

**Child and Adolescent Inpatient Restraint Reduction:  
A State Initiative to Promote Strength-Based Care**

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### **Abstract**

**Objective:** To reduce the use of restraint and seclusion with children and adolescents in psychiatric inpatient units by promoting a preventive, strength-based model of care. **Method:** The State Mental Health Authority used data analysis, quality improvement strategies, regulatory oversight and technical assistance to develop and implement system change over a 22-month period. No changes in regulation or policy were undertaken. **Results:** Comparative data collected before and after the interventions demonstrate substantial reductions in the use of restraint and seclusion. Child units (age 5-12) decreased from 84.03 to 22.78 episodes per 1,000 patient days (72.9%), adolescent units from 72.22 to 37.99 episodes (47.4%) and mixed child/adolescent units from 73.37 to 30.08 episodes (59%). **Conclusion:** The use of restraint and seclusion in child and adolescent inpatient settings can be reduced substantially through a systems approach, which may have applicability to other settings and systems. **Key Words:** restraint and seclusion reduction, strength-based, state mental health authority.

## INTRODUCTION

"To detain maniacs in constant seclusion, and to load them with chains...is... more distinguished for its convenience than for its humanity or its success." (Goshen, 1967) (p. 264)

Despite intermittent efforts since Pinel removed chains from the insane in 18<sup>th</sup>-century France (Weiner, 1992), restraint and seclusion (R/S) have remained prominent in psychiatric practice (Rothman, 2002). Opinions differ as to its utility and efficacy. In the last decade, concern has focused increasingly R/S use in psychiatric treatment, particularly with children and adolescents. Some have argued that R/S is a necessary safety measure, perhaps even a necessary part of child/adolescent treatment (Cotton, 1989; Gair, 1980,1984). This practice has been challenged by a body of published evidence and by criticism in both lay and professional communities. But there have been few reports of effective strategies to curtail or provide alternatives to R/S use with children and adolescents. This paper describes such an initiative by the State Mental Health Authority (SMHA) in Massachusetts, and its effects.

### *Increasing Concern, Regulatory Responses*

Increasing concern about using (R/S) in psychiatric settings has been expressed in the media, in Congress, and by national accrediting, regulatory and professional organizations, reinforcing the need for continued critical examination of the practice.

In the media, a Pulitzer Prize-winning series in The Hartford Courant reported 142 deaths, over ten years, of patients who were being restrained. More than 26% of these deaths involved children and adolescents, nearly double the proportion of these cohorts in psychiatric institutions nationwide (Weiss, 1998).

The National Association of State Mental Health Program Directors (NASMHPD), in a position statement, labeled R/S "safety interventions of last resort...not treatment interventions." Emphasizing the "significant risks [of R/S] for people with psychiatric disabilities," NASMHPD aimed "to prevent, reduce and ultimately eliminate the use of R/S" and called for sensitivity to patients' trauma history and for a treatment culture based on collaboration rather than control (NASMHPD, 1999).

The Health Care Financing Administration (HCFA) issued more stringent R/S standards in 1999, which included monitoring, staff training and post-restraint expectations. Congress established standards in the Children's Health Act (2000) that restricted the use of R/S with children and adolescents in psychiatric facilities that receive federal funds. In response, HCFA (renamed the Center for Medicaid and Medicare Services [CMS]) issued new rules regarding

the use of R/S in psychiatric residential treatment facilities that provide Medicaid services for individuals under 21 (HCFA, 2001).

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) set the following goal in its Behavioral Health Care Restraint and Seclusion Standards (JCAHO, 2001):

Because restraint and seclusion have the potential to produce serious consequences, such as physical and psychological harm, loss of dignity, violation of an individual's rights, and even death, organizations continually explore ways to prevent, reduce, and strive to eliminate the use of restraint and seclusion through effective performance initiatives.

The American Academy of Child and Adolescent Psychiatry (AACAP) issued a "Practice Parameter for the Prevention and Management of Aggressive Behavior in Child and Adolescent Psychiatric Institutions" that emphasized the need for treatment planning, staff training and de-escalation strategies. The parameter also provided indications for the safe implementation and monitoring of R/S when necessary (AACAP, 2002).

#### *Restraint and Seclusion: Evidence and Practice*

Besides the risk of death in restraint, which prompted The Hartford Courant series and led to recommendations from an official Connecticut investigation (Child Fatality Review Panel, 1998), the professional literature has criticized the use of R/S on other grounds. Regarding restraint, studies focusing on children and adolescents cite a lack of empirical evidence (Martin, 2002; Selekman and Snyder, 1995) and a number of negative physical and psychological effects, including developmental deficiencies in language, speech, motor strength and body image (Selekman and Snyder, 1996). Some argue that using R/S with children and adolescents teaches the wrong lesson, appearing to endorse the use of force (Murray and Sefchik, 1992). Regarding seclusion, studies with children, adolescents and adults cite the lack of evidence of positive outcomes and considerable evidence for negative effects (Finke, 2001). Some data indicate that seclusion is used for staff convenience rather than patient need, as when staff are busiest and placing the greatest demands on children (Millstein and Cotton, 1990).

#### *Patient Experience*

Many children and adolescents experience R/S negatively. In children's drawings (Miller, 1986) and in interviews with children and adolescents (Martinez et al., 1999; Miller, 1986), those who were restrained or secluded indicated they felt afraid, abandoned and punished. Other children and adolescents reported feeling traumatized and puzzled by the staff's use of force (Mohr et al., 1998). In addition to providing evidence of negative effects, these studies also failed to support the argument that R/S teaches children and adolescents self-control.

### *Trauma*

The use of R/S poses increased risks for children and adolescents whose histories often include physical, sexual and emotional trauma. In one study, trauma histories were present in up to 93% of hospitalized adolescents, 32% of whom met the criteria for posttraumatic stress disorder (Lipschitz et al., 1999). Another study concluded that children with a history of acute trauma retained psychological sequelae from the experience of R/S that continued to affect their mental and physical health (Lewandowski and Baranoski, 1994). In addition, the failure to recognize childhood trauma and abuse produces iatrogenic effects (Carmen et al., 1996; Jennings, 1994). Finally, for those with childhood trauma histories, using R/S makes the hospital, the intended site of healing, a place of new trauma (Carmen et al., 1996; Jennings, 1994; Rosenberg et al., 2001). One consumer advocate described how the experience of restraint recapitulated her childhood trauma:

Rather than deterring anything, these episodes perpetuated a vicious cycle. The more I was restrained, the more humiliation I felt. The more shame and humiliation I felt, the more I dissociated, self-injured, and was restrained. (Prescott, 2000) (p. 98)

### *Staff perspective*

Staff see R/S more favorably than child and adolescent patients, even when acknowledging the lack of evidence of its benefit (Allen, 2000). Some concede that R/S may be harmful to children, adolescents, adults and staff but see it nonetheless as effective in preventing injury and agitation (Fisher, 1994). There is evidence that their gender, level of education, and degree of clinical experience affect staff's decision to use R/S with children and adolescents (Busch and Shore, 2000; Garrison, 1984).

### *Background to the Initiative: The Massachusetts State Mental Health Authority*

In the present initiative, the Massachusetts Department of Mental Health (DMH) built on an existing role. Through its statutory authority, DMH licenses and provides regulatory oversight to acute psychiatric units in 60 private and general hospitals. It also regulates and monitors ten inpatient facilities (both DMH-operated and contracted units) for adults, children and adolescents. All facilities/units are accredited by JCAHO, certified by CMS, and accept and treat heterogeneous populations. Co-morbidity may include substance abuse, mental retardation/autism spectrum disorders and medical conditions.

Massachusetts' R/S regulations, in place since 1986, exceed recently enhanced JCAHO and CMS standards. The initiative also benefited from systematic collection of R/S data and relationships between DMH staff and providers developed during licensing and contract monitoring visits. DMH staff provide clinical support, teaching, technical assistance and regular feedback to providers. These frequent interactions support a working relationship that goes

beyond the traditional model based on regulatory compliance and checklist monitoring. R/S standards, routine collection of R/S data, and DMH's statutory authority provided infrastructure for the current initiative.

*Identification of the Problem: Consensus Development*

Support for a new approach arose from reviewing quantitative R/S data. DMH had been reviewing *individual* patient R/S reports since the mid-1980s. In 1993, it began collecting *monthly aggregate* data from each facility/unit. Data included episodes and hours of seclusion, mechanical and physical restraint (bodily physical force limiting freedom of movement) and involuntary administration of medication to immobilize a patient or otherwise control behavior. In 1998, DMH began evaluating R/S data as part of its quality management process and developed a comprehensive report that allowed each unit to measure and compare its performance against similar units statewide. These reports showed great variation. The 1999 and 2000 data indicated R/S rates for children and adolescents were five to six times higher than the rate for adults (Table 1).

**TABLE 1**

Restraint and Seclusion Episodes per 1,000 Patient Days  
 One Year Pre-Initiative: Comparison of Child and Adolescent Units to Adult Units

Number of Units Statewide	Number of Episodes Pre-Initiative <sup>a</sup>	% Comparison to Adult Units
Child (8)	84.03	657.7%
Adolescent (13)	72.22	551.2%
Mixed Child & Adolescent (4)	73.37	561.6%
Adult (136)	11.09	N/A <sup>b</sup>

<sup>a</sup> Pre-Initiative = November 1, 1999-October 31, 2000.

<sup>b</sup> N/A = not applicable.

The higher rates of R/S and the large variation among units indicated that R/S was becoming “usual practice” in many psychiatric units treating children and adolescents. Such practice seemed to reinforce R/S by either traumatizing or provoking patients, leading to more behaviors thought to justify its use. These alarming findings, coinciding with the rising concerns nationwide, served as a call to action.

### *Analysis of Problem – Developing a New Paradigm*

R/S-reduction strategies were developed on two levels. At the state level, DMH staff reviewed actions taken by other SMHAs. For instance, the SMHA in Pennsylvania used leadership mandates, policy changes, public sharing of data and improved training to decrease R/S episodes by 74% and hours in R/S by 96% over a five-year period in state hospitals treating adults (Walsh, 2002). At the individual practice level, DMH staff looked for alternative models and/or programs that had reduced or eliminated R/S with children and adolescents. They visited Bellevue Hospital in New York City and the Sagamore Psychiatric Children's Center in Dix Hills, Long Island, two facilities that used a relationship model of care in which staff, using de-escalation approaches, supported children and adolescents through behavioral crises. Sagamore also used the Psycho-Educational Model, a model based on skill development that helps children and adolescents manage targeted behaviors (Baez et al., 1997), and instituted comprehensive training and quality management processes. They raised the bar by requiring physicians to "defend" the need for R/S and the executive director or designee to authorize mechanical restraint.

A follow-up visit to Bellevue with unit staff representatives provided an "in vivo" training opportunity, including milieu observation and direct, multi-disciplinary peer interaction. Information from the visits was shared with the child and adolescent psychiatric provider community through DMH-facilitated bimonthly "roundtable" discussions. Combining lessons from the visits and discussions, DMH staff *came to see R/S practice as a characteristic of treatment programs, not of children*. Intervention was necessary at the program level to alter the therapeutic environment. Program staff were doing their best with the tools they had, but many programs had limited ways of engaging children in collaborative treatment planning. Staff sometimes appeared to lack the skills to effectively intervene with children in acute distress and relied more commonly on punishment, which exacerbated the negative behaviors.

A shift in focus evolved. In addition to *reducing* the R/S use or doing it more safely, the DMH team resolved to ultimately *eliminate* its use by promoting skill development and collaboration. Such an approach amounted to a paradigm shift in the inpatient treatment of children and adolescents. Moreover, it was clear that existing methods of monitoring R/S use (enforcing regulations and collecting data) would not suffice. It was hypothesized that adding several new elements would be more effective.

### **METHOD**

In the absence of a tested model to support R/S reduction/elimination, DMH took the public health approach endorsed in the NASMHPD Best Practice Recommendations (NASMHPD, 2000) and used it as a framework for its plan of action. This approach addressed:

Primary prevention - establishing collaborative, trauma-sensitive, child-friendly, strength-based models of care that rest on focal problem-solving (Harper, 1989), stress skill development and de-emphasize deficits and pathology;

Secondary prevention - using early intervention techniques that underscore proactive de-escalation and least restrictive developmentally responsive alternatives tailored to the individual; and

Tertiary prevention - preventing or reversing negative consequences through the use of anticipatory planning (noting trauma history, restraint preferences, and family requests), supporting the earliest possible release from restraint, debriefing of staff, and using patient comment forms, all of which minimize the possibility of harm and encourage prevention.

The resulting action plan contained three elements: articulation of a DMH goal to reduce or eliminate the use of R/S and a charge to each licensed or contracted facility/unit to develop a restraint-reduction plan; generous technical assistance; and continued use of quantitative, facility/unit-specific data.

#### *Departmental Mandate*

In September 2001, the DMH commissioner and medical director wrote to all child and adolescent inpatient providers, announcing their goal of reducing and eventually eliminating R/S use. The SMHA's statutory oversight of acute and continuing care made the scope of this initiative fully inclusive and applicable to all child and adolescent psychiatric inpatient units in the state.

#### *Training and Technical Assistance*

DMH offered clinical consultation, training and technical assistance to help the provider community meet the R/S-reduction. Beth Caldwell, a nationally recognized expert in strength-based approaches to managing child and adolescent behavior, was hired as a consultant. Technical assistance took several forms.

Licensing and Contract Monitoring Visits. Licensers visit units biannually, make annual clinical site visits to the child and adolescent-serving programs, and maintain frequent telephone contact with all units. Contract-monitoring visits are made monthly, with weekly telephone contact. At these times, staff discuss practices and strategies that promote strength-based care, including the use of a Safety Tool. This tool, an individualized crisis prevention plan pioneered by DMH that is used nationally, was developed by a DMH task force in response to consumers' concern about the impact of R/S on people with physical and/or sexual abuse histories. Using the tool, a patient, family member (as appropriate) and staff person collaboratively develop a plan, on admission, that identifies preferred strategies for de-escalation and avoidance of R/S, and restraint preferences to consider if restraint becomes necessary. DMH requires the use of this plan with all patients, regardless of age. Programs have adapted the Safety



Tool to meet the developmental needs of children and adolescents (<http://www.mass.gov/dmh>).

Roundtable Discussions. These face-to-face meetings, hosted by individual providers at their facilities on a rotating basis, offered peer-to-peer support and encouraged collective problem solving to change culture and implement innovative R/S-reduction approaches. Crisis prevention, de-escalation techniques and practical questions concerning clinical programming were discussed. These meetings continue.

Best-Practice Conference #1. In October 2001, DMH held a statewide best practice conference on R/S reduction. Staff representing all child and adolescent inpatient providers in the state attended. The commissioner reiterated her commitment to reducing or eliminating R/S. The Medical Director for Children and Families in the New York Office of Mental Health described the use of their Comprehensive Training Guide (Baez et al., 1997) with children and adolescents in hospitals throughout New York.

Elements of strength-based models of care were presented. These included an affirming culture, a focus on the child/adolescent's positive behaviors, support for their participation, and emphasis on de-escalation strategies. The relationship of the strength-based approach to the concept of resiliency was discussed (Davis, 1999; Goldstein et al., 1980; Grotberg, 1995; Werner and Smith, 1992). Three models: the Psycho-Educational Model (Baez et al., 1997), the Bellevue Hospital relational model of care (as observed during 2000 visit) and the Teaching-Family Model (<http://www.teaching-family.org/tfamodel.html>) were presented as springboards for local creativity. The need for leadership, training, supervision, and quality management systems was emphasized to increase the likelihood that systemic changes will be sustained, regardless of leadership turnover (Caldwell, 2002; Furst et al., 1994; Henggeler et al., 1999).

Nursing staff from Bellevue used role-play, dramatizing the interaction between a threatening, aggressive adolescent and a staff person, to demonstrate techniques for therapeutic de-escalation, including the use of humor, distraction, engagement, support and flexibility to help an adolescent regain control. Attendees also heard adolescents and parents describe the lasting negative effects of R/S.

Strategic Plans. Each provider was asked to develop a strategic plan to introduce strength-based care and reduce R/S. Providers were not required to demonstrate fidelity to a specific strength-based model. Each was given a tool to assess leadership commitment ([www.mass.gov/dmh](http://www.mass.gov/dmh)) and asked to describe the therapeutic model, program elements, and implementation obstacles. Sample performance improvement guidelines were distributed. Following the

conference, providers refined their strategic plans and submitted them to DMH. The plans outlined goals, methods, timeframes and responsible parties. DMH staff analyzed each plan to ascertain evidence of these elements and leaders' commitment to the initiative. DMH staff provided written and verbal responses and met with leaders from programs that needed additional technical assistance. Plans reflected providers' strengths, creativity and resourcefulness. Collectively, the plans highlighted a variety of approaches to R/S reduction, outlined the obstacles to lowering their use (e.g., staff turnover, fear about staff safety, staff shortages) and proposed timelines for improvement.

R/S-Reduction Grand Rounds Series #1. Between November 2001 and March 2002, DMH presented a series of three grand rounds. Two presentations were held at a conference center and one was provider-hosted. All child and adolescent providers were invited and more than 80% attended all three sessions. DMH helped providers develop their strategic plans and strength-based approaches. Teams from units that had incorporated de-escalation techniques into treatment planning presented their work.

Statewide Conference #2. In May 2002, providers' strategic plans, including performance improvement efforts and R/S outcomes, were presented. Though nearly 80% of programs had achieved gains, four that were particularly successful shared promising practices in panel presentations. A mother talked about her new experience of partnership with staff and the ways in which her son had improved. Other panelists discussed their role as change agents and some, their use of holistic approaches.

R/S-Reduction Grand Rounds Series #2. This series, launched in September 2002, had two goals: to link DMH efforts with those of other child/adolescent-serving state agencies to enhance supports for children and adolescents with trauma histories. This series aimed to further refine the Safety Tool, implement trauma guidelines, offer de-escalation training and examine the need for regulatory reform. A second statewide provider forum in May 2003 identified successful programs, innovative approaches, emerging best practices and challenges.

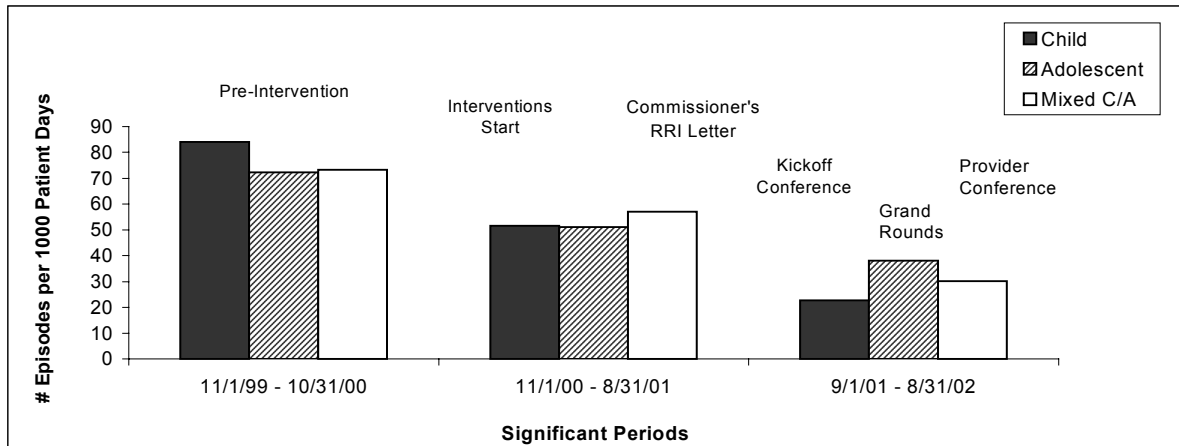
## **RESULTS**

### *Data Collecting and Reporting Methods*

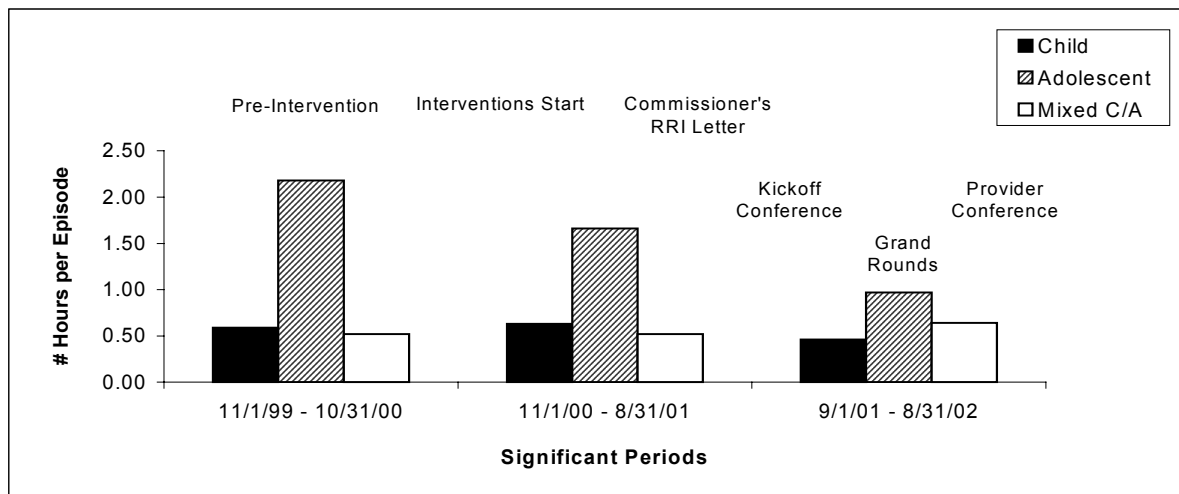
This paper examines total episodes of R/S per 1,000 patient days and total hours of R/S per episode. Although data are collected from all state-operated, licensed and contracted facilities/units, this initiative focuses exclusively on children and adolescents.

Data from one year prior to the beginning of the initiative (November 1999-October 2000) and for the 22-month intervention period (November 2000-August 2002) were analyzed. The variance was calculated from the percentage

differences in episodes and hours in the pre- and post-initiative periods. Figure 1 displays and compares the total number of R/S episodes per 1,000 patient days during the pre-initiative period with data collected during the initiative. It also notes significant events that occurred. By the end of the last 12-month period (September 2001-August 2002), the total number of episodes decreased by 72.9% (child), 59% (mixed child/adolescent) and 47.4% (adolescent) from the pre-initiative period. Decreases were reported by 78.2% of the units.



**Fig 1.** Total restraint and seclusion episodes per 1,000 patient days. RRI = restraint reduction

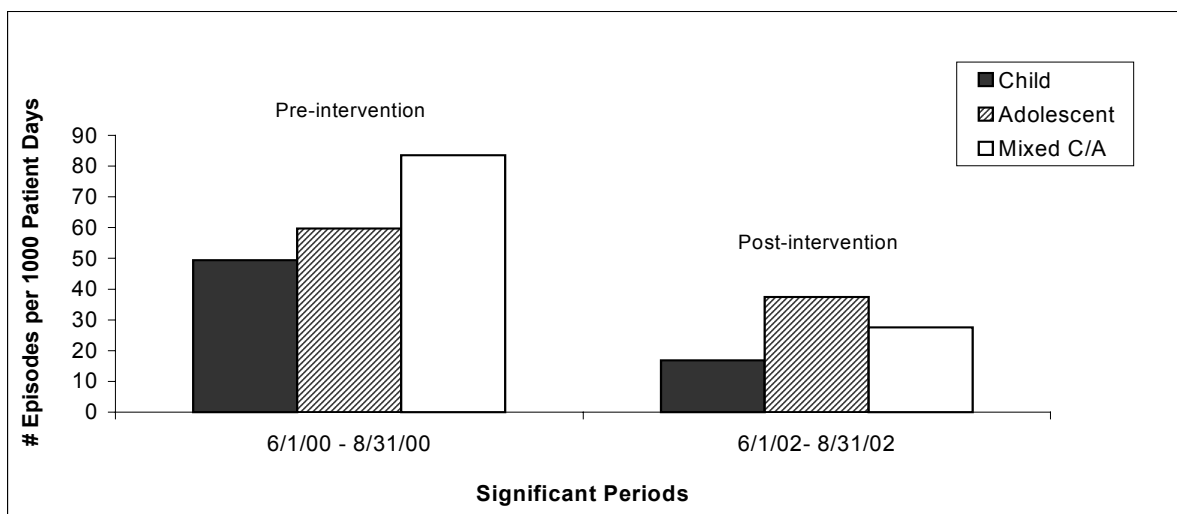


**Fig. 2.** Total restraint and seclusion hours per episode. RRI = restraint reduction

Figure 2 displays the total number of hours per episode during the same periods. The child and adolescent units reported a reduction in hours of 22% and 55.5%, respectively. The mixed child/adolescent units increased their hours per episode by 23.1%. One outlier in a single mixed child and adolescent unit

skewed these results. Eighty-two percent of units decreased the number of R/S hours per episode.

Total episodes per 1,000 patient days and total hours per episode were compared for two parallel three-month periods pre- and post-interventions; June 2000 - August 2000 and June 2002 - August 2002. Figure 3 illustrates that episodes in the latter period decreased by 37.7% (adolescent), 65.9% (child) and 67% (mixed child/adolescent). Hours per episode in the same period decreased by 31% (adolescent), 19% (child) and 16.7% (mixed child/adolescent).



**Fig. 3.** Total restraint and seclusion episodes per 1,000 patient days: comparable pre- and post-intervention periods.

### *Responses to Changed Practices*

There was notable variety in the ways units reduced or eliminated R/S. One unit adapted the Collaborative Problem-Solving Model (Greene, 1998) and made policy, training and programmatic changes accordingly. Another used Grotberg's resiliency model (Grotberg, 1995) and applied Caldwell's adaptation of the Teaching-Family Model (<http://www.teaching-family.org/tfamodel.html>). These methods emphasize replacing mechanical restraint with nurturing interventions to enhance self-esteem. Other units incorporated holistic alternatives and sensory integration techniques and elevated the role of families as equal treatment partners. Units with leaders committed to no/low R/S that began operating during the initiative and that received strong support from DMH have maintained low rates of R/S. Units in which there was less commitment and insufficient leadership demonstrated less success.

### *Conference Evaluation and Staff Comments*

Feedback obtained from conference evaluation indicated that an average of 95% of attendees thought the presentations met their needs. Individual comments endorsed the effectiveness, quality and relevance of the materials.

During DMH visits to programs where R/S has been reduced, unit staff report increased satisfaction. Many comment that they disliked using R/S but lacked the knowledge and skills to intervene differently. Now, using supportive approaches and responding earlier with creative interventions, they are avoiding power struggles and feel better about their work.

### **DISCUSSION**

In a 22-month period, the use of R/S on child and adolescent inpatient units was reduced substantially through an initiative that set a goal, required facilities/units to develop plans to move toward that goal, used quantitative data, monitoring and feedback, and provided generous technical assistance. The most dramatic reductions occurred in the child units while more modest gains occurred in the adolescent units.

The Massachusetts experience demonstrates that institutional culture and practice can be shaped and that use of R/S can be reduced in inpatient settings licensed by or contracting with the SMHA. This reduction was accomplished by providing staff with a clear set of expectations, alternatives to R/S, and technical support for programming and strength-based interventions. The SMHA used a strength-based model, creating an alliance and appealing to the strengths and creativity of the leaders, clinicians and staff, despite the inherent power differential between the SMHA and providers.

Some staff feared this change would lead to losing control and increased physical injury. The literature, as reviewed by NASMHPD, reports the opposite: the use of physical intervention to contain behavior puts staff at the greatest risk of assault and injury (NASMHPD, 2000). In the present study, preliminary data from the DMH-contracted units reported 27% fewer injuries to staff and 12% fewer injuries to children, as R/S has been reduced ([www.mass.gov/dmh](http://www.mass.gov/dmh)). A child-serving licensee unit reported a 100% decrease in serious staff injuries since starting the initiative (Regan, 2003).

### *Limitations*

Restraints have been reduced only for a short time. The locus of this effort, inpatient treatment, is only one element of the child/adolescent continuum of care. Without consistency across all treatment settings, children and adolescents discharged to residential placements where conventional practices are used may lose gains made in the hospital. Some might consider the variety of models used during this initiative to be a limitation, as it prevents our reporting the use of a single, replicable model. But in this initiative, local creativity and

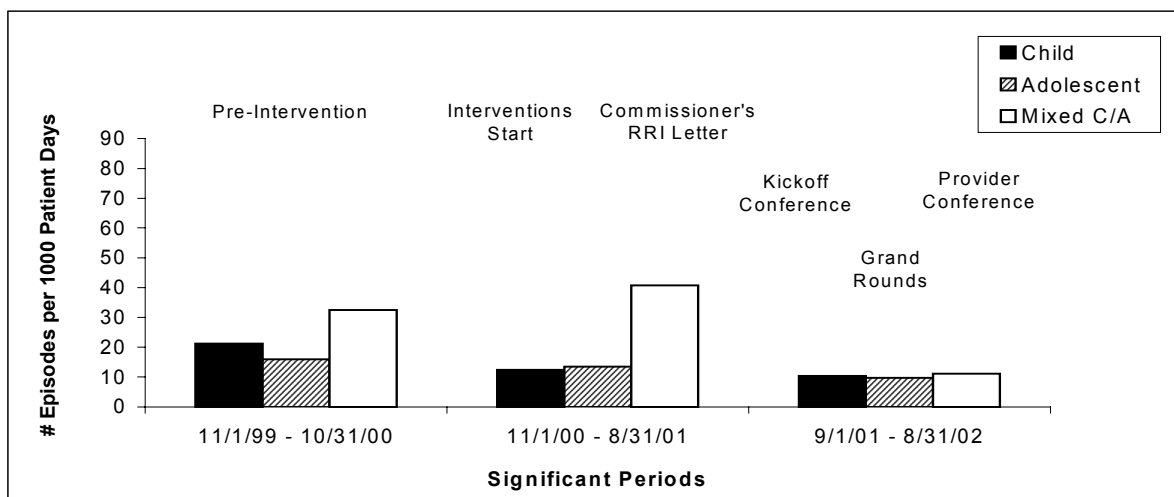
variation have been valued, within the overall collaborative, strength-based approach. The sustainability of reduced or eliminated R/S is unknown.

This facility/unit-focused initiative did not measure the effect of R/S use and/or R/S reduction on individuals, ethnic minorities, or children and adolescents with hearing impairment, mental retardation, autism spectrum disorder or other psychiatric diagnoses, nor was the effect of any disorder on R/S use measured. In addition, the use of psychopharmacologic medications, including atypical agents, was not studied.

We are aware that DMH is measuring a 'negative' when counting episodes of R/S. We have not found a way to quantify the interventions that contribute to the decreased use of R/S and are, therefore, left with incomplete conclusions based on the number of episodes. Providers and DMH staff are developing means to identify and quantify positive indicators of strength-based care to counter the current 'negative' method of assessing R/S reduction.

### *Clinical Implications*

DMH was concerned that reducing R/S use might lead to an increase in the involuntary administration of medication to control difficult behavior. However, during the 22-month data collection period, the use of involuntary medication decreased in the child, adolescent and mixed child/adolescent units by 51.5%, 38.4% and 66% respectively, along with the decreased use of R/S (Figure 4).



**Fig. 4** Involuntary administration of medication episodes per 1,000 patient days. RRI = Restraint Reduction Initiative.

DMH and program staff are continuing the R/S-reduction/elimination effort. A manual is being developed to include child and adolescent crisis prevention and support plans and implementation guidelines, recommendations for applying sensory integration practices and milieu-based, trauma-sensitive approaches. Additionally, a new Grand Rounds series and expansion of the initiative to child/adolescent residential settings is planned.

### *Regulatory Implications*

No new regulations or policies were introduced. To further support R/S reduction, a number of regulatory changes are being considered. These changes would strengthen standards and prohibit the use of mechanical restraint for children under the age of ten, reduce the amount of time R/S is allowed for any child or adolescent, increase staff training requirements and change behavior management regulations to reflect a strength-based educational orientation.

### *Conclusions*

The Massachusetts initiative demonstrates that R/S reduction can be achieved in a short amount of time, without additional appropriations, throughout a state's public and private child and adolescent psychiatric inpatient service system. Key ingredients included setting a goal to reduce or eliminate R/S, requiring licensed and contracted providers to develop their own plans to move toward that goal, providing considerable technical assistance, and systematic use of quantitative data for feedback. This effort may have application to other states and systems serving children and adolescents.

Although nearly 80% of units demonstrated success through this initiative, the reduction was greater in child units, suggesting that more developmentally appropriate adolescent models may be needed. For example, a model developed by Riverview Hospital in Middletown, CT, was successful in reducing episodes and duration of R/S for both age groups (Donovan et al., 2003b).

Another area for investigation includes the impact of R/S on discrete populations, such as ethnic minorities (Donovan et al., 2003a) and children and adolescents with hearing impairment or developmental disorders. In addition, while the use of involuntary medication decreased, the impact of R/S reduction on psychopharmacologic practice, and the role of medications, including the use of atypical agents, is unknown, and warrants further investigation.

Another significant problem remains. Physical restraint is defined differently by CMS, JCAHO and individual states. Until uniform definition is adopted, it is not possible to accurately obtain a fully inclusive national R/S baseline or compare R/S utilization among states or between child and adolescent populations.

Through its unique role in Massachusetts, the SMHA has considerable influence on the facilities/units it contracts for and licenses. During this initiative, DMH sought to transfer ownership of the project to the provider community to sustain gains made and commitment to R/S reduction. It cannot be known how successful this approach would be in systems where the SMHA does not have similar authority and scope.



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