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Evaluation of the Code White Program to Reduce Workplace Violence At St. Paul's Hospital

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Executive Summary

This evaluation report presents findings from the evaluation of the Code White Program at St. Paul's Hospital. The focus of the research study was to learn more about the relationship between Code White training and response in order to strengthen the implementation of the program. Staff at St. Paul's Hospital, who had attended Code White training and who had been involved in Code White incidents, were surveyed to identify their experiences of violence and aggression in the workplace, their receipt of training, the adequacy and relevance of the training in response to the incidents with which they were involved.

An anonymous semi-structured questionnaire was sent out to the staff at St. Paul's Hospital with the assistance of Providence Health Center. Quantitative data were analyzed by SPSS and thematic content analysis was done for the qualitative data. One-way and two-way ANOVA statistical procedures and Chi-square tests were used to analyze the quantitative data.

Overall, a relationship between the training and preparedness level of staff to deal with crisis situations was established. However, age of the staff (as a proxy for experience) did not appear to have any impact on their preparedness level. The staff who received NCPI training demonstrated ability to apply training techniques. Techniques addressed in training and used most often by staff include the ***timely provision of medication; limit setting; verbal de-escalation; and diversion.***

Additional findings about the differences across job classifications and units in the use of any relevant training techniques, as well as the impact of workplace violence on the employees and staff produced suggestions for effective implementation of the program.

Respondents expressed their desire for ongoing training with refreshers with respect to Code White Training. It was suggested that better resourcing, facilitating better communication and collaboration among staff teams, offering joint trainings for staff teams (particularly, for nursing and security), increasing security presence and increasing medical intervention should be priorities for effective implementation of the Code White Program.

Literature Review

Concern over healthcare workplace violence

Workplace violence is now widely recognized as a significant occupational hazard for many agencies and personnel. But it has become a major focus of concern in the health care sector (Arnetz & Arnetz, 2000; Chappell & Di Martino, 2006; Oostrom & Mierlo, 2008).

Workplace violence is described by Wynne, Clarkin, Cox & Griffiths (1997) as incidents in which employees are abused, assaulted or threatened in work environments, including an explicit or implicit challenge to their safety, well-being or health. Not being limited to this, Beech & Leather (2006) extended the definition of violence to physical assault, verbal threats, bullying, and sexual harassment.

Providing empirical data about the frequency of nurses' experiences of violence, several studies highlighted the significance of the problem in a healthcare environment. According to Kingma (2001), the risk of health care workers experiencing violence is 16 times greater than for other service workers. According to the results of the British Crime Survey (Budd, 1999), nurses and other health professionals had the second highest risk of experiencing violence at work across all occupational groups. The majority of healthcare workers experience workplace violence at least once throughout their professional careers (Oostrom & Mierlo, 2008). A survey by the British National Audit Office (2003) stated that violence and aggression accounted for 40% of reported health and safety incidents among healthcare workers (cited in Oostrom and Mierlo, 2008). In an Australian study with 209 hospital nurses, 95% of nurses had been exposed to verbal aggression several times over the last 12months (O'Connell, Young, Brooks, Hutchings, & Lofthouse, 2000). Moreover, in the United Kingdom, over half the participants had experienced an incident of violence or aggression during the past 12 months before the study (Badger & Mullan, 2004).

A number of studies in recent years showed the impact of workplace violence on the employees as well as the organization (Chappell & Di Martino, 2006; Beech & Leather, 2006; Di Martino et al., 2003; Oostrom & Mierlo, 2008). For organizations, workplace violence has cost implications because of increased absenteeism, early retirement and

reduced quality of care. But at the same time, violence at work can trigger considerable physical and psychological outcomes (Bussing & Hoge, 2004) as well as staff turnover and reduced job satisfaction in employees (Smith-Pittman & McKoy, 1999; Oostrom & Mierlo, 2008).

The need for intervention and training

All of these findings have led to research on effective intervention strategies, resulting in the development and implementation of a large variety of training programs. Some earlier reports in the literature discussed various types of support services to staff victims after incidents (Lanza, 1985; Flannery et al., 1991). A number of review articles described other preventive and interventive strategies such as pre-incident training, stress management and employee-victim debriefing (Flannery, 1996), ongoing risks assessments (Hunter, 1997) and development of policies and procedures in response to workplace violence (Warshaw & Messite, 1996).

Staff training and education in violence prevention have been the primary focus of several studies (Beech & Leather, 2006; Chappell & Di Martino, 2006; Whittington & Wykes, 1996). Most training courses cover methods for recognizing and preventing violent behavior or identifying potentially violent situations or people, and preventive behavior or de-escalation techniques (Beech & Leather, 2006). Chappell and Di Martino (2006) argued that improved interpersonal relations skills, knowledge of the nature of client aggression, and cues on how to conduct interviews properly and respond to emotional clients all are key elements in reducing aggression in the healthcare sector. As assertiveness is considered a crucial interpersonal skill, assertiveness training is included in many workplace violence training programs. The goal of this training is to help employees change how they view themselves and establish self-confidence and improved interpersonal communication (Oostrom & Mierlo, 2008).

One of the programs through which more than five million human service providers have been trained across the world since 1980 is Nonviolent Crisis intervention program (Crisis Prevention Institute, 2005). This training program helps services providers gain the confidence necessary to deal with crisis situations with minimal anxiety and maximum security, particularly, when behavior becomes dangerous (Crisis Prevention Institute, 2005).

Review of training evaluation in the literature

Although the importance of training in dealing with healthcare workplace violence is generally accepted, little is known about the effects of training programs (Beech & Leather, 2006; Oostrom & Mierlo, 2008). According to Farrel and Cubit (2005) many of the training programs have not been systematically evaluated. There are a number of reasons for this, which include the costs of evaluation, organizational self-interest and fear of revealing inadequacies or ineffectiveness of training, the lack of skills, knowledge and incentives of trainers to design and evaluate trainings, different training content, and variation in approaches and methods of assessing outcomes (Nau et.al., 2009; Oostrom & Mierlo, 2008; Beech and Leather, 2006).

Although different approaches to, and methods of, training evaluation have been utilized, Kirkpatrick's model of training evaluation continues to be well-known (Arthur et al., 2003). This model is structured around four levels, which are reaction, learning, behavior, and results.

The Reaction level represents the immediate subjective opinions of participants about the training program – what they liked/disliked about a training program (Arthur et al., 2003). Learning level relates to how much the trainees learned from the program. The behavioral level refers to changes in their job-related behavior - the results of training on-the-job performance back at work. The final one – results level concerns the utility of the program to the organization (Arthur et al., 2003).

However, the model has been criticized because it lacks clarity in operationalizing the different levels of measurement and does not propose different methods of evaluation for different levels. Although there have been several developments of Kirkpatrick's model due the criticisms and limitations, the model is still commonly used in agencies (Beech and Leather, 2006.

Based on the review of training evaluation models and methods, this research project will include an attempt to combine two levels of evaluation model – learning and behavior levels which represent change in knowledge and behavior brought about by the training.

Purpose of the Study and Research Questions

Purpose of the research study

The purpose of the research project was to evaluate the Code White Program at St. Paul's Hospital. The focus of the study was to learn more about the relationship between Code White training and response in order to strengthen the implementation of the program.

This paper considered the experiences of staff who endured violent attacks whilst working with aggressive patients. It also sought to promote an increased understanding of the effects of violence on staff and how incidents can be handled better.

Research Questions

The present study answers several questions. Research questions include:

1. What is the impact of participation in Non-Violent Crisis Prevention Intervention (NCPI) training at St. Paul's Hospital and employees' age (as a proxy for experience) on their preparedness to de-escalate a hostile and aggressive patient? Does age moderate the relationship between participation in the training and preparedness level of the employees?

2. Do differences exist in preparedness level of staff across job classification to de-escalate a hostile and aggressive patient?

3. Do differences exist in preparedness level of staff across units/programs to de-escalate a hostile and aggressive patient?

4. Is there any correlation between participation in NCPI training at St. Paul's Hospital and the usage of NCPI methods in dealing with incidents?

5. Are there differences across job classification in terms of use of any relevant de-escalating strategies?
6. Are there differences across programs in terms of use of any relevant de-escalating strategies?
7. How did these incidents affect you?
8. How could it have been handled better? What recommendations do you have to make training techniques more effective in assisting you with Code White incidents?

Methods

The data analyzed in this study was obtained in 2011 through a full survey of all staff in departments where Code White incidents had occurred from January to December 2010. The research project used a post-test design. It was a quantitative, formative process assessment evaluation.

Participants

In total 1000 survey packages were distributed and 100 surveys were completed and returned, for an overall response rate of 10%. Participation was voluntary and anonymous.

A total of 100 surveys were completed by employees. In terms of demographics by units/area the employees currently work in, the majority of subjects were from Surgery Program (43%); 12% were from Medicine Program, 10% were from Emergency/ICU/Access Services Program, 10% were from Mental Health Program, 9% were from Elder Care Program/Palliative Services, 9% were from Heart and Lung Program, and 3% were from Urban Health & HIV/AIDs Program (see Table 1).

Participants were 75 registered nurses (RN), 9 licensed practical nurses (LPN), 7 registered practical nurses (RPN), 6 security and 2 social workers. The research subjects completed surveys were 83 female and 17 male. In terms of age, the majority of the participants were over 36 years (63%), while 37% were under 36 years (see Table 1).

Table 1: Demographic Characteristics of the Sample (N=100)

Characteristics	N	%
Programs/Units		
Elder Care Program/ Palliative Services	9	9.0
Emergency/ICU/Access Services Program	10	10.0
Heart + Lung Program	9	9.0
Medicine Program	12	12.0
Mental Health Program	10	10.0
Surgery Program	43	43.0
Urban Health & HIV/AIDs Program	3	3.0
Job Classification		
LPN	9	9.1
RPN	7	7.1
Social Worker	2	2.0
RN	75	75.8
Security	6	6.1
Gender		
Male	17	17.0
Female	83	83.0
Age (years)		
Under 36 years	37	37.0

Over 36 years	63	63.0

Table 2 indicates that the majority of the employees (n=36, 37.5%) was not involved in any Code White incidents throughout January-December 2010. However, 17.7% reported having involved in Code White incidents “once a year or less often”, 14.6% “a few times a year”, 13.5% “once a month”, 7.3% “several times a month”, 4.2% “several times a week”, 3.1% “daily” and 2.1% “once a week”.

69.8 % *(n*=67) of participants reported that they did not receive Non-Violent Crisis Prevention Intervention (NCPI) Training at St. Paul’s Hospital, while 30.2 % (n=29) reported their receipt of NCPI Training. In regards to participation in Code White Training at the previous place of the respondents’ employment, 28.1 % (n=27) reported participating in such training, while 71.9 % (n=69) did not.

51.8% (n=44) of the respondents reported that they were not able to anticipate a Code White incident, while 48.2% (n=41) reported being able to anticipate that the event was going to be a Code White incident. Around 65.9% indicated that security functioned in “stand by mode”, while 34.1% did not report security functioning.

Table 2: Frequency of Violent Incidents and Receipt of Training

Characteristics	N	%
Frequency of incidents (January-December, 2010) - *How often was an employee involved in Code White incidents?*		
Daily	3	3.1
Several times a week	4	4.2
Several times a month	7	7.3
Once a week	2	2.1
Once a month	13	13.5
Once a year or less often	17	17.7
Other (few times a year)	14	14.6
Never	36	37.5
Participation in NCPI Training- *Have you participated in Nonviolent Crisis Prevention Intervention Training at St.Paul's Hospital?*		
Yes	29	30.2
No	67	69.8
Have you participated in any other Code White Training (i.e.., at your previous place of employment)?		
Yes	29	28.1
No	69	71.9
Were you able to anticipate that this event was going to be a Code White Incident?		
Yes	41	48.2
No	44	51.8
Did security attend in "Stand by mode"?		
Yes	56	65.9
No	29	34.1

Table 3 provides an overview of the characteristics, mental status and behavior of the aggressors that the employees are dealing with at workplace. 37% of the respondents reported that the individuals who were aggressive to them at the workplace were mainly male, and 26.6% participants stated that particularly, patients displayed aggression at the hospital.

In regards to the mental status of the patients, around 22.8 % participants identified their status as confused, 20.6% participants identified as *disoriented*, and 20% respondents identified as medically compromised. 19.2% participants stated that the patient behavior status was *aggressive*, 16.7% participants identified the patient's behavior status as verbally, and 13.6 % respondents identified their behavior status as *physically*. Only 2% participants reported that the patient's behavior was suicidal.

Table 3: Characteristics of the Patients (Aggressors)

Aggressor Characteristics	N	%
Male	64	37.0
Patient	46	26.6
Visitor	18	10.4
Female	32	18.5
Family Member	13	7.5
Patient Mental Status		
Medically compromised	36	20.0
Disoriented	37	20.6
Oriented	25	13.9
Confused	41	22.8
Certified MHA (Yes)	30	16.7
Certified MHA (No)	11	6.1

Patient Behavior Status		
Aggressive	68	19.2
Physically	48	13.6
Verbally	59	16.7
Assaultive (striking/grabbing)	42	11.9
Suicidal	7	2.0
Self-destructive	12	3.4
Destroying Property	21	5.9
Elopement risk	21	5.9
Refusing to leave	14	4.0
Under the influence of alcohol/ Narcotics	30	8.5
Under the influence of Medication	21	5.9
Other	11	3.1

Ethical considerations

Approval to conduct the research project was granted by the University British Columbia-Providence Health Care Research Ethics Board (PHC REB H11-00829).

Confidentiality and anonymity were maintained through the use of a numerical coding system.

Recruitment Procedures

The participants in the study were recruited with the assistance of Providence Health Center. Mainly, a general email was distributed to staff in all departments where there had been Code White incidents. The email explained them the research and informed them that all staff would get a letter of invitation to participate if they had been involved in a Code White

incident. But for those staff members, who did not have email addresses, a general letter of introduction was mailed to the units where it was put it into their communications books and also posted. The communication included a survey and a stamped envelope addressed to us at University of British Columbia (UBC).

Instrument

In total, the survey consisted of twenty-one questions. The survey included different types of questions – a series of likert-scaled questions, closed-ended questions, which responses were most commonly in the form of yes/no items, and several open-ended questions.

The questionnaire was divided into two sections. The first section contained demographic data such as age, gender, job classification and area of employment of the employees as well as the characteristics of the patients with whom employees were dealing.

The second section explored the nature and frequency of violent incidents employees experienced; examined their experiences of and responses to the incidents in the workplace, as well as their receipt of training, their utilization of the training techniques and their perception of the adequacy and relevance of NCPI training in dealing with incident(s) with which they were involved. Based on the NCPI training materials, the questionnaire included nine statements to which the responses were on a five-point likert-type scale, ranging from “not relevant at all” to “very relevant”. This section also included some open-ended questions, which enabled us to gather information regarding the impact of the incidents and recommendations for any amendments to the training.

The five response categories represented an interval level of measurement, but yes/no items represented a nominal level of measurement. Since there were different types of questions, the results of the surveys were measured differently based on the form of the responses.

Data Analysis

Both quantitative and qualitative methods of analysis were used. Using SPSS statistical software (version 19), frequency distributions were run for each of the demographic and study variables to complete a profile analysis of the sample.

Nominal data were compared using Chi-square tests, and continuous variables were compared using one-way and two-way analysis of variance (ANOVA) for continuous variables where appropriate. A significance level of 0.05 will be used for all analyses.

For the qualitative data generated by the open-ended questions, thematic content analysis was done. As common themes emerged, initial categories were identified and responses were sorted under categories as appropriate. As analysis process progressed, new categories were discovered as necessary, similar statements were collapsed, regrouped and relabeled as appropriate, rarely used ones were combined within broader ones until thematic content analysis was complete.

A series of one-way ANOVA tests were conducted to examine the hypothesis that the level of cognitive ability of their children and the level of their education would have impacts on the utilization of emotional/informal support among parents. Also, a series of multiple comparisons were run in order to determine where, if any, differences between groups existed. Finally, non-parametric tests were conducted to examine if the gender and racial origin would have any impact on the utilization of emotional/informal support among parents.

Results

Prior to conducting analyses of variance tests, the data were screened for assumptions. ANOVA assumes normality, homogeneity of variance, independence of cases and measurement of dependent variable at an interval level.

Histograms, the values of skewness and kurtosis, as well as Kolmogorov-Smirnov and Shapiro-Wilk Tests were utilized to determine if the assumption of normality was met. Data for both job classifications and units/programs mostly appeared to be negatively skewed in both dependent variables. Data for age and participation (Yes/No) in preparedness level was also a little bit negatively skewed. In addition, data showed negative Kurtosis, especially for participation (Yes/No) in preparedness level, which indicated a flat and light-tailed distribution. The results of Kolmogorov-Smirnov and Shapiro-Wilk tests also indicated the violation of normality assumption in data.

Usually, the assumption of normality is not a cause for concern; the homogeneity of variance assumption is more important in analysis of variance. The results of Levene's test showed that the variances of dependent variable (preparedness level) across the groups of age, participation (Yes/No), job classification and units were equal (Sig. value greater than .05). Also, the results of Levene's test suggested the variances of the dependent variable (de-escalation strategies) across job classification and units were equal. It appeared that the data mostly satisfied the requirement for the homogeneity of variance assumption. However, it was found that the variances in scores of use of some de-escalation strategies (medication given, placed in seclusion and use of diversion) were not the same for each of the unit groups. The data on the use of de-escalation strategy (use of diversion) across the job classification groups did not meet the assumption of the homogeneity of variance. ANOVA was assumed to be robust to this violation. When the assumption of the homogeneity of variance was violated, the results of the Brown-Forsythe test were reported to accommodate group differences in variance.

The data collected from different participants were independent. The five response categories of both dependent variables represented an interval level of measurement.

The first research question focused on identifying the impact of participation in Non-Violent Crisis Prevention Intervention training at St. Paul's Hospital and age of the employees on their preparedness level to de-escalate a hostile and aggressive patient. A two-way between-groups analysis of variance was conducted to explore the impact of participation in training and age on the preparedness level of the participants. Table 4 shows that the interaction effect between participation in the NCPI training and age group was not statistically significant, $F(1, 82)= 1.84$, $p=.179$. There was a statistically significant main effect for staffs' participation in NCPI training, $F(1, 82)= 5.11$, $p=.026$, with the medium effect size (partial eta squared =.06). The main effect for age groups $F(1, 82)= .00$, $p=.965$, did not reach statistical significance.

Table 4: Two-Way Analysis of Variance for Staffs' Participation in NCPI Training and Age

Source	*Df*	*SS*	*MS*	*F*
Participation in NCPI Training	1	4.38	4.38	5.11*
Age	1	.00	.00	.00
Age* Participation in NCPI Training	1	1.58	1.58	1.84
Residual	82	70.20	.86	

*p<.05

The second and third research questions focused on identifying any potential differences in staffs' preparedness level across job classifications and programs/units to de-escalate a hostile and aggressive patient.

While breaking down the participants into sub-groups (per job classification and per units/programs they currently work), it did not provide sufficient sample size for most of subgroups (see Tables 5a and 5b). As we did not obtain the sufficient sample size that would accurately represent each group, it was not appropriate to run statistical analysis, as it might not generate sufficiently reliable results. Therefore, primarily frequencies of staffs' preparedness level across job classification and programs/units were performed and reported.

The number of registered nurses *(n*=61, 71.8%) was much larger than the rest of subgroups – licensed practical nurses (n=9, 10.6%), registered practical nurses (n=7, 8.2%), security (n=6, 7.1%) and social workers (n=2, 2.4%). Similarly, the number of staff from Surgery Program was much larger (n=31, 37.8%) than the rest of units. The number of staff from Medicine Program was 12 (14.6%), from Emergency/ICU/Access Services Program was 10 (12.2%), from Mental Health Program was 10 (12.2%), from Elder Care Program/Palliative Services was 8 (9.8%), from Heart and Lung Program was 8 (9.8%) and from Urban Health & HIV/AIDs Program was 3 (3.7%).

Prior to running frequencies, the original likert scale with 5 items was collapsed into three items as (1= Not prepared at all/Not prepared, 2= A little bit prepared, 3=Prepared/very prepared). Tables 5a and 5b present the frequencies of staffs' preparedness level to deescalate a hostile and aggressive patient by job classification and units/programs. Data in Table 5a indicate that most of staff members per each group demonstrate preparedness level, but registered nurses 27 (44.3%) demonstrate more preparedness level in de-escalating a hostile and aggressive patient. The same applies to the data shown in Table 5b, staff members from each unit demonstrate almost equal preparedness level, however, most of employees from Surgery Program (n=15, 48.4%) indicate that they feel a little bit prepared in handling incidents.

Table 5a: Frequency Table of Staffs' Preparedness Level to De-escalate a Hostile and Aggressive Patient Across Job Classification (N=85)

Variable	LPN	RPN	SW	RN	Security
How prepared were you to deescalate a hostile and aggressive patient?					
Not prepared at all/Not prepared				9 (14.8%)	1 (16.7%)
A little bit prepared	3 (33.3%)	2 (28.6%)	2 (100%)	25 (41.0%)	1 (16.7%)
Prepared/very prepared	6 (66.7%)	5 (71.4%)		27 (44.3%)	4 (66.7%)

Table 5b.: Frequency Table of Staffs' Preparedness Level to De-escalate a Hostile and Aggressive Patient Across Units/Programs They Currently Work (N=82)

	Elder Care Program/ Palliative Services	Emergency /ICU/Acces s Services	Heart + Lung Program	Medicine Program	Mental Health Program	Surgery Program	Urban Health & HIV/AIDs Program
How prepared were you to deescalate a hostile and aggressive patient?							
Not prepared at all/Not prepared		1 (10.0%)	2 (25.0%)			7 (22.6%)	
A little bit prepared	3 (37.5%)	5 (50.0%)	1 (12.5%)	6 (50.0%)	2 (20.0%)	15 (48.4%)	1 (33.3%)
Prepared/ve ry prepared	5 (62.5%)	4 (40.0%)	5 (62.5%)	6 (50.0%)	8 (80.0%)	9 (29.0%)	2 (66.7%)

Though there were not a sufficient number of people in each group to ensure statistically meaningful comparisons, a one-way ANOVA test was still conducted to explore if there was an overall significant difference in the preparedness level of employees per job classifications and units/programs. As the numbers of social workers and security were much smaller rather than other three subgroups (LPN, RPN and RN), they were excluded prior performing statistical analysis.

Also, due to the smaller number of staff from Urban Health & HIV/AIDs Program, it was excluded from the analysis part. As a result, participants were divided into six groups according to units/programs they currently work: (Group 1: Elder Care Program/Palliative

Services; Group 2: Emergency/ICU/Access Services Program; Group 3: Heart+Lung Program; Group 4: Medicine Program; Group 5: Mental Health Program, and Group 6: Surgery Program).

Table 6 indicates that there is not a statistically significant difference at the $p < .05$ in the level of preparedness level for the three job classification groups - RPN (M=4.00, SD=.82), LPN (M=3.78, SD=.67) and RN (M=3.30, SD=1.01) - to de-escalate a hostile and aggressive patient: $F(2, 76)=2.42$, $p= .096$.

Similarly, the results of ANOVA indicate that there is not a statistically significant difference in the preparedness level for the six unit groups; Group 5 (M=3.90, SD=.57), Group 1(M=3.75, SD=.71), Group 2 (M=3.60, SD=1.08), Group 4 (M=3.50, SD=.52), Group 3 (M=3.50, SD=1.17), and Group 6 (M=3.00, SD=1.07): $F(5,78)= 2.09$, $p=.076$.

Though the results of the analysis do not reveal any statistically significant differences in the preparedness level across job classifications and units, they find the practical significance of obtained results. In order to discover whether the effect is meaningful, effect sizes are used and reported. As shown in Table 6, the effect sizes (.06 as a medium effect for job classifications and .13 as a large effect for units) show the magnitudes of the differences, which is large enough to be value in a practical sense.

Table 6. One-Way Analysis of Variance Summary for Staffs' Preparedness Level in De-escalation of a Hostile and Aggressive Patient Across Job Classifications and Units/Programs

	Job Classifications					Units/Programs				
Source	Df	SS	MS	F	η^2	Df	SS	MS	F	η^2
Between Groups	2	4.46	2.23	2.42	.06	5	9.05	1.81	2.09	.13
Within Groups	74	68.24	.92			73	63.30	.87		
Total	76	72.70				78	72.35			

*p <.05

***Please note that as sample size fails to represent accurately each sub-group, the *analysis might not yield accurate and reliable results.*

The fourth question focused on testing any correlation between participation in NCPI training at St. Paul's Hospital and the usage of NCPI methods. Table 7 presents that a Chi-square test for independence (with Yates Continuity Correction) revealed a significant association between the participation in the training and usage of NCP intervention methods, χ^2 (1, n=83) = 40.45, p < .001, phi = .73. Fisher's exact test probability confirmed the association (see Table 7).

Table 7: Prevalence of utilization of NCPI methods among the participants who received NCPI training at St. Paul's Hospital and who did not.

Did you draw on Nonviolent Crisis Prevention Intervention training during the incident with which you were involved?			
Have you participated in Nonviolent Crisis Prevention Intervention Training at St. Paul's Hospital?	*Yes (n=27)*	*No (n=56)*	*χ^2 (1)*
Yes	22	5	40.45*
No	5	51	

*$p < .05$

The present study also examined the adequacy and relevancy of different types of de-escalation strategies that staff members used in their work dealing with incidents. Table 8 presents overall means and standard deviations for nine subscales of the de-escalation strategies. The data in Table 8 suggest that the five most frequently used de-escalation strategies include: Medication given (M=3.89, SD=1.18), Individual talked down (M=3.59, SD=1.18), Limit setting (M=3.47, SD=1.21), Reduce stimulation on unit (M=3.21, SD=1.32), and Use of diversion (M=3.19, SD=1.19).

Table 8.: Overall means and standard deviations on de-escalation strategies.

Variable	*N*	*Mean*	*SD*
Individual talked down	81	3.59	1.18
Limit setting	79	3.47	1.21
Medication given	81	3.89	1.18
Quiet/timeout	79	2.86	1.42
Return to room	80	2.66	1.39
Help problem solving	78	2.95	1.36
Placed in seclusion	76	2.67	1.59
Use of diversion	79	3.19	1.19
Reduce stimulation on unit	80	3.21	1.32

More specifically, the fifth and sixth questions focused on identifying the differences across job classifications and units/programs in terms of using any relevant de-escalating strategies.

As explained above, since sample size of sub-groups is not sufficient, it is not appropriate to conduct statistical analysis. Hence, primarily frequencies of staffs' usage of de-escalating strategies across job classification and programs/units were performed and reported (see Tables 9a and 9b).

As presented in Table 9a, sample size of registered nurses (RN) is much larger than the rest of subgroups in usage of all nine types of de-escalation strategies. Taking into account unequal and small sample size of subgroups, there are no significant differences across job classifications in using all nine de-escalation strategies. The data in Table 9a indicate that staff members reported that they used Medication given, Limit setting, and Individual talked

down more often in their work. Reduce stimulation on unit and Use of diversion were also reported among the frequently used de-escalation strategies.

Table 9a.: Frequency Table of Use of De-escalating Strategies Across Job Classifications

	LPN	RPN	SW	RN	Security
Individual talked down(n=78)					
Not relevant at all/Not relevant	1 (12.5%)	1 (16.7%)	1 (50.0%)	9 (15.8%)	1 (20.0%)
A little bit relevant	2 (25.0%)	1 (16.7%)		14 (24.6%)	
Relevant/ Very relevant	5 (62.5%)	4 (66.7%)	1(50.0%)	34 (59.6%)	4 (80.0%)
Limit Setting (n=76)					
Not relevant at all/Not relevant	2 (25.0%)			11 (19.6%)	2 (40.0%)
A little bit relevant	2 (25.0%)	1 (20.0%)	1 (50.0%)	9 (16.1%)	1 (20.0%)
Relevant/ Very relevant	4 (50.0%)	4 (80.0%)	1 (50.0%)	36 (64.3%)	2 (40.0 %)
Medication Given (n=78)					
Not relevant at all/Not relevant	1 (12.5%)			6 (10.5%)	1 (20.0%)
A little bit relevant			1 (50.0%)	10 (17.5%)	

Relevant/ Very relevant	7 (87.5%)	6 (100%)	1 (50.0%)	41 (71.9%)	4 (80.0%)

Quiet/timeout (n=76)

Not relevant at all/Not relevant	4 (50.0%)	1 (20.0%)	1 (50.0%)	21(37.5%)	3 (60.0%)
A little bit relevant	1 (12.5%)	1 (20.0%)		14 (25.0%)	
Relevant/ Very relevant	3 (37.5%)	(60.0%)	1 (50.0%)	21 (37.5%)	2 (40.0%)

Return to room (n=77)

Not relevant at all/Not relevant	3 (37.5%)	2 (33.3%)	1(50.0%)	28 (50.0%)	2 (40.0%)
A little bit relevant		2 (33.3%)		15 (26.8%)	2 (40.0%)
Relevant/ Very relevant	5(62.5%)	2 (33.3%)	1 (50.0%)	13 (23.2%)	1 (20.0%)

Help problem solving (n=75)

Not relevant at all/Not relevant	4 (50.0%)	3 (50.0%)	1 (50.0%)	16 (29.6%)	3 (60.0%)
A little bit relevant	2 (25.0%)	1 (16.7%)		14 (25.9%)	
Relevant/ Very relevant	2 (25.0%)	2 (33.3%)	1 (50.0%)	24 (44.4%)	2 (40.0%)

Placed in seclusion (n=73)					
Not relevant at all/Not relevant	2 (25.0%)	2 (40.0%)	1 (50.0%)	30 (56.6%)	2 (40.0%)
A little bit relevant			1 (50.0%)	7 (13.2%)	
Relevant/ Very relevant	6 (75.0%)	3 (60.0%)		16 (30.2%)	3 (60.0%)
Use of diversion (*n*=76)					
Not relevant at all/Not relevant	4 (50.0%)			14 (25.5%)	1 (20.0%)
A little bit relevant		2 (33.3%)	2 (100%)	18 (32.7%)	2 (40.0%)
Relevant/ Very relevant	4 (50.0%)	4 (66.7%)		23 (41.8%)	2 (40.0%)
Reduce stimulation on unit (*n*=77)					
Not relevant at all/Not relevant	3 (37.5%)	1 (16.7%)	1 (50.0%)	14 (25.0%)	1 (20.0%)
A little bit relevant		1 (16.7%)	1 (50.0%)	17 (30.4%)	2 (40.0%)
Relevant/Very relevant	5 (62.5%)	4 (66.7%)		25 (44.6%)	2 (40.0%)

Table 9b presents that the number of staff from Surgery program, who expressed their opinions about the relevancy of nine types of de-escalating strategies, is much larger than the rest of units. Given different and small sample size of subgroups, there are very small differences across units/programs in using all nine de-escalation strategies.

Relatively, most of units found “individual talk down”, “limit setting”, “medication”, “reduce stimulation” and “use of diversion” more relevant than other types of strategies. Mental

Health Unit found “Quiet/timeout” strategy and “Return to Room” more relevant in dealing with incidents while Surgery Program Unit did not. Also, Mental Health used “placed in seclusion” strategy relatively more often than Surgery Program and Medicine Units. Mental Health unit also found “use of diversion” strategy more relevant than Surgery Program Unit in handling the situations.

Table 9b.: Frequency Table of Use of De-escalating Strategies Across Units/Programs

	Elder Care Program/Palliative Services	Emergency /ICU/Access Services Program	Heart + Lung Program	Medicine Program	Mental Health Program	Surgery Program	Urban Health & HIV/AIDS Program
Individual talked down (n=76)							
Not relevant at all/Not relevant	1 (12.5%)	2 (20.0%)	1 (14.3%)	3 (27.3%)	1 (12.5%)	6 (20.7%)	
A little bit relevant	4 (50.0%)	4 (40.0%)	1 (14.3%)	1 (9.1%)		7 (24.1%)	
Relevant/ Very relevant	3 (37.5%)	4 (40.0%)	5 (71.4%)	7 (63.6%)	7 (87.5%)	16 (55.2%)	3 (100%)
Limit Setting (n=74)							
Not relevant at all/Not relevant	3 (37.5%)	1 (11.1%)	1 (20.0%)	1 (9.1%)	2 (22.2%)	7 (24.1%)	
A little bit relevant	1 (12.5%)	2 (22.2%)	1 (20.0%)	4 (36.4%)		6 (20.7%)	
Relevant/ Very relevant	4 (50.0%)	6 (66.7%)	3 (60.0%)	6 (54.5%)	7 (77.8%)	16 (55.2%)	3 (100%)

Medication Given (n=76)

Not relevant at all/Not relevant		1 (10.0%)	1 (14.3%)			6 (20.7%)	
A little bit relevant	1 (12.5%)		3 (42.9%)	1 (10.0%)		5 (17.2%)	1 (33.3%)
Relevant/ Very relevant	7 (87.5%)	9 (90.0%)	3 (42.9%)	9 (90.0%)	9 (100.0%)	18 (62.1%)	2 (66.7%)

Quiet/timeout (n=74)

Not relevant at all/Not relevant	1 (12.5%)	3 (30.0%)	1 (20.0%)	5 (45.5%)	1 (12.5%)	15 (51.7%)	2 (66.7%)
A little bit relevant	2 (25.0%)	2 (20.0%)	3 (60.0%)	3 (27.3%)	1 (12.5%)	6 (20.7%)	
Relevant/ Very relevant	5 (62.5%)	5 (50.0%)	1 (20.0%)	3 (27.3%)	6 (75.0%)	8 (27.6%)	1 (33.3%)

Return to room (n=75)

Not relevant at all/Not relevant	2 (25.0%)	5 (50.0%)	3 (60.0%)	4 (36.4%)	1 (11.1%)	19 (65.5%)	1 (33.3%)
A little bit relevant	3 (37.5%)	1 (10.0%)	1 (20.0%)	3 (27.3%)	3 (33.3%)	6 (20.7%)	1 (33.3%)
Relevant/ Very relevant	3 (37.5%)	4 (40.0%)	1 (20.0%)	4 (36.4%)	5 (55.6%)	4 (13.8%)	1 (33.3%)

Help problem solving (n=73)

Not relevant at all/Not relevant	4 (50.0%)	3 (30.0%)	1 (25.0%)	3 (30.0%)	3 (33.3%)	12 (41.4%)	
A little bit relevant	3 (37.5%)	4 (40.0%)		2 (20.0%)	1 (11.1%)	7 (24.1%)	1 (33.3%)
Relevant/ Very relevant	1 (12.5%)	3 (30.0%)	3 (75.0%)	5 (50.0%)	5 (55.6%)	10 (34.5%)	2 (66.7%)

Placed in seclusion (n=71)							
Not relevant at all/Not relevant	3 (50.0%)	2 (20.0%)	4 (80.0%)	6 (60.0%)		19 (67.9%)	2 (66.7%)
A little bit relevant		3 (30.0%)		1 (10.0%)		5 (17.9%)	
Relevant/ Very relevant	3 (50.0%)	5 (50.0%)	1 (20.0%)	3 (30.0%)	9 (100.0%)	4 (14.3%)	1 (33.3%)
***Use of diversion* (*n*=74)**							
Not relevant at all/Not relevant	1 (12.5%)	4 (40.0%)		1 (10.0%)		13 (44.8%)	
A little bit relevant	1 (12.5%)	4 (40.0%)	4 (80.0%)	5 (50.0%)	2 (22.2%)	6 (20.7%)	1 (33.3%)
Relevant/ Very relevant	6 (75.0%)	2 (20.0%)	1 (20.0%)	4 (40.0%)	7 (77.8%)	10 (34.5%)	2 (66.7%)
***Reduce stimulation on unit* (*n*=75)**							
Not relevant at all/Not relevant	2 (25.0%)	2 (20.0%)	2 (33.3%)	3 (27.3%)		10 (35.7%)	1 (33.3%)
A little bit relevant	1 (12.5%)	4 (40.0%)	1 (16.7%)	2 (18.2%)	2 (22.2%)	8 (28.6%)	1 (33.3%)
Relevant/ Very relevant	5 (62.5%)	4 (40.0%)	3 (50.0%)	6 (54.5%)	7 (77.8%)	10 (35.7%)	1 (33.3%)

As mentioned above, due to the large difference in sample size of subgroups, usually it is not recommended to conduct statistical analysis. However, a one-way between-groups analysis of variance was used to examine differences in the mean scores on the use of de-escalating strategies across job classifications and units/programs.

As the numbers of social workers and security were smaller rather than other three subgroups (LPN, RPN and RN), they were excluded prior performing statistical analysis. The results of a one-way ANOVA indicate that there are no statistically significant differences between these groups on usage of any types of de-escalation strategies (see Table 10 a). However, though the test result is statistically insignificant, the effect is substantive. The measure of the effect size for limit setting (.06 as a medium effect) and for placed in seclusion (.07 as a medium effect) shows the practical significance of the findings.

An additional one-way between-groups analysis of variance examined whether there was an overall significant difference in the mean scores on the use of de-escalating strategies across the five units. Due to the smaller number of staff members from Heart+Lung Program, and Urban Health & HIV/AIDs Program, two units were excluded from the analysis part.

Table 10b presents the results of one-way ANOVA for usage of nine types of de-escalation strategies among five units/programs. No significant differences between the groups were found on the following types of de-escalation strategies: Individual talked down, Limit setting, Medication given, Help problem solving, and Reduce stimulation on unit. Significant differences between groups were found on usage of four de-escalation strategies. The results of the one-way ANOVA indicated that there are a statistically significant, but extremely small difference among five units in the reported “Quiet/timeout” strategy, $F(4, 61)= 2.71$, $p=.038$ and in the reported “Return to room” strategy, $F(4, 62)= 3.29$, $p=.016$. Since a significant difference is detected somewhere among the means scores on these dependent variables for the five groups, post-hoc tests are conducted to provide the statistical significance of the differences between each pair of groups. As sample sizes are different, Gabriel’s procedure and Hochteberg’s GT2 are used. The results of post-hoc tests show that Mental Health Unit find “Quiet/timeout” and “Return to room” strategies more relevant in handling incidents than Surgery Program Unit does.

However, though the results are statistically significant, the effects are not important or meaningful in practical terms. As reported in Table 10b, the effect sizes are extremely small (.01 for Quiet/timeout and .03 for Return to room). Therefore, the mean differences observed on these dependent variables for the five units might have occurred due to sampling error.

An additional one-way ANOVA revealed a significant difference in the five units in usage of placed in seclusion ($F(4,58) = 8.10$, $p < .001$) with medium effect size and use of diversion ($F(4,61) = 3.35$, $p = .015$) with a quite small effect size. The results of Brown-Forsythe test

are statistically significant for five units in both placed in seclusion (F= 7.57; p<.001) and use of diversion (F=3.94; p=.009). As variances are unequal and as sample sizes are different and small, besides Gabriel's procedure and Hochteberg's GT2, Games-Howell was also conducted as a post-hoc follow-up test. The results from the Games-Howel multiple comparisons test indicate that Mental Health Unit used placed in seclusion strategy more (M=4.67, SD= 1.50) than Medicine (M=2.20, SD=1.40) and Surgery Program Units (M=2.00, SD=1.31). Also, Mental Health Unit found use of diversion more relevant (M=4.00, SD=.71) than Surgery Program Unit (M=2.69, SD= 1.34).

Table 10b presents that the effect size is very small in the utilization of "use of diversion" strategy across five units. Despite a statistically significant effect, the difference is not important in a practical sense. But the effect size for placed in seclusion (.07 as a medium effect) across five units shows the practical significance of the findings. Further, given the medium effect size (.06) in limit setting, the difference is meaningful though the result does not have a statistically significant effect.

Table 10a: Means, Standard Deviations, and One-Way Analysis of Variance for the Effects of LPN, RPN, and RN on Nine Dependent Variables

Variable	LPN *(M, SD)*	RPN *(M, SD)*	RN *(M, SD)*	F	η^2
Individual talked down	3.50 (1.20)	3.83 (1.17)	3.65 (1.19)	.14	.00
Limit setting	3.00 (1.31)	4.40 (.89)	3.54 (1.22)	2.05	.06
Medication given	4.13 (1.36)	4.50 (.55)	3.88 (1.23)	.81	.02
Quiet/timeout	2.63 (1.60)	3.40 (1.52)	2.88 (1.38)	.47	.01
Return to room	3.25 (1.39)	2.83 (1.60)	2.54 (1.41)	.94	.03
Help problem solving	2.38 (1.30)	2.50 (1.38)	3.11 (1.41)	1.34	.04

Placed in seclusion	3.63 (1.41)	3.20 (2.05)	2.45 (1.58)	2.20	.07
Use of diversion	2.88 (1.81)	3.67 (.52)	3.18 (1.17)	.63	.02
Reduce stimulation on unit	3.38 (1.77)	3.83 (1.17)	3.18 (1.31)	.67	.02

*$p < .05$

Table 10b: Means, Standard Deviations, and One-Way Analysis of Variance for the Effects of Elder Care, Emergency, Medicine, Mental Health and Surgery Program Units on Nine Dependent Variables

Variable	Elder Care *(M, SD)*	Emergency *(M, SD)*	Medicine *(M, SD)*	Mental Health *(M, SD)*	Surgery Program *(M, SD)*	F	η^2
Individual talked down	3.38 (1.30)	3.40(1.35)	3.55(1.37)	4.38 (1.06)	3.41 (1.12)	1.09	.00
Limit setting	2.88 (1.36)	3.67 (1.23)	3.64 (.92)	4.00 (1.50)	3.28 (1.22)	1.15	.06
Medication given	4.38 (.74)	4.00 (1.16)	4.10 (.57)	4.56 (.53)	3.62 (1.55)	2.34	.02
Quiet/timeout	3.38(1.06)	3.30 (1.57)	2.55(1.44)	4.00 (1.41)$_a$	2.41 (1.40)$_a$	2.71*	.01
Return to room	3.25 (1.39)	2.80 (1.62)	2.91 (1.30)	3.67 (1.32)$_a$	2.07 (1.19)$_a$	3.29*	.03
Help problem solving	2.38 (1.41)	2.90 (1.29)	3.10 (1.10)	3.33 (1.41)	2.72 (1.49)	.65	.04
Placed in seclusion	2.83 (1.72)	3.50 (1.58)	2.20 (1.40)$_b$	4.67 (1.50)$_{a\,b}$	2.00 (1.31)$_a$	7.57*	.07

Use of diversion	3.88 (1.36)	2.80 (1.14)	3.40 (.84)	4.00 (.71) a	2.69 (1.34) a	3.94*	.02
Reduce stimulation on unit	3.63 (1.51)	3.20 (1.14)	3.27 (1.42)	4.11 (.78)	2.86 (1.43)	1.72	.02

Note. Means with same subscripts differ significantly.
*p < .05

Thematic categories emerged from the responses given by the participants to two open-ended questions regarding the effects of violent incidents and recommendations to make training techniques more effective in assisting them with Code White Incidents.

1. To describe the experiences and reactions of staff to violent incidents, sixty-four responses to the question regarding the impact of the incident were categorized according to the following emergent themes: No Effect - Acceptance of violence as part of the job (11 statements), Effectiveness of NCPI training as coping mechanism (13 statements), Frustration/Stress (28 statements), Preparedness for future/learning experience/anticipate positive response (9 statements) and Awareness of need for more training/proactivity (3 statements).

No Effect- Acceptance of violence as part of the job

Some participants mentioned the incidents did not affect them. It happened on medicine all the time, it is routine and they see encounters with violence as just part of their job.

Effectiveness of NCPI training as a coping mechanism

Respondents highlighted the benefits of NCPI training they received while dealing with violent incidents. They mentioned that when they were victims of serious violent episodes with patients, they were able to deal with these incidents and demonstrate better awareness of available resources and initiate the necessary interventions. Though those incidents were

frightening for them, they were glad that they received the Non Violent Crisis Intervention Workshops which gave them knowledge and skills to deal with it.

They (particularly, those in Mental Health program) also noted that they were very accustomed to aggressive behavior, particularly verbal, including threats. Anyone who was physically aggressive was immediately dealt with by security. They emphasized that strong teamwork, a leader and debriefing with the team after the incident were paramount to success.

Frustration/Stress

Code White situations are almost always unexpected. Staff facing violence or challenging behavior had an increased risk of stress and frustrations at workplace. They mentioned emotional effects of violence more than physical effects: including anxiety and frustration, fear, upset, burn-out, compassion, tension and sadness:

> *"I was a bit shocked."*
>
> *"I felt frustrated/stressed out".*
>
> *"I felt sad."*
>
> *"It made me anxious."*
>
> *"I was very shaken and upset"*
>
> *"I was very upset. I haven't cried about a patient in a while, but I went home and sobbed as I debriefed with my partner."*
>
> *"I felt scared and threatened and worried about the safety of my coworkers and patients."*
>
> *"It affects my confidence and comfort level since some patients behaviors can be escalating and become aggressive rapidly."*
>
> *"I felt bad for the patient, because she was delirious."*

Due to the threats and a stressful work environment, staff felt verbally attacked, as well as feeling exhausted physically and mentally in attempting to deal with this patient population while protecting them. Their safety was compromised.

They also expressed disappointment in co-workers because they did not receive any support, which resulted in the escalation of the situation. Despite the emotional effects of the violence, they frequently reported a sense of a sense of frustration over the institutions' lack of preparedness, adequate response and support. Usually information about the patients was given to the staff after the incident occurred.

At the same time they expressed concerns about the patient involved, the care plan and future possible escalations of aggressive behavior. They also expressed compassion for the patient. They felt bad that physical force was needed to end the situation and found it more difficult to treat the patient after that.

They also experienced the physical effects of violence, which made them feel powerless (throwing cigarette at staff members, hitting them on the head from behind, punching, kicking). But they did not report any serious injury.

Preparedness for future/learning experience/anticipate positive response

Despite the negative effects of violence, staff also demonstrated positive attitudes about these events and accepted them as useful learning experiences. They mentioned that this allowed them to gain experience when dealing with confused aggressive patients and helped them to recognize a potentially dangerous situation before it escalates into a full code-white experience. It made them feel more cautious and prepared in coping with aggressive patients. Even though it was distressing, they mentioned it was good that it happened because as a result, the patients' medications were adjusted to prevent similar incidents, which was a benefit to her and to staff. They also reinforced the importance of calling security at once if the patient was physically aggressive, to prevent staff from getting hurt. They thought that they would be better able to respond with greater anticipation and understanding in future incidents.

Awareness of need for more training/proactivity.

All the incidents helped them understand that they lacked some skills and coping strategies for handling the incidents. Respondents reinforced the importance of having more training to enhance their knowledge and skills in code white management. All the incidents that they experienced made them question why more efforts were not put into delirium prevention. Patients often continued to behave in an irrational/hostile manner that required constant ongoing intervention and management.

2. Fifty-one responses to the open-ended question relating to recommendations strengthening the implementation of Code White Program were categorized according to the following: Ongoing/Annual Training/Renewal (13 statements); Need for Code White Training (8 statements); Proactive Code White Implementation/Better Communication (13 statements) and Joint Trainings/Collaboration of nursing and security/Increase Security Presence (12 statements); and Increase proactive medical intervention (5 statements).

Ongoing/Annual Training/Renewal

Most of the participants suggested providing trainings more frequently, at least annually. They mentioned that in the past they used to have in-service trainings, which were no longer available. They feel they need to improve their ability to recognize cues and triggers before escalation of aggression or violence occurs. It was particularly recommended that nurses attend non-violent crisis intervention trainings at least three times a year. They highlighted the importance of de-escalation in a lot of situations. They explained that as they frequently experience different types of incidents, they thought they would greatly benefit from this training with refreshers on a regular basis.

Need for Code White Training

Mostly, the participants expressed the need for Code White Training. They mentioned that there were some violent incidents that were difficult to prevent injury of staff and patients. They also noted that patients in the Operating Room were either confused due to the medical issues or emerging from anesthetics. The physical aggression/trashing/verbal abuse occurred as a result of these issues, which were not easily dealt with by using a

traditional non-violent crisis intervention program. They believed they could better handle the situations and emergencies with Code White training.

In their opinion, the Code White Training is extremely important training for all staff members working in the Mental Health Program at St. Paul's Hospital. Those who attended the workshops, which were provided to the staff by either Dr. Noone or more recently by Ron Davies, the CNL who completed his Code White Instructor training, were very receptive to the training and many stated it was "essential info" for those working in Mental Health. The feedback has been overwhelmingly positive by participants. However, it was strongly recommended that all staff need to take NCPI and have the opportunity to take more advanced techniques such as Code White Team Response training and practice sessions to keep interventions fresh.

Proactive Code White Implementation/Better Communication

In spite of this strongly recommended need for Code White Training, the respondents commented on the need for personal and professional development as well as better resourcing in order to deal better with Code White incidents. They mentioned that calmness and common sense were valuable qualities to develop outside the code white scenario.

Also, they talked about initial non-invasive tactics to be utilized first. In their opinion, some code whites involved delirious and demented individuals and sometimes, verbal de-escalation was not possible, but having a good idea about the patient would be helpful. It was identified as a problem when day shift staff, knowing the patient was post-operative delirious, don't move the patient to a quieter room, contact family and otherwise anticipate the possibility of delirium and possible aggression. It is a problem when staff wait until the patient goes over the edge, then finally call a code white. "If the patient has a history of delirium/confusion, aggressor/psychiatric issues prior to surgery – need to be assessed by psych immediately to have as needed orders for chemical restraints ready in medicine kit in case needed to give". So, they highlighted the importance of early recognition, early intervention and managing symptoms of delirium before it progresses into confused and aggressive behaviors. If not properly treated, escalation and potential for harm to self and others may occur.

Given these concerns, participants mentioned that violent incidents could be better handled if they had more staff who were able to deal with violent patients, better medications, more

PreOp patient education and initial determination of delirium risk. They recommended providing some basic training for nurses (such as identifying early signs, effective techniques), having nursing staff better understand medications, having staff comfortable with calling code whites prior to patients becoming aggressive.

They also emphasized the need for better resourcing to better implement the Code White Program. For example, when a patient stated pre procedure (ECT) that he wanted to be admitted, but there were no beds to accommodate his needs, he displayed questionably predictable aggression.

They talked about the workload and need for patient care assistants. Respondents suggested offering a paid handover on shift change to promote consistent communication – especially important in handling patients. They also recommended more education around security's expectations.

Joint Trainings/Collaboration of nursing and security/Increase security presence

Respondents mentioned that they had threats, a stressful and sometimes abusive work environment, and little support. According to the participants, there is a need for consistency in approach (a team approach), and collaboration between staff members as well as joint training in order to effectively manage aggression.

They also mentioned miscommunication and misunderstanding between the security team and nurses. They thought it would be better to increase security presence to "stand by" for potential code white incidences. Security needed to be involved earlier, because they thought their presence can often dissolve potential aggression. Nurses should not be left to deal with this alone. But often if they called them for stand by, they seemed to be upset as they were either short-staffed or needed in the Emergency Room. Respondents (particularly, from ER) also recommended having their our own security guards for ER and another set for providence tower, because the ER needs intervention without delay.

They also noted that sometimes, security did not appear able to understand and assess situations and attempted to use force too quickly or “strong arm” the patient. In another situation, security stood back and taunted the patient to react more. Because of this, staff sometimes did not call security unless they perceived a personal threat to themselves for fear security would make the situation worse. These situations are sometimes complex and confusing, and in this case, debriefing would be helpful. They thought it was important for security guards to be better trained within the medical environment. They highlighted the need for improvement of collaboration between security and nursing. Also, they suggested arranging joint trainings for both security and nurses (hospital staff).

Increase proactive medical intervention

Medical intervention is one of the recommendations given by the respondents in order to improve the Code White response. Most Code Whites in Post Anaesthetic Care Unit occurred when delirious confused patients became combative/climbed out of bed/tore out intravenous lines etc. These patients could not be “reasoned” with due to their confusion and delirium. Staff reinforced the importance of the use of chemical restraint on regular basis and on time. They could have handled the situation better by giving more medications to calm the patient ahead of time and by seeking help from security personnel at once.

In the opinion of research participants, training was mostly about physical holds, which they had not been allowed to use at SPH. Therefore, they mentioned the importance of increasing available “as needed” or scheduled medications in Acute Mental Health as well.

Discussion

The current study evaluated the Code White Program at St. Paul’s Hospital and examined the relationship between Code White training and response in order to strengthen the implementation of the program. Research findings indicated that the employees who participated in Non-Violent Crisis Prevention Intervention (NCPI) training at St. Paul's Hospital were more prepared to de-escalate a hostile and aggressive patient than those who

did not. However, findings revealed that age of the participants did not have any impact on their preparedness level to handle violent incidents.

In relation to the preparedness level, findings also revealed that there were no differences among employees per their job classifications and units/programs that they worked. Perhaps this was due to the small sample size of some subgroups in the study, which was something that could not be accurately determined in the current study. Usually, due to the small sample size, it is difficult to find statistically significant relationships. However, effect sizes showed the practical significance of the differences among employees by their job classifications and units, which is of interest to practitioners. Registered practical nurses demonstrated more preparedness level to de-escalate a hostile and aggressive patient than registered nurses did. Also, Mental Health Unit appeared to be more prepared to de-escalate a hostile and aggressive patient than Surgery Unit did.

While dealing with violent incidents, staff members who received NCPI training employed training techniques more often than those who didn't. Overall, out of nine types of de-escalation strategies that NCPI training offered, staff members found five of them more relevant in their work dealing with incidents. They were Medication given, Individual talked down, Limit setting, Reduce stimulation on unit, and Use of diversion.

In regards to the difference across job classifications, due to the statistical evidence, there was no difference among staff members by job classification in the utilization of de-escalation strategies. But measures of effect sizes judge the importance of the results to practitioners showing the magnitude of difference across both job classifications and units/programs in terms of the use of limit setting and placed in seclusion strategies.

Essentially, Mental Health Unit found placed in seclusion strategy more relevant in their work than Medicine and Surgery Program Units did. Also, Mental Health Unit found use of diversion, quiet/timeout and return to room strategies more relevant in handling incidents than Surgery Program Unit did. But despite a statistically significant difference across units in the utilization of use of diversion, quiet/timeout and return to room strategies, the difference was not so important in practical terms.

Though some of the participants were accustomed to aggressive behavior, particularly verbal, most of the participants reported emotional responses, particularly, anxiety and frustration, fear, anger, upset, burn-out, compassion, tension and sadness. Lack of colleagues' support for staff who were involved in incidents, as well as the institution's

adequate response and unpreparedness were the most frequent supplementary comment made by the respondents. However, some of them found NCPI training techniques as useful coping strategies in handling such situations. A number of staff mentioned the value of having opportunities to examine incidents of violence, which strengthened their ability to respond adequately in future. As a result of these incidents, they also recognized the need for having more training to improve their skills and capacity. Most of the respondents indicated a strong preference for debriefing after incidents.

The unit has stated its desire to train staff in relation to violence and aggression, but the finding that almost half of the participants had not received training within the specified time frame indicates that mechanisms for monitoring the uptake of training may not be fully effective.

Based on their experiences and perceptions of the violence, staff members made a couple of recommendations to strengthen the implementation of the Code White Program. The respondents stated their desire to provide staff with ongoing training with refreshers and arrange Code White Training in relation to violence and aggression. It has been suggested that better resourcing, facilitating better communication and collaboration among staff teams, offering joint trainings for staff teams (particularly, for nursing and security), increasing security presence and increasing medical intervention should be priority for the effective implementation of the Code White Program.

Limitations

This study has several limitations that should be considered. The study presented relatively a small sample size, which might affect the results. Actually, though the sample size is not too small for this study, but in general, given the number of survey forms distributed, sample size sounds quite small. There was limitation with response rate. As noted above, 1000 surveys had been distributed to all units at St. Paul's Hospital.

Another limitation of the study was an unequal and small size of some subgroups. As we wanted to break down the participants into subgroups (such as per job classifications and units/programs) to examine their differences in terms of their preparedness level and the use of de-escalation strategies while dealing with incidents, each group would need sufficient number of participants to ensure statistically meaningful comparisons. But since each subgroup did not have enough participants, the analysis could result in unsatisfactory or biased results of the study. Thus it was sometimes difficult to find significant relationships, as statistical tests normally require a larger sample size to be considered representative of groups of people to whom results will be generalized or transferred. Also, though some positive changes have been demonstrated, it is not possible to say that these changes are meaningful. For example, though preparedness level of the participants was judged to be associated with the receipt of NCPI Training but it is of concern that 69.8% of the respondents had not received any training. Therefore, small size problem limits the generalizability of the results beyond the specifics of the study.

One of the limitations of the present study was its methodological constraints in relation to a retrospective viewpoint. The study covered the period of January-December 2010. The interpretation of these data was limited because the subjects' recall might not always be accurate. Staffs' view about their experiences of violent incidents might change over time. Although most study participants were able to report on their experiences, they might forget certain events that occurred in the past.

Another potential limitation included the fact that survey was self-administered. Though self-administered questionnaires offer the option to reach a large number of potential respondents, response rate is likely low and there possibly can be clarity issues regarding the questionnaire.

Lastly, since the research used a post-test design, without pre-test evaluation results, it was difficult to find a trend and the patterns of meaningful changes in the ability of the staff to handle situations.

Conclusion

The evaluation results were important for the Code White Program at St. Paul's Hospital because they indicated the strengths and the weaknesses of the employee's response to incidents and NCPI Training techniques offered. Given all these findings the agency might wish to advance training techniques or offer new methods to the staff, which would improve the employees' response to violent incidents.

It provides a better understanding of the impact of the incidents on the staff well-being. It also helps the agency to pinpoint areas of staff satisfaction and discontent, as well as to find innovative solutions to strengthen program implementation.

One of the factors to consider in future research include an examination of whether staff have either interpersonal characteristics, or skills, which result in a lower number of incidents and therefore, mentioned that they did not experience violent or aggressive incidents, or indicated low rates of violent or aggressive incidents. Additionally, longitudinal studies using repeated measures of outcomes following training is needed to ascertain long-term impacts.

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