

Monitoring of Reducing Restraints Initiatives in Intensive Services: Public Summary

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**Mme Vanier Children's Services
London, ON**

**Full Report: April 28, 2006
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Monitoring of Reducing Restraints Initiatives in Intensive Services: Final Report

Regional (Jones, Stevens, Rodrigues, & Carter, April 2005) and international (Jones, Carter, & Stevens, June 2005) conferences have recognized Vanier's work in reducing incidents of physical restraints. In keeping with recommendations from the literature, this initiative has involved the entire agency. In practice, the programs most involved in these efforts have been the residential ("TLC" and "Hand-in-Hand") and day treatment ("Early Intervention Program" and "On-Campus Day Treatment"). The residential and on-campus day treatment programs each serve boys and girls age 7-14 who have been identified by either the Community Services Coordination Network or a local Children's Aid Society as needing intensive services. The Early Intervention Program is a day treatment program serving preschool children who have been identified at Vanier as requiring an intensive service. Restraint data is presented to a "Reduce Restraints Working Group" and the agency-wide committee responsible for quality assurance ("Value Team"). Results regarding the first year of our efforts to reduce restraints were shared at the previously mentioned conferences. The grant enabled us to improve our ongoing, quarterly reporting regarding restraint incidents, and to provide more information as needed to front-line staff and to the Reduce Restraints Working Group.

One of the crucial elements in an effective plan to reduce the number and duration of restraint incidents is effective monitoring. The primary goal of the current project was to strengthen our infrastructure for reporting on restraints. To this end, an external Information Systems consultant was hired to help us develop a report summarizing restraint incidents. A second goal was to improve our ability to identify the children who are most likely to engage in dangerous behaviour. To this end, the external consultant was asked to develop a report that would pull from existing information records as much relevant information as possible. The resulting data file contained records for 1 054 children who had been active Vanier clients between April 1, 2004, and March 31, 2006. Each record included the client's unique casebook number, age, gender, presenting concerns, most intensive program involvement, Brief Child and Family Phone Interview (BCFPI) scores, and Child and Adolescent Functional Assessment Scale (CAFAS) scores. Of these children, 96 had at least one restraint incident. For those children, the number of restraint incidents and their total duration was provided. From these data, an algorithm was developed to predict the number and duration of restraints. A third goal was to evaluate staff perceptions and attitudes regarding restraints. Three projects addressed this issue. First, in-depth interviews were conducted to explore staff experiences, attitudes, and ideas about restraints. Second, a previously conducted staff survey was repeated. Third, Vanier had previously created a video depicting various scenarios of staff transporting a "client" from one location to another. This video was intended to develop a better understanding of the concept of gentle guidance.

Prediction Algorithm for Number and Duration of Restraints: Public Summary

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The results of the current project indicate the validity of an actuarial approach to predicting dangerous behaviour among children with mental health problems. In keeping with the actuarial approach, the primary consideration in the current study was the accurate prediction of behaviour, and no underlying theory is assumed. Data was chosen from information that is available at intake. Interpreting the meaning of the inclusion of different variables and their associated weights would be risky at best, given the high correlations and complex relationships among the variables. The reliability and validity of the formulae developed in this study vary greatly. One of the major considerations in a statistical approach is the size of the sample. Although the overall sample size is more than adequate, much data is missing. As a result, many of the resulting models need to be considered preliminary. Where sufficient data was available, however, cross-validation indicated correct classifications in up to 90 per cent of cases. Good predictive ability and stable weights were obtained for whether children over age 6 years would have any restraints, and for the total duration of restraints for these children. These results suggest that a concerted effort to collect data on an ongoing manner would reap benefits in terms of the success of an actuarial approach.

A preliminary examination of the data indicated that we needed to differentiate between children under age 6 years and older children. Looking at the younger age group, it was apparent that only those children in the day treatment program experienced restraints. A logistic regression analysis (least squares criterion, stepwise backwards method with $p < .1$ to remove) provided a prediction algorithm that included gender, age, presenting concerns of family issues and mood. Although this formula yielded 72.7 per cent accuracy for the data on which the weights were calculated, the weights appear to be unstable. Cross-validation of these variables with weights calculated on half of the sample and tested against the other half (then repeated with fit and test roles reversed) yielded only 40.9 per cent accuracy. In terms of the specific prediction, the median number of restraints (1) and duration (5 minutes) were determined to be appropriate predicted values.

Turning to the children age six years and older, the first task was to identify those children who were most likely to be in restraints. A logistic regression analysis (least squares criterion, stepwise backwards method with $p < .1$ to remove) provided a formula that included most intensive program, age, BCFPI scores (Regulation of Attention, Impulsivity, & Activity, and Global Functioning), CAFAS score (Thinking), and presenting concerns (emotional abuse, physical abuse, and stealing). This formula yielded 92.6 per cent accuracy for the data on which these weights were calculated, and the weights appear to be stable. Cross-validation yielded 89.7 per cent accuracy.

The next step was to identify those children who were at risk for a particularly high number of restraints. *High Risk* was defined as those who had more than the median number of restraints, which was three. A logistic regression analysis (least squares criterion, stepwise backwards method with $p < .1$ to remove) provided a formula including BCFPI scores (Regulation of Attention, Separation from Parents, Managing Anxiety, Self-Harm, Internalizing, and School Problems), CAFAS scores (Thinking and Mood), and presenting concerns of physical abuse and neglect. This formula yielded 100

per cent accuracy for the data on which the weights were calculated. Cross-validation indicated that the weights are not stable, and only 54.5 per cent accuracy was achieved.

Children who had restraints but were not predicted to be High Risk were predicted to have the median number and duration of restraints for their group. These predicted values represented one restraint incident that lasted five minutes.

As in previous research (Carter, 2002), the shape of the distribution of the number of restraints was exponential. That is, many clients had a few restraints, and a few had many restraints. To facilitate the analysis, potential variables were screened through linear regression (stepwise backwards method with $p < .1$ to remove). This short list of variables was included in a constrained nonlinear regression model. The basic formula was:

$$\text{Predicted Number of Restraints} = v * \text{EXP} (- v * (\text{sum} (\text{weight} * \text{variable})) + c)$$

where v is a positive constant and c is a constant, and where each variable had a unique weight that was constrained to values between -1 and +1. The variables included BCFPI score (Managing Anxiety), CAFAS scores (Thinking and Self-Harm), and presenting concerns (victim of bullying, reality-testing problems, substance abuse, and witness to substance abuse). The correlation between the predicted and actual number of restraints was $r = 0.948$ ($p < 0.001$). Cross-validation indicated that the resulting weights are not stable. The correlation dropped to $r = 0.279$ (ns).

A similar process was completed to predict the duration of restraints. A preliminary analysis indicated that, like the number of restraints, the total duration of restraint incidents was also distributed exponentially. That is, many restraint incidents were very short, but a few were very long. To facilitate the analysis, potential variables were screened through linear regression (stepwise backwards method with $p < .1$ to remove). This short list of variables was included in a constrained nonlinear regression model. The basic formula was:

$$\text{Predicted Total Duration} = v * \text{EXP} (- v * (\text{sum} (\text{weight} * \text{variable})) + c)$$

where v is a positive constant and c is a constant, and where each variable had a unique weight that was constrained to values between -1 and +1. The variables included CAFAS scores (Self-Harm, Community Behaviour), and presenting concerns (anger, anxiety or depression, mood problems, relationship problems). The correlation between the predicted and actual number of restraints was 0.868 ($p < 0.001$). Cross-validation indicated that the resulting weights are quite stable. The correlation did not change ($r = 0.868$, $p < 0.001$).

Staff Perceptions

Interviews with Key Stakeholders:

**Juliana Tobon, M.Sc. Candidate
Jeffrey R. Carter, Ph.D., C.Psych.**

April 28, 2006

Staff Surveys:

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A master's student from the University of Western Ontario conducted qualitative, semi-structured interviews with 11 staff members at Madame Vanier Children's Services about their experiences with physical restraints, their opinions about physical restraints, and ideas about how to reduce incidents of physical restraint. The staff members consented to the interview and agreed to be audiotaped. The tapes were destroyed after they were used in developing this report. Among those interviewed were two directors, two supervisors, a team leader, a psychologist, and five child and youth counselors (CYCs). These staff had worked at Vanier an average of 12 years, ranging from three months to 25 years.

A survey of staff attitudes toward physical restraints was conducted in April 2006. This same survey had previously been administered in May 2003 and May 2004. In absolute terms, the sample is small, and results regarding subgroups (e.g., managers compared to Child and Youth Counsellors, CYCs) should be interpreted with caution. A total of 33 staff members returned surveys (compared to 33 and 47 in previous years).

Overall, the interviewees reported that a very small percentage of their job involves physical restraints. For the most part, survey participants indicated that restraints occur at appropriate times and at an appropriate frequency. During interviews, only one person in a management role reported current direct involvement in physical restraints. Generally, those in management roles are involved in training and supervising staff in physical restraint-related activities as well as in developing support programs and working groups. CYCs who were interviewed reported varying rates of direct involvement in physical restraints. The survey responses of managers were slightly different from others in that they were less likely to indicate that restraints occurred at appropriate times or that the number of staff on shift was a factor in the number of injuries. Managers and people with more than ten years of experience were less likely to attribute the number of restraints or of injuries to client characteristics. Clinicians were more likely than others to attribute injuries to staff training. People with more experience were more likely than others to indicate that restraints occur too often, and were less likely to attribute the number of restraints to staff training. The idea that staff experience is a factor in the number of restraints and staff injuries was endorsed more often than it had been in past surveys.

Various factors emerged when interviewees were asked about what contributes to staff injuries during physical restraints, including staff training and fitness, the interaction among staff members, child characteristics, and the confrontation of staff and children. Issues included staff fitness, proper implementation of restraint techniques, communication between staff, and child characteristics such as children's unpredictable behaviour and physical flexibility.

After sharing their experiences with respect to physical restraints, interviewees were asked about their opinions about physical restraints. Almost invariably, the first thing that a staff member said is, "I don't like them," or "I don't like *doing* them." Nine out of the 11 interviewees gave this exact response, or some variant thereof. As the psychologist said, "I don't think there's anybody that enjoys restraints." A common reason for dislike of restraints is that restraint situations cause distress. "I think we forget how traumatizing it can be for the kids," said one CYC. The psychologist and a team leader concurred,

saying that it is especially hard for children with abuse or trauma histories. After this initial common expression of dislike of physical restraints, interviewees did admit that they might be necessary for safety.

People who were interviewed supported attempts to reduce the number of restraints. Restraints were described as more regulated, less frequent, and shorter than in the past. Staff reported that restraints are less frequent than in the past. Staff also reported that the number of restraints is higher than some other agencies because of Vanier's high-risk clientele. Managers who were interviewed indicated that achieving zero restraints may be possible in an ideal world, and Child and Youth Counselors were reluctant to agree that it is possible to have no restraints at Vanier.

When asked what they thought would decrease staff injuries from physical restraints, aside from better implementation of the learned techniques, almost all interviewees said that eliminating, or at least decreasing, the number of physical restraints would be the best solution. A couple of staff suggested that changing the culture and some of the attitudes in residential care would help. Many staff talked about the need for staff training in prevention. Many staff also spoke about alternative interventions to reduce the number of physical restraints. Finally, in relation to the younger population that Vanier serves, one director spoke to the need for focusing on age-appropriate interventions because the physical restraint guidelines do not apply. This director said that they would like to focus on three to six-year olds in the upcoming year, and to come up with some recommendations as part of the PMAB-approved interventions, especially for younger children.

Development of the Escort versus Gentle Guiding Video

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April 26, 2006

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The creation of the Escort versus Gently Guiding video has been influenced by a number of factors. The Ministry of Community and Social Services legislation that came into effect April 2003 related to the use, documentation and reporting requirements to the Ministry of Community and Social Services as it related to the use of physical interventions with children and youth being serviced in residential, hospital and custody facilities being the initial impetus. In this new legislation, the following guideline was outlined, “For greater certainty, ‘physical restraint,’ as defined in subsection (1), does not include, (a) restriction of movement, physical redirection or physical prompting, if the restriction of movement, physical redirection or physical prompting is brief, gentle and part of a behaviour teaching program” The difficulty we experienced in training this legislation was providing staff with a working definition of, “Physical redirection or physical prompting that is brief, gentle and part of a behaviour teaching program,” (i.e., “gently guiding”) as this terminology was not more clearly defined.

In September 2003, Vanier created what was termed a “Child and Youth Counselor, Floater” position for the two residential units. Among other functions, it was our thinking at that time, that this position created an opportunity for someone consistently to review and oversee the appropriate completion of the increased legislated reporting requirements of the Ministry. Second, this position created a mechanism to review collectively our use of physical interventions on an almost daily basis for patterns, trends and issues.

We planned to then use the video for discussion and training purposes in developing and promoting a common understanding, consistent implementation and documentation practices related to the use of gentle guiding and escorts.

By April 8, 2005, we had identified three variables for the video and created the following twenty combinations in random order (except that the first and second blocks of 10 each contained a balance across the three variables):

- | | |
|--------------------------|---|
| A. Child Response | <ol style="list-style-type: none"> 1. Struggling 2. Cooperating |
| B. Location | <ol style="list-style-type: none"> 1. From On Campus school to residence 2. In residential unit, from hallway to cloak room |
| C. Level of Intervention | <ol style="list-style-type: none"> 1. One staff with arm around or behind 2. Two staff with arms around or behind 3. Two staff holding wrists 4. Two staff with arms linked 5. Two staff in a Prevention and Management of Aggressive Behaviour (PMAB) Escort position |

Four staff from the Restraint Reduction Working group volunteered their involvement in the video the two staff person roles, one as the child/youth and one videotaping.

The video was shown initially to members of the Restraint Reduction working group and it became evident at that level the lack of consistent interpretation of gentle guiding versus escorts, when each appeared most appropriate, and under what circumstances a Serious Occurrence Report (SOR) was required. In early November 2005, various disciplines and teams were asked for 20 minutes so the video and survey could be completed.

Demographic results from the survey are roughly representative of the staff composition at Vanier. A total of 56 people across 6 teams or disciplines viewed the video and completed the survey. Of these, 4 were members of the working group, 36 identified themselves as Child and Youth Counselors (CYCs), 11 were clinical or teaching staff, and 5 were Intensive Family Services (IFS) workers. The survey asked how long the participants had worked at Vanier. Twelve people indicated less than one year, 2 indicated one to two years, 5 indicated three to five years, 28 indicated more than 5 years, and 9 people did not indicate their experience at Vanier.

The overall results tended to be consistent with expectations. Participants were more likely to rate an intervention as needing an SOR if they had rated it as an Escort ($r = -0.981$, $p < 0.001$), and they were more likely to rate an intervention as an Escort if it was more intrusive ($r = 0.847$, $p < 0.001$). If the child was struggling, participants were also more likely to rate an intervention as inappropriate ($r = -0.721$, $p < 0.001$) and as needing an SOR ($r = 0.556$, $p < 0.02$). There was a trend towards staff being less likely to rate an intervention as gently guiding if the child was struggling ($r = -0.427$, $p < 0.1$). In terms of whether an intervention was judged to be appropriate, a significant interaction existed between Child Response (struggling or not) and the Level of Intervention (from one staff with one hand touching the child to two staff in a proper escort position, $F(4, 10) = 17.204$, $p < 0.001$). The pattern of responses for individual combinations of variables (cell means) was consistent with expectations. For example, more intrusive interventions were more likely to be seen as appropriate for children who were struggling than for those who were not. Staff with more experience were more likely to rate an intervention as appropriate ($r = -0.451$, $p < 0.001$). Whether staff indicated an SOR was needed and whether the intervention was rated as Gently Guiding or an Escort was not related to experience. Position at Vanier did not seem to have an effect overall, but it was a significant factor in many of the individual scenarios.

The PMAB trainers met February 24, 2006, for an in depth review of each scenario. Based on our expertise in managing crisis situations and our understanding of the legislative requirements and definitions we came to a consensus. For each scenario we determined whether the staff intervention was appropriate (i.e., would they have concerns if they saw this situation at Vanier), whether it should be classified as gentle guiding or an escort, and whether a Serious Occurrence report was required.

We have recently completed our first PMAB refresher where the video was shown to the 13 participants. The two participants that provided feedback specifically on the video were as follows: “The video with results was helpful, it provided clarification what gentle guiding is,” and “What I liked best was the video demonstrating the differences between escort and gentle guide”

We see this video as a work in progress and continue to discuss future applications with the following directions having been identified:

1. To use the video in this year's annually scheduled PMAB refreshers so that clarity is provided to all staff implementing physical interventions. To also include a review of the video as an expectation of our agency orientation for all new CYC student, relief and full time positions.
2. To develop a written definition for gentle guiding that could enhance consistency of application and documentation practices and well as further guide agency policies and training.
3. As a result of discussions by members of the Restraint Reduction Working group and our PMAB trainers, we are exploring how the use of hand-holds may be a less intrusive and threatening intervention for children. Exploration of how hand holding may impact the use of physical restraints is of great interest to many of us, not only those of us employed by Vanier. In situations where a child must be guided away from impeding danger or stimulus that is further escalating their behaviour, this less intrusive intervention may play an effective role that we would like to investigate. In many situations, especially with our primary aged clients and those clients that are functioning developmentally at a younger age, hand holding may create an effective and defusing first physical intervention, in the continuum of physical options.

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