorazepam is combined with an antipsychotic such as haloperidol than when each drug is used alone. However, other studies have suggested that the reverse is the case.

Most of the evidence for the use of rapid tranquillisation comes from studies among patients with psychiatric illnesses; therefore the inference drawn for its use among people who have learning disabilities has to be used with caution. Antipsychotics do not always work by sedating patients. For example, there is

evidence that clozapine reduces aggression in patients with schizophrenia without causing sedation. There are indeed several possible mechanisms through which antipsychotics could cause rapid tranquillisation, although it is unlikely that a direct antipsychotic effect is responsible for such a rapid action. It is more likely that these drugs have some effect on the underlying anxiety and arousal state that are associated with an aggressive incident and therefore indirectly influence the manifestation of violence in a person. Recently, intranasal and buccal spray administration of midazolam has been shown to be effective in the management of acute aggression in people who have learning disabilities, although there is not enough evidence at the moment to recommend this method of rapid tranquillisation.

Whether rapid tranquillisation should be used as a last resort or not is a controversial issue. Like drugs, physical intervention also carries risks, particularly if used by non-trained staff in persons with pre-existing medical conditions such as heart or respiratory disease. Furthermore, a patient may perceive the use of physical restraint as more threatening, punitive and invasive of private space than the use of drugs. Drugs may at least temporarily calm patients down by acting directly on brain function, whereas physical intervention tries to minimise the potential for harm to the patient and others by containing the situation physically and hoping for nature to take its course. The confrontational nature of physical intervention is also likely to worsen a patient's aggression. The patient could perceive both the intramuscular use of drugs and physical intervention as punitive and confrontational, whereas the oral use of drugs might be more acceptable.

We believe that neither physical intervention nor rapid tranquillisation can be given preference over one another, and the choice for their use has to depend on individual circumstances. The method of management of imminent violence in people who have learning disabilities has to be chosen within the context of an overall individual care plan, in which patients, their carers and multiprofessional input is essential. This will allow planned rather than non-planned interventions, with which patients and their carers would be more likely to comply. Whichever method of management is chosen, this has to be in the patient's best interests and should not be used to suit the organisational preference. The management has to be implemented within the current legal framework and its effectiveness has to be monitored regularly. Regular debriefing of the staff and patient involved following each violent incident is also recommended.

Appendix I

Basic PsycInfo search to determine suitable search terms.

Search terms

- 1 learning disorder
- 2 mental retardation
- 3 mentally retarded
- 4 ((intellectual: or learning) adj3 (disab: or disorder: or handicap))
- 5 (mental: adj3 (retard: or handicap: or deficien:))
- 6 (aggressi: or violen))
- 7 (treatment or management)
- 8 or/1-5
- 9 6 and 7
- 10 8 and 9

The results of the searches carried out above were applied specifically to two year-groups (below) to determine how many papers would appear in a very basic search. The abstracts of these papers were submitted to S.D.

- 11 limit 10 to yr=1996-2000 121 papers
 - 12 limit 10 to yr=1990-1995 142 papers
-

Appendix II

Definitive search strategy used to search Medline, PsycInfo and Embase.

Search terms

- 1 (verbal adj2 (threat: or gesture:))
 - 2 agitat:
 - 3 (danger: adj2 (behav: or tendency:))
 - 4 emergen:
 - 5 violen:
 - 6 aggress:
 - 7 volatil:
 - 8 hostil:
 - 9 impulsiv:
 - 10 schizophren:
 - 11 psycholog:
 - 12 or/1-11
 - 13 learning disorder:
 - 14 mental retardation
 - 15 mentally retarded
 - 16 ((intellectual: or learning) adj3 (disab: or disorder: or handicap:))
 - 17 (mental: adj3 (retard: or handicap: or deficien:))
 - 18 or/13-17
 - 19 ((secure or safe) and environment:))
 - 20 (open door: or (setting: or design:))
 - 21 (risk and (assessment: or management or prediction:))
 - 22 (isolat: and (social: or patient: or in-patient:))
 - 23 (behav: and (modification: or reinforcement: or disorder:))
 - 24 (restraint: or seclusion: or exclusion:)
 - 25 immobili?ation
 - 26 (emergenc: and drug: and (therap: or treatment:))
 - 27 or/19-26
 - 28 12 and 18
 - 29 adult:

 - 30 28 and 29 PsycInfo 546 papers
 - 30 28 and 29 Medline 83 papers
 - 30 28 and 29 Embase 22 papers
-

Appendix III

Further search carried out specifically for papers regarding acute drug treatment and the management drugs.

Search terms

- 1 (drug: and (treatment: or rehab:))
 - 2 (emergen: and medication:)
 - 3 (acute and medication:)
 - 4 learning disorder: or "learning disabilities"
 - 5 (violen: or aggress:)
 - 6 or/1-3
 - 7 or/4-5
 - 8 6 and 7
 - 9 adult:

 - 10 8 and 9 Medline 369 papers
 - 10 8 and 9 ClinPsych 185 papers
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