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ORIGINAL RESEARCH

Prediction and Prevention of Aggression and Seclusion by Early Screening and Comprehensive Seclusion Documentation

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ABSTRACT

Objective: Identification and skilled management of aggressive patients are a continued safety concern for inpatient psychiatric settings. We studied aggression reduction and the use of seclusion and restraints on our inpatient unit by developing aggression management tools. Our objectives were to systematically identify potential aggressors among admitted patients within 24 to 48 hours of admission and develop a seclusion documentation form that simultaneously trains staff to use less restrictive interventions while collecting data on its use.

Methods: Prior to patient assessment and data collection, we systematically trained all medical staff on interviewing patients using the Phipps Aggression Screening Tool. We prospectively screened 229 consecutive admissions using the Phipps Aggression Screening Tool and determined its inter-rater reliability and predictive validity. We systematically recorded the use of a variety of interventions, including seclusion, when applicable. We also documented details of acts of aggression on a comprehensive form and collected demographics, case-mix severity, and outcomes.

Results: Twenty-two acutely ill patients were responsible for 68 violent acts, all identified by the Phipps Aggression Screening Tool. There were highly significant differences between aggressive and nonaggressive groups for length-of-stay, cost of hospitalization, and illness complexity. With the use of the new form, seclusion decreased from 32 percent to 22.4 percent in 2007. Our current use of seclusion is 0.1/1000 patient hours in 2011.

Conclusion: The seclusion documentation form appropriately guides aggression management with less restrictive alternatives to seclusion, once potentially aggressive patients have been identified by screening.

INTRODUCTION

In the 1990s, the Hartford Courant's exposé on restraint and seclusion (R&S)-related deaths prompted increased regulation and scrutiny of the practice on inpatient

services.[1] In 2007 and 2008, the Centers for Medicaid and Medicare Services put forth rules that specified training of personnel who order R&S, requirements for reporting R&S-related deaths, and interpretive guidelines for the use of R&S.[2] In 2009, the American Psychiatric Association's (APA) Committee on Patient Safety, among other groups, identified the use of R&S as an area of high priority in its handbook, *Safe MD*.[3] Therefore, hospitals that are committed to reducing or eliminating seclusion based on the current standards have to examine the organization of personnel and regular assessment of aggressive patients, as well as use less restrictive measures.[4]

The literature on reducing patient aggression on adult inpatient units emphasizes two factors: 1) the importance of early assessment and identification of patient characteristics that may be indicative of aggression, and 2) strategies to reduce the use of seclusion on these units using systems measures or protocols.[5–7]

Studies conducted also describe a wide range of complex interventions developed by staff that can be grouped as follows:

Staff-related factors. Staff-related factors include organization and deployment, training, and education (e.g., increased staff-to-patient ratio, communication, collaboration among staff and patients, and debriefing post-event to understand process flow);[6–12] using verbal de-escalation techniques;[9–12] staff distribution on the unit with respect to patient load, details of hand-offs, improving communication with patients, and examination of successful or failed interventions;[8–12] improving staff ability to detect precursors of violence, utilizing diversion techniques and alternative coping methods; collaborative problem-solving by increased patient participation; and improving medication management.[12–20]

Studying and debriefing patients using forms. This includes utilizing a coping questionnaire to assess patient preferences for dealing with agitation[13] and post-seclusion or restraint forms focusing on altering preventative treatment plans to suit individual patients.[15]

There is a national trend toward increasing violence in hospitals and on inpatient psychiatry units.[21–23] In the interests of patient/staff safety, programmatic efforts should focus on 1) training staff in accurate recognition of potential seclusion users in the milieu; 2) minimizing the use of seclusion by identifying and systematically promoting less restrictive interventions; and 3) debriefing staff, patients, or family members to minimize negative emotional consequences of seclusion use.

From 2007 to present, our acute-care service developed and used two new forms: the Phipps Aggression Screening Tool (PAST) and an R&S multidisciplinary form to improve documentation and data gathering for every episode of seclusion use. We also rigorously trained staff.

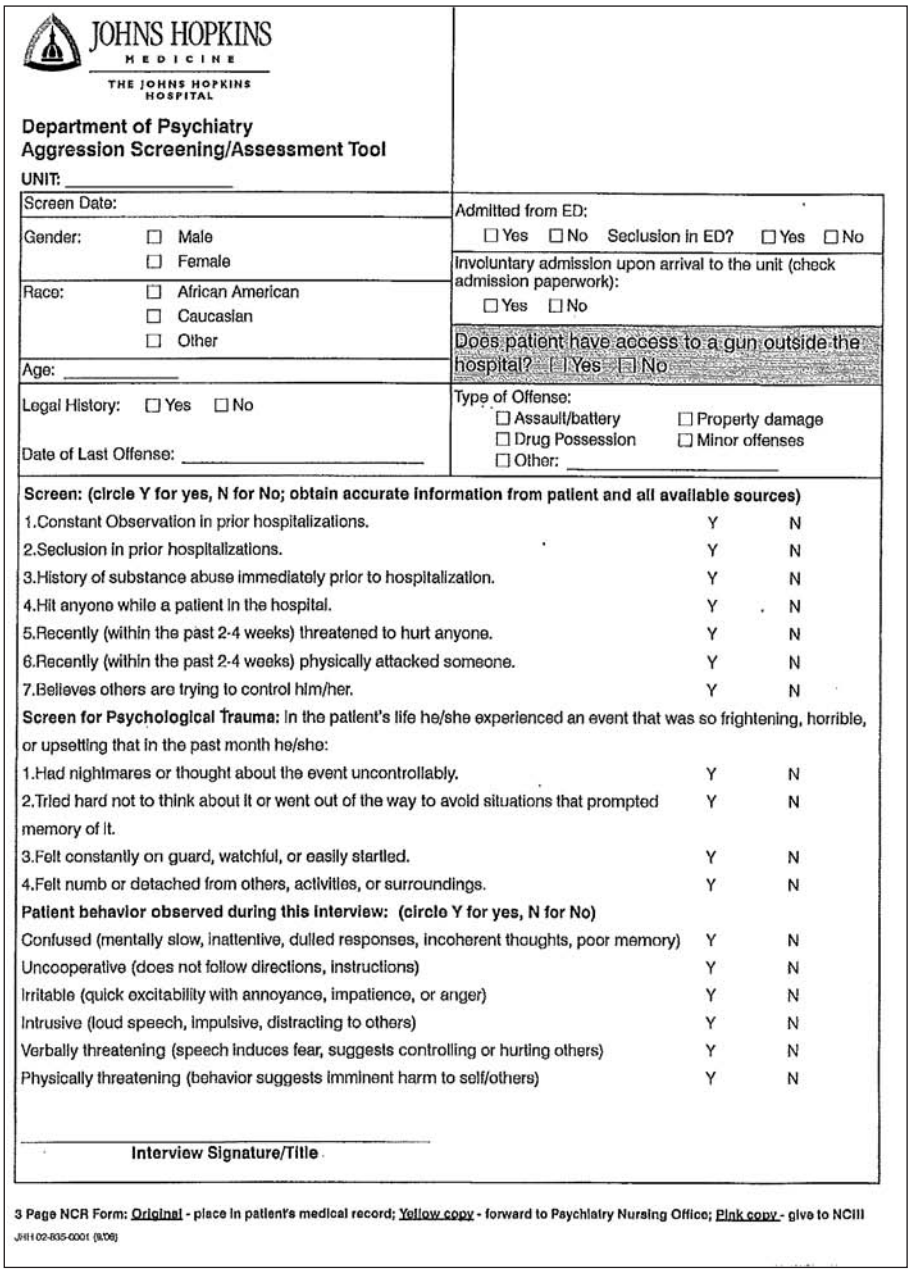
Our goals were to identify potentially aggressive patients soon after admission (24–48 hours) and describe the differences between the aggressive and nonaggressive patients. Also, we wanted to identify the nursing shift that is most likely to encounter problems of violence, the precipitants for acts of aggression, and types of the interventions used. Precipitant information is routinely collected and ranges from issues of smoking, food, visitor, or family issues; peer concerns; response to an acute milieu; limit setting; demands to leave or elopement attempts; cognitive limitations from retardation or dementia; or withdrawal from substances.

To identify potentially aggressive patients, we implemented a two-step intervention: 1) the use of the PAST (Figure 1) by trained staff in accurate recognition of potential seclusion users in the milieu and 2) an R&S documentation form (Figure 2), which minimizes or eliminates the use of seclusion by identifying and systematically promoting less restrictive interventions.

METHODS

Sample. In fiscal years 2007 and 2008, we prospectively collected clinical data on 229 consecutive admissions to the Johns Hopkins Hospital Meyer 3 Service. This service treats severely mentally ill patients with schizophrenia, affective disorders, substance abuse disorders, and post-traumatic stress, admitted mainly through the emergency department. Outpatient referrals are made from the community psychiatry program and day and general hospitals. Admissions are not elective. The unit uses observers to watch potentially aggressive patients to alert nursing staff or security personnel in the milieu. Admitted patients were 18 to 64 years of age. Aggressive patients were defined as those who displayed the following behaviors: verbal or physical aggression against staff or other patients and visitors and/or physical aggression against objects or self, both lethal and non-lethal.

Instruments. The PAST is a brief 11-item instrument developed by consensus by the authors with nursing leadership (Figure 1). It is administered within 24 to 48 hours of admission and asks specific questions about past violent behavior, including physical aggression against others, especially figures of authority in the community and in the hospital. It includes questions about trauma history. There is no cut-off score for the PAST. For example, prior history of violence against staff would trigger interventions. Prior to data collection and patient assessment, we systematically trained all medical staff on interviewing patients with the PAST. Both nurses and physicians interviewed patients collaterally within the first 24 to 48 hours and recorded demographics and clinical details. Nurses recorded use of seclusion among patients on the Seclusion Form, which includes alternative interventions tried,



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Department of Psychiatry
Aggression Screening/Assessment Tool

UNIT: _____

Screen Date:	Admitted from ED: ☐ Yes ☐ No Seclusion in ED? ☐ Yes ☐ No
Gender: ☐ Male ☐ Female	Involuntary admission upon arrival to the unit (check admission paperwork): ☐ Yes ☐ No
Race: ☐ African American ☐ Caucasian ☐ Other	Does patient have access to a gun outside the hospital? ☐ Yes ☐ No
Age: _____	
Legal History: ☐ Yes ☐ No Date of Last Offense: _____	Type of Offense: ☐ Assault/battery ☐ Property damage ☐ Drug Possession ☐ Minor offenses ☐ Other: _____

Screen: (circle Y for yes, N for No; obtain accurate information from patient and all available sources)

1.Constant Observation in prior hospitalizations.	Y	N
2.Seclusion in prior hospitalizations.	Y	N
3.History of substance abuse immediately prior to hospitalization.	Y	N
4.Hit anyone while a patient in the hospital.	Y	N
5.Recently (within the past 2-4 weeks) threatened to hurt anyone.	Y	N
6.Recently (within the past 2-4 weeks) physically attacked someone.	Y	N
7.Believes others are trying to control him/her.	Y	N

Screen for Psychological Trauma: In the patient's life he/she experienced an event that was so frightening, horrible, or upsetting that in the past month he/she:

1.Had nightmares or thought about the event uncontrollably.	Y	N
2.Tried hard not to think about it or went out of the way to avoid situations that prompted memory of it.	Y	N
3.Felt constantly on guard, watchful, or easily startled.	Y	N
4.Felt numb or detached from others, activities, or surroundings.	Y	N

Patient behavior observed during this interview: (circle Y for yes, N for No)

Confused (mentally slow, inattentive, dulled responses, incoherent thoughts, poor memory)	Y	N
Uncooperative (does not follow directions, instructions)	Y	N
Irritable (quick excitability with annoyance, impatience, or anger)	Y	N
Intrusive (loud speech, impulsive, distracting to others)	Y	N
Verbally threatening (speech induces fear, suggests controlling or hurting others)	Y	N
Physically threatening (behavior suggests imminent harm to self/others)	Y	N

_____
Interview Signature/Title

3 Page NCR Form: Original - place in patient's medical record; Yellow copy - forward to Psychiatry Nursing Office; Pink copy - give to NCIII

JHH 02-835-0001 (9/06)

FIGURE 1. The Phipps Aggression Screening Tool (PAST)

generally from the least restrictive (e.g., heightened observation using a behavior plan, presence of staff in milieu, limit-setting) to most restrictive (e.g., decreased stimulation by placing patient in a quiet room, use of a time out or medication, presence of security detail).

Additionally, the form incorporates regulatory requirements and time schedules and prompts the user to note less restrictive alternatives systematically. Nurses could use the most appropriate intervention for an event as needed, without following a rigid order. All acts of aggression, both verbal and physical, were recorded on the seclusion form.

Analysis. We determined inter-rater reliability for each question of the PAST. Separate comparisons were made for agreement between nurses and doctors, and between doctors, using the kappa statistic.[24] We evaluated the sensitivity of the PAST by comparison with the documented aggression incidents on the Seclusion Form. We compared demographic characteristics, case-mix severity, other clinical characteristics, and outcomes (e.g., decrease in violence, use of seclusion) in the cohort of patients with and without aggression during the hospitalization.

Because these interventions were made in the interest of performance improvement, this study and reporting were exempted by the Johns Hopkins Institutional Review Board.

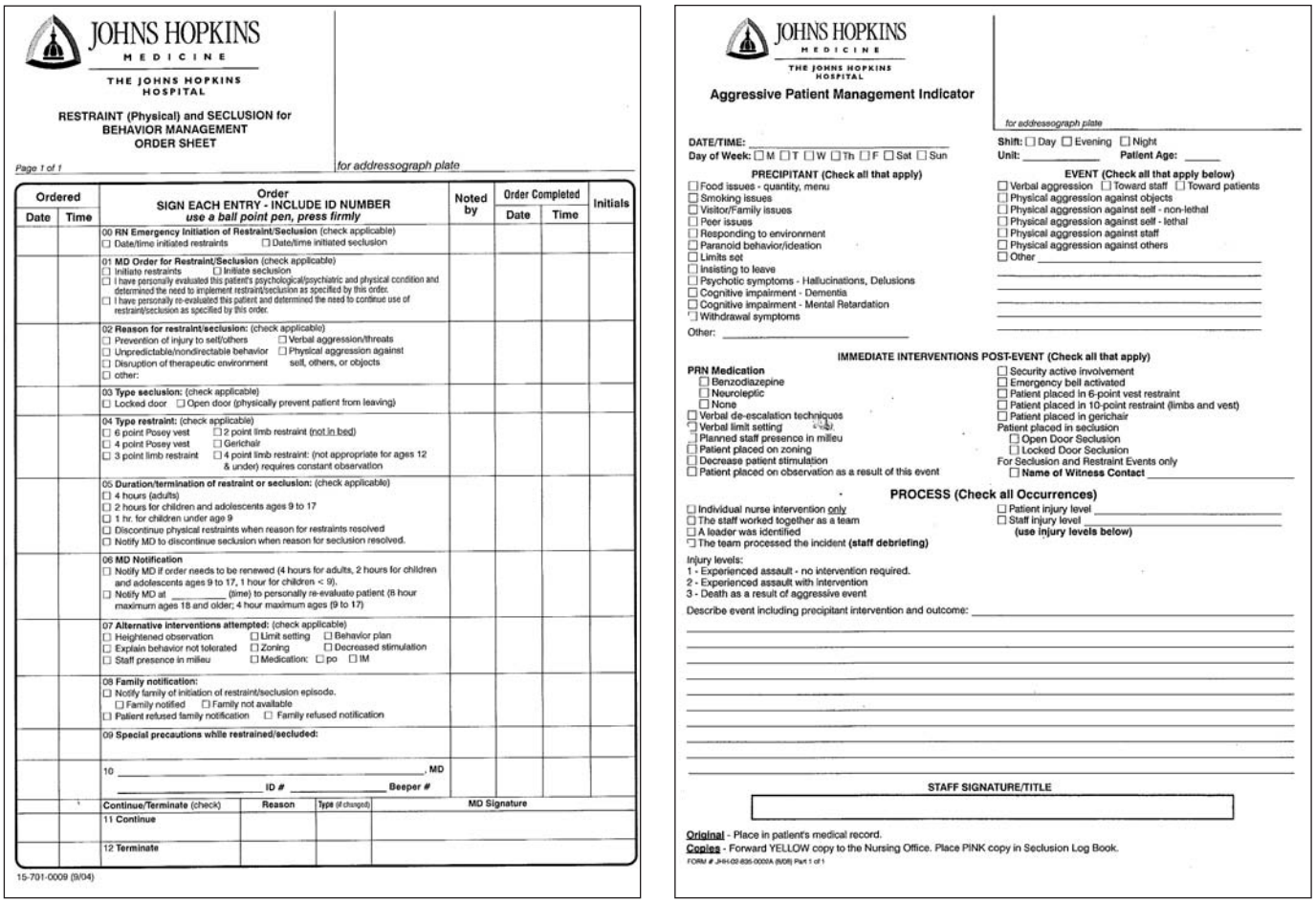
RESULTS

Details on the aggressive incidents. *Inter-rater reliability of the PAST.* The inter-rater reliability of the PAST between doctors and nurses for 60 screenings was 0.68 ($p<0.001$) and between two doctors for 60 screenings was 0.68 ($p<0.001$) (Table 1). There were no substantial differences between nurses and doctors in their evaluations.

Test performance of the PAST. The PAST had 100-percent sensitivity, identifying all potentially aggressive patients at intake. However, not all of the patients became violent in the hospital with early interventions.

Two questions of the PAST had predictive utility for aggression in hospital. Question 3 asked about hitting other patients in prior hospitalizations; patients who answered this question affirmatively were nearly three times more likely to have aggression in the current hospitalization (odds ratio [OR]=2.7, 95% confidence interval [CI]=0.4–16.6), although this was not statistically significant. Question 8 asked about paranoia (e.g., "Are others trying to harm you?). Patients who answered this question affirmatively were six times more likely to have aggression (OR=6.1, 95% CI=1.3–29.4; $p<0.03$).

Seclusion results. *Comparison of aggressive and nonaggressive patients.* The mean age of aggressive patients was 33.8 (22 patients; male-to-female ratio 50/50) and 39.5 in nonaggressive patients (207 patients; male-to-female ratio 49/51), with no



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RESTRAINT (Physical) and SECLUSION for BEHAVIOR MANAGEMENT ORDER SHEET

Page 1 of 1 — for addressograph plate

Ordered Date	Ordered Time	Order SIGN EACH ENTRY - INCLUDE ID NUMBER *use a ball point pen, press firmly*	Noted by	Order Completed Date	Order Completed Time	Initials
		00 **RN Emergency Initiation of Restraint/Seclusion** (check applicable) ☐ Date/time initiated restraints ☐ Date/time initiated seclusion				
		01 **MD Order for Restraint/Seclusion** (check applicable) ☐ Initiate restraints ☐ Initiate seclusion ☐ I have personally evaluated this patient's psychological/psychiatric and physical condition and determined the need to implement restraint/seclusion as specified by this order. ☐ I have personally re-evaluated this patient and determined the need to continue use of restraint/seclusion as specified by this order.				
		02 **Reason for restraint/seclusion:** (check applicable) ☐ Prevention of injury to self/others ☐ Verbal aggression/threats ☐ Unpredictable/nondirectable behavior ☐ Physical aggression against ☐ Disruption of therapeutic environment self, others, or objects ☐ other:				
		03 **Type seclusion:** (check applicable) ☐ Locked door ☐ Open door (physically prevent patient from leaving)				
		04 **Type restraint:** (check applicable) ☐ 6 point Posey vest ☐ 2 point limb restraint (not in bed) ☐ 4 point Posey vest ☐ Gerichair ☐ 3 point limb restraint ☐ 4 point limb restraint: (not appropriate for ages 12 & under) requires constant observation				
		05 **Duration/termination of restraint or seclusion:** (check applicable) ☐ 4 hours (adults) ☐ 2 hours for children and adolescents ages 9 to 17 ☐ 1 hr. for children under age 9 ☐ Discontinue physical restraints when reason for restraints resolved ☐ Notify MD to discontinue seclusion when reason for seclusion resolved.				
		06 **MD Notification** ☐ Notify MD if order needs to be renewed (4 hours for adults, 2 hours for children and adolescents ages 9 to 17, 1 hour for children < 9). ☐ Notify MD at _____ (time) to personally re-evaluate patient (8 hour maximum ages 18 and older; 4 hour maximum ages (9 to 17)				
		07 **Alternative interventions attempted:** (check applicable) ☐ Heightened observation ☐ Limit setting ☐ Behavior plan ☐ Explain behavior not tolerated ☐ Zoning ☐ Decreased stimulation ☐ Staff presence in milieu ☐ Medication: ☐ po ☐ IM				
		08 **Family notification:** ☐ Notify family of initiation of restraint/seclusion episode. ☐ Family notified ☐ Family not available ☐ Patient refused family notification ☐ Family refused notification				
		09 **Special precautions while restrained/secluded:**				
		10 _____, MD _____ ID # _____ Beeper #				

Continue/Terminate (check)	Reason	Type (if changed)	MD Signature
11 Continue			
12 Terminate			

15-701-0009 (9/04)

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Aggressive Patient Management Indicator

for addressograph plate

DATE/TIME: _____
Day of Week: ☐ M ☐ T ☐ W ☐ Th ☐ F ☐ Sat ☐ Sun
Shift: ☐ Day ☐ Evening ☐ Night
Unit: _____ Patient Age: _____

PRECIPITANT (Check all that apply)
☐ Food issues - quantity, menu
☐ Smoking issues
☐ Visitor/Family issues
☐ Peer issues
☐ Responding to environment
☐ Paranoid behavior/ideation
☐ Limits set
☐ Insisting to leave
☐ Psychotic symptoms - Hallucinations, Delusions
☐ Cognitive impairment - Dementia
☐ Cognitive impairment - Mental Retardation
☐ Withdrawal symptoms
Other: _____

EVENT (Check all that apply below)
☐ Verbal aggression ☐ Toward staff ☐ Toward patients
☐ Physical aggression against objects
☐ Physical aggression against self - non-lethal
☐ Physical aggression against self - lethal
☐ Physical aggression against staff
☐ Physical aggression against others
☐ Other _____

IMMEDIATE INTERVENTIONS POST-EVENT (Check all that apply)

PRN Medication
☐ Benzodiazepine
☐ Neuroleptic
☐ None
☐ Verbal de-escalation techniques
☐ Verbal limit setting
☐ Planned staff presence in milieu
☐ Patient placed on zoning
☐ Decrease patient stimulation
☐ Patient placed on observation as a result of this event

☐ Security active involvement
☐ Emergency bell activated
☐ Patient placed in 6-point vest restraint
☐ Patient placed in 10-point restraint (limbs and vest)
☐ Patient placed in gerichair
Patient placed in seclusion
☐ Open Door Seclusion
☐ Locked Door Seclusion
For Seclusion and Restraint Events only
☐ Name of Witness Contact _____

PROCESS (Check all Occurrences)
☐ Individual nurse intervention only
☐ The staff worked together as a team
☐ A leader was identified
☐ The team processed the incident **(staff debriefing)**

☐ Patient injury level _____
☐ Staff injury level _____
(use injury levels below)

Injury levels:
1 - Experienced assault - no intervention required.
2 - Experienced assault with intervention
3 - Death as a result of aggressive event

Describe event including precipitant intervention and outcome: _____

STAFF SIGNATURE/TITLE

Original - Place in patient's medical record.
Copies - Forward YELLOW copy to the Nursing Office. Place PINK copy in Seclusion Log Book.

FIGURE 2. The Restraint and Seclusion (R&S) Documentation Form

significant gender differences.

Diagnoses in both aggressive and nonaggressive groups were schizophrenia, mood disorders, and/or substance abuse disorders. Patients also had comorbid diagnoses of personality disorders and medical problems.

Among the variables describing past violence, we found that a history of hitting someone in the hospital was significantly higher in the aggressive than nonaggressive group (chi^2_1)=20.57, p<0.001). Other acts of violence, such as a history of shoving, punching others, or using a weapon against others were not significant. Of patients who were verbally aggressive, 9.6 percent escalated in their aggression despite interventions.

Aggressive patients stayed an average of 20.7 days and the nonaggressive patients stayed 9.9 days [t(22)= -3.25, p<0.005]. Total mean treatment charges incurred for aggressive patients was $14,930.00 and $7,795.00 for nonaggressive patients, almost half the dollar amount [t(23)= -3.05, p<0.006]. Readmission rates were 18 percent and 15 percent, respectively (within 30 days of discharge).

We calculated case complexity using the All Patient Related Diagnostic Related Groups (APR-DRGs) system[30] that all hospitals use for reimbursement. On a 1 to 4 scale, with 1 being the lowest in complexity, the aggressive patients had a higher percent of Levels 3 and 4 (46%) for a mean score of 2.59, as opposed to the nonaggressive patients (16%), who had a mean score of 1.98, [chi^2(3, N=229)=12.90, p<0.006].

Among aggressive patients, 46 percent were verbally aggressive and 22 percent were physically aggressive (e.g., hit or punched another patient or staff).

Patients who were uncooperative at admission (e.g., objected to ward rules or refused to participate in groups, adhere to substance abuse recovery work packets, take medications, or talk to nurses) were more likely to be secluded, although this did not reach levels of statistical significance.

Twenty-two patients were responsible for a total of 68 acts of aggression, including yelling, threatening staff or other patients with violence, and throwing objects.

Precipitants that set off the behaviors fell into three broad categories: 1) nondirectable behavior, including conflicts with visitors/family members/peers, issues surrounding smoking privileges, or enforcement of the treatment plan; 2) acute psychotic symptoms; or 3) behavior problems accompanying moderate mental retardation.

TABLE 1. Agreement between nuses and physicians and between physicians only

AGREEMENT BETWEEN NURSES AND PHYSICIAN (N=61) (VERSION 1 OF PAST)		
Question	Agreement (%)	Kappa
1. Slapped, punched, kicked or hurt anyone?	93.4	0.85*
2. Hit, injured parents/teachers/animals?	95.1	0.55*
3. Hit anyone while an inpatient?	98.4	0.91*
4. Being high/drunk while violent?	88.6	0.65*
5. Recently threatened anyone?	98.4	0.93*
6. Last time this occurred?	100[a]	n/a
7. Hear voices? Command you?	98.4	0.96*
8. Think others trying to harm you?	95.1	0.84*
9. Think others trying to control you?	93.4	0.74*
10. Anyone here bothering/irritating you?	95.1	0.70*
11. How do you get angry and what do you do when angry?	100	1.00*

[a] All patients gave the same answer to the RN/MD
* $p<0.001$

AGREEMENT BETWEEN MD1 (SK) AND MD2 (GJ) AS IN VERSION 2 OF PAST		
Question	Agreement (%)	Kappa
1. Use of constant observation in prior hospitalizations?	91.7	0.72*
2. Seclusion in prior hospitalizations?	90	0.74*
3. Substance abuse immediately before hospitalization?	88.3	0.77*
4. Hit anyone while an inpatient?	96.7	0.73*
5. Recently threatened to hurt anyone? (past 2–4 weeks)	88.3	0.63*
6. Recently (past 2–4 weeks) physically hurt anyone?	93.4	0.63*
7. Believe others are trying to control you?	83.4	0.60*

* $p<0.001$

For all patients in the study, we were successful in employing verbal de-escalation, behavioral contracts, zoning patients to the day area, and seclusion 35 percent, 2 percent, 39 percent, and 24 percent, respectively, each time an aggressive act occurred.

For aggressive patients identified at intake (history of prior physical violence or use of seclusion in the hospital), zoning to the day area and the use of verbal interventions as well as behavioral plans were successful in avoiding seclusion over 70 percent of the time.

The evening shift (3PM–11PM) encountered the most incidents (45%), as opposed to the day shift (2AM–3PM, 38%) and the night shift (11PM–7AM, 17%).

Of the 22 most aggressive patients, 54 percent were responsible for one incident (verbal or physical), 27 percent for 2 to 4 incidents, 14 percent for 5 to 7 incidents, and five percent for more than seven incidents.

Over 90 percent of the time, aggression ceased with any intervention. Aggression increased upon intervening in less than two percent of the patients. No restraints were used for any patient.

We had identified all of the 22 patients at initial screening. Our interview was sensitive in identifying potentially violent patients 90.2 percent of the time.

We noted significant differences between the aggressive and nonaggressive groups at the $p<0.0004$ and $p<0.006$ levels for length of stay and cost of hospitalization, respectively, and at the $p<0.0005$ levels for illness complexity.

Reduction in seclusion use. In calendar year 2003, there were 582 aggressive events, and seclusion was used 130 times. Our admissions doubled from 13,226 in 2003 to 27,104 in 2006. Despite increasing number of discharges in 2010 and a greater propensity for violence among our patients, we still continue to maintain a rate of seclusion of less

TABLE 2. Prediction of subsequent aggression by physician screening questions

QUESTION	RESPONSE	n	n (%) WITH AGGRESSION	ODDS RATIO (95% CI)	*P* VALUE
1. Slapped, punched, kicked anyone?	No	39	6 (15.4)	0.9 (0.2–3.9)	0.85
	Yes	22	3 (13.6)		
2. Injured, hit parents, teachers/animals?	No	57	9 (15.8)	n/a	0.25
	Yes	4	0 (0)		
3. Hit other patients in hospital?	No	54	7 (13.0)	2.7 (0.4–16.6)	0.31
	Yes	7	2 (28.6)		
4. Being high/drunk affect behavior?	No	46	8 (17.4)	0.3 (0.04–3.0)	0.28
	Yes	15	1 (96.7)		
5. Recently threatened anyone?	No	52	9 (17.3)	n/a	0.08
	Yes	9	0 (0)		
6. Last time this happened?	No	61	9 (14.8)	n/a	n/a
	Yes	0	n/a		
7. Command hallucinations?	No	45	7 (15.6)	0.8 (0.1–4.2)	0.76
	Yes	16	2 (12.5)		
8. Think others are trying to harm you?	No	51	5 (9.8)	6.1 (1.3–29.4)	0.03
	Yes	10	4 (40.0)		
9. Think others are trying to control you?	No	54	8 (14.8)	0.96 (0.1–9.1)	0.97
	Yes	7	1 (14.3)		
10. Is anyone here bothering you now?	No	55	8 (14.5)	1.2 (0.1–11.4)	0.89
	Yes	6	1 (16.7)		
11. Having thoughts to harm others?	No	60	9 (15.0)	n/a	0.57
	Yes	1	0 (0)		

than one hour per 1,000 patient hours in 2011. Although this is in keeping with a national trend,[42] we believe our rates declined only with active intervention.

DISCUSSION

On June 3, 2010, the Joint Commission, an independent, not-for-profit accreditation and certification organization for healthcare facilities, issued a Sentinel Event Alert about the growth of violence in hospitals and its under-reporting.[5] Within the four-pronged requirement of the standard of care is risk assessment to determine the potential for violence.

Our study describes the application of a violence assessment tool that can be quickly and efficiently used with good results. The tool has good inter-rater reliability and predictive ability for some critical questions. This enables staff to implement preventative interventions as quickly as possible to avoid violence and therefore the use of R&S.

Antonius et al[25] also reports the importance of establishing violence proneness early in the admission. Facilities that care for the mentally ill vary in geographic location, staffing patterns, mission, patient characteristics, and medical staff composition. Therefore, measures to contain patient aggression or potential harm to patients vary with internal system needs.

Although authors have sought to identify events and factors that predict violence or use of seclusion,[28–32] no one reports the use of a single comprehensive form to assist in R&S reduction.

In using the PAST, we agree with other authors[31,38] that delusions and psychotic symptoms were not the only major precipitant for aggression. Also, Powell,[29] Convit,[37] and Owen[39] noted that a small proportion of inpatients are responsible for a large percentage of violent acts. Other authors support increased training to increase the success of lower level interventions by staff when systematically applied.[15,16,18,23,30,36,43] They emphasize the need for screening and training in their

facilities too.

Although Powell et al[29] generated an incident report on violence on their service, they did not document earlier interventions systematically. They too noted an increase in incidents during the afternoon shift. Likely explanations for this increase in incidents during this time period are fewer structured activities in the afternoon, the likelihood of family visits, and less physician and nursing staff in the milieu.

Holdsworth et al[33] developed a screening tool enabling a thorough evaluation over time. However, they do not have a formal definition of items (e.g., medical and behavioral items are grouped together). Their risk-screening instrument had high inter-rater reliability.

We did not find duplication of our efforts by any other group of authors. We looked at aggression as a continuum, beginning with verbal aggression and culminating in physical aggression. Given that most admissions now are based on dangerousness and the need for expedited discharges, it is imperative that 1) aggressive patients are identified quickly and 2) staff applies alternative strategies other than seclusion to manage patients, which is also required by regulations. Our strategies have been highly successful in this regard.

Although the answer to the question, "Have you ever hit anyone while an inpatient?" was not significant, it may reach significance in a larger sample.

We did not find publications by others of long-term efforts over a decade.

One noteworthy difference in our approach is viewing R&S use as interventions rather than as outcomes; we advocate using R&S as little as possible, in a hierarchical fashion, after employing other measures. Although a large number of our patients had a prior history of violence, by early identification we were able to avert aggressive acts successfully. Our unit is located in the same area as reported by Kelen.[21]

Clearly, we need to decrease seclusion use and the use of observers to conserve resources. Nevertheless, it would be unsafe eliminate seclusion altogether, as our ultimate goal is to preserve patient and staff safety by preventing serious injury.[25,42]

Using observers to monitor patients cost us more than $1.2 million last year. The cost is offset to a degree by decreasing the length of stay. We continue to scrutinize observer use to decrease costs. This cost may be onerous for hospitals that operate on slim profit margins.

Future work lies in the ability to assign scores to patients who are imminently aggressive to assist nurses in immediate management. We currently denote this by marking a "V" or a "VV" on the unit board and discuss observer use at each shift and at rounds twice daily. Our aggression rates have significantly dropped, as have rates of injuries.

Further work should indicate a measurable degree of improvement in behavior associated with the impact of each intervention. We plan to use cluster analysis of a large sample to categorize groups of patients with identifiable profiles predicting violence. We disagree with Fisher on the fact that clinical factors may not play a role.[28] Patients with an antisocial personality and those who have been traumatized are identifiable with proper assessments, and may indeed be more aggressive. We noted that the antecedents of violence fell into one of several categories: psychotic symptoms, cognitive impairment (mental retardation or dementia), drug or alcohol withdrawal, ward rules governing visitors, use of the telephone, food, and peer interactions, as did others.[29,36,38–41]

Martin[42] and Ashcraft[43] also note that problem solving together as a staff with administrative leadership is key; strategic planning and change in the safety culture were all required to achieve positive results. Kozub[44] reports that the use of hierarchical interventions as a continuum is helpful. Borckardt[45] supports a research agenda similar to ours.

Limitations of our study include the following: the Meyer 3 service generally does not accept geriatric patients who are triaged to a specialty service. A separate assessment is needed for accurate predictions in this group. Also, these strategies may not be applicable to units that differ from us in patient composition and urban location.

CONCLUSION

It is possible to predict the need for seclusion among inpatients and reduce staff and patient injuries with a systematic approach.

Two points emerge from our work: 1) the emphasis is on early detection by rigorous screening, as noted by Swett[30] and Holdsworth[33]; and 2) appropriately graded sequential interventions, from the least to the most restrictive, diffuse the need for seclusion. Training is needed for their proper application. Such performance improvement activities significantly reduce costs of inpatient care. Totally eliminating the use of seclusion may place our patients and staff at risk, and may not be practical.

We propose to do further work in identifying patient profiles most likely to be associated with violence in our setting.

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