

Effects of a State Law on Rates of Restraint on a Child and Adolescent Unit

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Rates of restraint and seclusion on a child and adolescent unit were evaluated before and after the implementation of a restrictive state law which was designed to reduce the monthly rates of restraint. Overall, the total number of hours in restraint, corrected for mean daily census, decreased significantly. The average number of patients in chemical restraint stayed about the same. There was a significant increase in number of patients, number of episodes, and hours of mechanical restraint as expected. Rates of seclusion dropped to zero as mandated. A new category of physical restraint was defined by law and was used to limited extent.

In Massachusetts on April 7, 1985, a restrictive state law¹ was implemented which regulated the psychiatric use of restraint. The intent of the law was to reduce the rates of restraint. The following quotation from the law emphasizes its restrictive language.

Restraint of a mentally ill patient may only be used in cases of emergency, such as the occurrence of, or serious threat of, extreme violence, personal injury, or attempted suicide; provided, however, that written authorization for such restraint is given by the superintendent or director of the facility or by a physician designated by him for this purpose who is present at the time of the emergency, or if the superintendent or director or designated physician is not present at the time of the emer-

gency, nonchemical means of restraint may be used for a period of one hour provided that within one hour the person in restraint shall be examined by the superintendent, director, or designated physician.

The law and the regulations of the Department of Mental Health² provided for additional restrictions in the restraint of children under the age of 18 years. Very careful documentation of the use of restraint on a well-staffed child and adolescent unit provided an opportunity to assess the effects of the law in changing the rates of various types of restraint. It was hypothesized that the law would have the effect of decreasing the number of hours of overall restraint and that the number of patients and discrete episodes of mechanical and chemical restraint would increase.

For patients under the age of 18 years mechanical restraint and chemical restraint could be used both before and

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after implementation of the law. Seclusion was allowed only before the law went into effect. Physical restraint was allowed only after implementation of the law.

Methods

The medical records of 176 inpatients who were on a child and adolescent unit over an 18-month interval beginning in July 1984 were reviewed. The interval spanned the nine months before (pre law) and the nine months after (post law) implementation of a restrictive state law. All data on episodes of restraint, number of patients in restraint, and hours of restraint were included to give a realistic, undistorted picture of the occurrence of restraint.

During the hospitalization many of the patients were placed in one of four categories of restraint. Mechanical restraint was the use of a physical device to restrict patient movement or normal function of a portion of his/her body. Chemical restraint was defined as the administration of medication involuntarily in order to restrain or restrict movement of a patient. (Medications used for chemical restraint were reported elsewhere.³) Physical restraint was the use of bodily physical force to limit a patient's movement for more than a five-minute interval. Seclusion was the placement of a patient in a room alone where a door or staff member might block the exit. Seclusion was defined as a type of restraint.

Tabulations were made of patients in restraint and episodes of restraint. For mechanical and physical restraint and seclusion the length of time in hours

spent in restraint was recorded. Rates were calculated by dividing the number of patients (or episodes) or hours in restraint in a calendar month by the mean daily census for that month. It was important to include all 176 patients in the tabulations so as to give an accurate representation of the various types during the time intervals which were studied. Two-tailed *t* tests were used to compare differences in mean rates.

Results

The records of 176 inpatients were reviewed. Their mean age was 13.0 years ($\pm SD = 2.2$), and 51.7 percent were female. The mean educational level was 7.2 years ($\pm SD = 2.2$), and 92.7 percent were Caucasian. The mean daily census was 35.5 ($\pm SD = 3.6$), and the mean length of stay was 173 days ($\pm SE = 14$).

The primary DSM III diagnosis on admission was aggressive conduct disorder (22.3%), unaggressive conduct disorder (22.3%), major affective disorder (19.4%), other psychosis (8.6%), and other diagnosis (27.4%).

A total of 50 percent of the patients had an episode of seclusion or some type of restraint during the course of their hospitalization. The rates of restraint according to category were mechanical restraint (33.5%), chemical restraint (30.6%), physical restraint (12.5%), and seclusion (57.2%). Some patients had more than one type of restraint or seclusion.

Hours Spent in Restraint Pre and Post Law The psychiatrist could order the use of mechanical restraint both pre and post law. He/she could use seclusion

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only pre law. Physical restraint was defined and used only post law.

The total number of hours of mechanical restraint plus seclusion was calculated pre law for each calendar month. The hours of mechanical restraint plus physical restraint were summed post law. The data were then census corrected to give an index number. The mean rates pre law were 2.29 ($\pm SD = 1.06$) and, post law, 1.01 ($\pm SD = 0.46$). The rates post law were statistically significantly lower when the means were compared by *t* test ($p < 0.006$).

Mechanical Restraint As shown in Table 1, the monthly census corrected means for number of patients and number of episodes of mechanical restraint increased significantly post law. The increase was due, in part, to the fact that seclusion would not be used post law.

The census corrected mean monthly rates for hours pre law (0.48, $\pm SD = 0.26$) and post law (0.93, $\pm SD = .51$) were compared also by *t* test. The rates were significantly higher post law ($p = 0.038$).

Chemical Restraint The monthly census corrected mean number of pa-

tients and number of episodes were similar pre and post law as shown in Table 1.

Seclusion The mean number of patients and episodes in seclusion are given pre law in Table 1 ($n = 89$). There was no provision for use of seclusion post law. The mean monthly number of hours in seclusion was 2.10 ($\pm SD = 0.47$) pre law. With the implementation of the restrictive law, seclusion was no longer allowed in patients under the age of 18 years. Therefore, the rate went to zero. There was one exception which was accounted for by a patient temporarily locking himself into a room.

Physical Restraint A new category of restraint was set up by the restrictive law. Physical restraint was defined as a period of holding a patient for five minutes or more. The mean number of patients and number of episodes of restraint are given in Table 1. The mean length of time for an episode of physical restraint was 20 minutes (range, 5 to 55 minutes)($n = 105$).

Precipitating Behaviors The precipitating behaviors (indications) for the various types of restraint are given in

Table 1
Comparison of Mean Monthly Census Corrected Rates of Various Types of Restraint Pre and Post Law*

	MR†		CR		PR		Se	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Patients								
Pre	0.13	0.04	0.16	0.08	—	—	0.39	0.09
Post	0.21	0.08	0.12	0.05	0.08	0.04	—	—
Episodes								
Pre	0.26	0.12	0.23	0.11	—	—	1.11	0.46
Post	0.68	0.37	0.23	0.12	0.22	0.21	—	—

* MR = mechanical restraint; CR = chemical restraint; PR = physical restraint; Se = seclusion.

† MR was significant for patients ($p < 0.014$) and episodes ($p < 0.007$).

Table 2. The use of seclusion for harm to others (15.7%) and imminent harm to others (24.7%) comprised the highest rates of the various indications. When comparisons of rates were made pre and post law, the rates were similar.

Accident Reports for Staff There were 17 accident reports on staff members pre law and 17 accident reports post law, as well.

Discussion

The intent of a restrictive law in Massachusetts was to reduce the amount of various types of restraint. The total number of hours in restraint was reduced significantly on a child and adolescent unit, as expected. The number of patients and episodes of chemical restraint on the unit were not significantly affected (not expected). Thus, the law succeeded, in large part, in its intent to reduce rates of restraint among children under the age of 18 in one facility.

The success of the law in reducing use of restraint in children may vary a great deal from facility to facility depending upon such factors as number of children with problems in impulse control, crowding, staffing patterns, and the phi-

losophy of the staff. For example, the superior staffing on the unit and high rate of diagnosis of conduct disorder may have affected the way the rates of restraint changed. Therefore, it is difficult to generalize extensively about the effects of the law. In addition, the effects of the law upon rates of restraint on units having adults has not been studied.

Rates of chemical restraint were not affected by the law in the facility that was studied. A number of factors accounted for the lack of a reduction in chemical restraint. First, staff members had always been careful to use chemical restraint sparingly and for only the most difficult cases. Thus, the rates were already low before the implementation of the restrictive law. Second, a court case⁴ (the *Rogers* case) aimed at regulating the forced use of medication had been decided about one and one-half years before the restrictive state law. The influence of the court decision may have sensitized staff members to be very careful about use of chemical restraint.

Clinicians had the choice of use of either mechanical restraint, physical restraint, or chemical restraint post law because seclusion could not be used on

Table 2
Precipitating Behaviors (Indications) for Various Types of Restraint*

Type of Restraint	Indication					Total (%)
	Harm Others (%)	Imminent Harm to Others (%)	Harm Self (%)	Imminent Harm to Self (%)	Mixed† (%)	
Mechanical	5.1	10.2	4.5	9.7	4.0	33.5
Chemical	3.4	11.9	2.8	8.0	4.5	30.6
Physical	1.0	5.7	1.9	1.9	2.0	12.5
Seclusion	15.7	24.7	2.2	13.5	1.1	57.2

* If a patient had multiple episodes of restraint, the indication for the first episode was used.

† Combination of two or more other indications of harm to self and harm to others.

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children after the law was passed. The rates of total time in restraint post law decreased even when the sum of rates of seclusion and mechanical restraint pre law were compared to the sum of the rates for physical restraint and mechanical restraint post law. The emphasis of the law on decreased use of restraint definitely had an effect. Interestingly, the use of physical restraint on children provided body contact between a young patient and one or more staff members. Perhaps there was a soothing effect due to the physical contact. This, in turn, might have decreased the time required in physical restraint and also decreased the need for further restraint later. Also, the ample number of well-trained staff members made it relatively easy to implement the procedure of physical restraint which came into use post law.

There were the same number of accident reports on staff both pre law and post law. Thus, the law had no effect on accidents to staff, although it was feared that the number of accidents might increase.

Further study of the effects of the law in other facilities for adults and for children is in order. In addition, the identification of factors which cause the violence leading to restraint is an important endeavor and can be studied in the context of collecting data on seclusion and restraint.⁵⁻⁸ The therapeutic implications beyond risk management are difficult to assess. However, the fact that the number of hours of restraint was reduced post law suggests that the staff

members found ways of handling the patients other than by use of restraint.

Since completion of the study, the state law has been modified to allow for the seclusion of minors.^{9,10} It is to be expected that laws will not remain static in this evolving field; it is hoped that the changes in the laws will reflect the data gained from experience.¹¹

References

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