

APPENDIX A. SEARCH STRATEGIES

PUBMED

("Mental Disorders"[Mesh] OR "Psychiatry"[Mesh] OR "Hospitals, Psychiatric"[Mesh] OR "Mental Health"[Mesh] OR mental[tiab] OR mentally[tiab] OR psychiatr*[tiab] OR schizophren*[tiab] OR psychoti*[tiab]) AND ("Coercion"[Mesh] OR "Patient Isolation"[Mesh] OR "Commitment of Mentally Ill"[Mesh] OR Coerci*[tiab] OR Seclusion[tiab] OR Patient Isolation[tiab] OR Patient Immobili*[tiab] OR Compulsor*[tiab] OR Mentally Ill Commitment*[tiab] OR Involuntary Commitment*[tiab] OR (involunta*[tiab] NOT movement*[tiab]) OR ((lock[tiab] OR locked[tiab] OR locking[tiab] OR contained[tiab] OR containment*[tiab]) AND (door[tiab] OR doors[tiab] OR ward[tiab] OR wards[tiab] OR room[tiab] OR rooms[tiab]))) AND (Prevent* OR avoid* OR deter* OR delay*)

EMBASE

9/6/22, 1:58 PM

Exported Print HTML | Embase



Embase Session Results

No.	Query	Results
#16	#6 AND #14 AND #15	5,099
#15	prevent* OR avoid* OR deter* OR delay*	9,749,628
#14	#7 OR #8 OR #9 OR #10 OR #13	39,583
#13	#11 AND #12	10,668
#12	door OR doors OR ward OR wards OR room OR rooms	788,828
#11	lock OR locked OR locking OR contained OR containment*	464,247
#10	(((coerci* OR seclusion OR patient) AND isolation OR patient) AND immobili* OR compulsor* OR mentally) AND ill AND commitment* OR involuntary) AND commitment*	2,598
#9	'forensic psychiatry'	19,612
#8	'patient isolation'	2,640
#7	'coercion'	5,081
#6	#1 OR #2 OR #3 OR #4 OR #5	3,470,438
#5	mental OR mentally OR psychiatr* OR schizophren* OR psychoti*	2,117,527
#4	('mental hospital' OR psychiatric) AND hospital	194,047
#3	'psychiatry'	984,900
#2	mental AND disorder	357,808
#1	'mental disease'/exp OR 'mental disease'	2,648,036

COCHRANE

([mh "Mental Disorders"] OR [mh Psychiatry] OR [mh "Hospitals, Psychiatric"] OR [mh "Mental Health"]) OR mental:ti,ab OR mentally:ti,ab OR psychiatr*:ti,ab OR schizophren*:ti,ab OR psychoti*:ti,ab) AND ([mh Coercion] OR [mh "Patient Isolation"] OR [mh "Commitment of Mentally Ill"]) OR Coerci*:ti,ab OR Seclusion:ti,ab OR "Patient Isolation":ti,ab OR ("Patient" NEXT Immobili*):ti,ab OR Compulsor*:ti,ab OR ("Mentally Ill" NEXT Commitment*):ti,ab



OR ("Involuntary" NEXT Commitment*):ti,ab OR (involunta*:ti,ab NOT movement*:ti,ab) OR ((lock:ti,ab OR locked:ti,ab OR locking:ti,ab OR contained:ti,ab OR containment*:ti,ab) AND (door:ti,ab OR doors:ti,ab OR ward:ti,ab OR wards:ti,ab OR room:ti,ab OR rooms:ti,ab))) AND (Prevent* OR avoid* OR deter* OR delay*)

PSYCINFO

((MH "Mental Disorders"+) OR (MH Psychiatry+) OR (MH "Hospitals, Psychiatric"+) OR (MH "Mental Health"+) OR (TI mental OR AB mental) OR (TI mentally OR AB mentally) OR (TI psychiatr* OR AB psychiatr*) OR (TI schizophren* OR AB schizophren*) OR (TI psychoti* OR AB psychoti*)) AND ((MH Coercion+) OR (MH "Patient Isolation"+) OR (MH "Commitment of Mentally Ill"+) OR (TI Coerci* OR AB Coerci*) OR (TI Seclusion OR AB Seclusion) OR (TI "Patient Isolation" OR AB "Patient Isolation") OR (TI "Patient Immobili*" OR AB "Patient Immobili*") OR (TI Compulsor* OR AB Compulsor*) OR (TI "Mentally Ill Commitment*" OR AB "Mentally Ill Commitment*") OR (TI "Involuntary Commitment*" OR AB "Involuntary Commitment*") OR ((TI involunta* OR AB involunta*) NOT (TI movement* OR AB movement*)) OR (((TI lock OR AB lock) OR (TI locked OR AB locked) OR (TI locking OR AB locking) OR (TI contained OR AB contained) OR (TI containment* OR AB containment*)) AND ((TI door OR AB door) OR (TI doors OR AB doors) OR (TI ward OR AB ward) OR (TI wards OR AB wards) OR (TI room OR AB room) OR (TI rooms OR AB rooms)))) AND (Prevent* OR avoid* OR deter* OR delay*)

CINAHL

((MH "Mental Disorders"+) OR (MH Psychiatry+) OR (MH "Hospitals, Psychiatric"+) OR (MH "Mental Health"+) OR (TI mental OR AB mental) OR (TI mentally OR AB mentally) OR (TI psychiatr* OR AB psychiatr*) OR (TI schizophren* OR AB schizophren*) OR (TI psychoti* OR AB psychoti*)) AND ((MH Coercion+) OR (MH "Patient Isolation"+) OR (MH "Commitment of Mentally Ill"+) OR (TI Coerci* OR AB Coerci*) OR (TI Seclusion OR AB Seclusion) OR (TI "Patient Isolation" OR AB "Patient Isolation") OR (TI "Patient Immobili*" OR AB "Patient Immobili*") OR (TI Compulsor* OR AB Compulsor*) OR (TI "Mentally Ill Commitment*" OR AB "Mentally Ill Commitment*") OR (TI "Involuntary Commitment*" OR AB "Involuntary Commitment*") OR ((TI involunta* OR AB involunta*) NOT (TI movement* OR AB movement*)) OR (((TI lock OR AB lock) OR (TI locked OR AB locked) OR (TI locking OR AB locking) OR (TI contained OR AB contained) OR (TI containment* OR AB containment*)) AND ((TI door OR AB door) OR (TI doors OR AB doors) OR (TI ward OR AB ward) OR (TI wards OR AB wards) OR (TI room OR AB room) OR (TI rooms OR AB rooms)))) AND (Prevent* OR avoid* OR deter* OR delay*)

CAIRN.INFO

(Mental Disorders OR Psychiatry OR Psychiatric Hospitals OR Mental Health OR mental OR mentally OR psychiatr* OR schizophren* OR psychoti*)

AND

(Coercion OR Patient Isolation OR Commitment of Mentally Ill OR Coerci* OR Seclusion OR Patient Isolation OR Patient Immobili* OR Compulsor* OR Mentally Ill Commitment* OR Involuntary Commitment* OR ((lock OR locked OR locking OR contained OR containment*) AND (door OR doors OR ward OR wards OR room OR rooms)))

AND (Prevent* OR avoid* OR deter* OR delay*)

CLINICALTRIALS.GOV

(Coercion OR Patient Isolation OR Commitment of Mentally Ill OR Coerci* OR Seclusion OR Patient Isolation OR Patient Immobili* OR Compulsor* OR Mentally Ill Commitment* OR Involuntary Commitment*) AND (Mental Disorders OR Psychiatry OR Psychiatric Hospitals OR Mental Health OR mental OR mentally OR psychiatr* OR schizophren* OR psychoti*)

PROTOCOLS

The nominating partner made a request for protocols of alternative strategies to seclusion during a monthly VA National Psychiatry Chiefs call on August 12, 2022. Experts attending the call were encouraged to submit existing (and proposed) protocols or policies to reduce seclusion practices for adult patients in inpatient mental health units to the Providence EPC.

APPENDIX B. INTERVENTION FUNCTIONS

Intervention Function ^a	Definition
Education	Increasing knowledge or understanding
Persuasion	Using communication to induce positive or negative feelings or stimulate action
Incentivization	Creating expectation of reward
Coercion	Creating expectation of punishment or cost
Training	Imparting skills
Restriction	Using rules to reduce the opportunity to engage in the target behavior (or to increase the target behavior by reducing the opportunity to engage in competing behaviors)
Environmental restructuring	Changing the physical or social context
Modelling	Providing an example for people to aspire to or imitate
Enablement	Increasing means/reducing barriers to increase capability or opportunity ^b

Notes. ^a Intervention functions taken from Michie, S., van Stralen, M.M. & West, R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Sci* 6, 42 (2011). <https://doi.org/10.1186/1748-5908-6-42>. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

^b Capability beyond education and training; opportunity beyond environmental restructuring.

APPENDIX C. CRITERIA USED IN QUALITY ASSESSMENT

Question	Yes	No	Unclear
1. Design			
a. Randomized control trial			
b. Nonrandomized comparison of interventions			
2. Was the article free of discrepancies (eg., between text and tables)? Add note if no (high concern)			
3. Were patient eligibility criteria sufficiently clear? Add note if no (high concern)			
4. Was the alternative seclusion protocol (and comparator) sufficiently clear? Add note if no (high concern)			
5. Were outcomes adequately defined without problem? Add note if no (high concern)			
6. Was the setting sufficiently clearly defined? (Add note if no (high concern)			
7. Were there missing results data for ANY outcomes that occurred in inpatient setting? Were there missing results data for >20% of patients (or imbalance between study groups) for outcomes that occurred after discharge? Add note if yes			
8. Outcome assessment			
a. No (or inadequate) description of how seclusion and/or restraint (episodes or timing) was measured (unclear RoB)			
b. Independent or blind determination of seclusion and/or restraint (episodes or timing) (low RoB)			
c. Self-report (by staff) of seclusion and/or restraint (including that reported in records) (episodes or timing) (high RoB)			
9. If RCT, was there inadequate randomization method? Whether randomization was done at the level of the clinic/provider/or the patient, answer no (low RoB) unless there's an obvious flaw.			
10. If RCT, was there inadequate allocation concealment? Whether the randomization was done at the level of the clinic/provider/or patient, answer no unless there's an obvious flaw. If yes, add a note.			
11. If RCT, were staff blinded? Add note if no (high RoB)			
12. If observational study, eligible patients receiving care informed by alternative seclusion protocols were all selected or a random selection of patients was used (ie, no concerns about biased selection of alternative seclusion protocol patients). Add note if no (high RoB)			
13. If observational study, comparator group (or clinic/ward) was sufficiently similar (and selected patients were all included or a random sample were included). Add note if no (high RoB)			
14. If observational study, adjustment for confounders			
a. Crude analysis (unadjusted comparison between alternative seclusion protocol and standard seclusion protocol) (high RoB)			
b. Regression adjustment or patient matching (accounting for at least age, sex, and mental health diagnosis) (low RoB)			

Question	Yes	No	Unclear
c. Regression adjustment or patient matching (not accounting for at least 1 one of age, sex, and mental health diagnosis) (moderate RoB)			
d. Propensity score analysis (or equivalent) (low RoB)			

Abbreviations. RoB=risk of bias.

APPENDIX D. STUDIES EXCLUDED AT FULL TEXT

1. Allen DE, de Nesnera A, Souther JW. Executive-level reviews of seclusion and restraint promote interdisciplinary collaboration and innovation. *J Am Psychiatr Nurses Assoc* 2009;15(4):260-4. 2011 or before.
2. Allerby K, Goulding A, Ali L, et al. T237. Person-centered psychosis care –how increasing person-centeredness in psychosis inpatient care relate to care consumption and ward burden. *Schizophrenia Bulletin* 2020;46(Supplement_1):S323-S. *No outcomes of interest: Abstract results do not report on S/R, just LOS and rating of ward burden.*
3. Allikmets S, Marshall C, Murad O, et al. Seclusion: A patient perspective. *Issues Ment Health Nurs* 2020;41(8):723-35. *Qualitative study.*
4. Alty A. Nurses' learning experience and expressed opinions regarding seclusion practice within one NHS trust. *J Adv Nurs* 1997;25(4):786-93. *Qualitative study.*
5. Andersen C, Kolmos A, Andersen K, et al. Applying sensory modulation to mental health inpatient care to reduce seclusion and restraint: a case control study. *Nord J Psychiatry* 2017;71(7):525-8. *No outcomes of interest (protocol/study registration).*
6. Asikainen J, Louheranta O, Vehviläinen-Julkunen K, et al. Use of coercion prevention tools in Finnish psychiatric wards. *Arch Psychiatr Nurs* 2020;34(5):412-20. *Not NA (KQ1).*
7. Bar-shalita, T. Exploring the effectiveness of a sensory room in reducing seclusion, restraint and aggression at an acute psychiatric unit. 2022. *No outcomes of interest (protocol/study registration).*
8. Baumgardt J, Jäckel D, Helber-Böhlen H, et al. Preventing and reducing coercive measures- an evaluation of the implementation of the safewards model in two locked wards in Germany. *Front Psychiatry* 2019;10:340. *Not alternative to seclusion (explicit).*
9. Baumgardt J, Jäckel D, Helber-Böhlen H, et al. Corrigendum: preventing and reducing coercive measures- an evaluation of the implementation of the safewards model in two locked wards in Germany. *Front Psychiatry* 2019;10:340. *Duplicate.*
10. Baumgardt J, Jäckel D, Helber-Böhlen H, et al. Preventing and reducing coercive measures-an evaluation of the implementation of the safewards model in two locked wards in Germany. *Front Psychiatry* 2020. *Duplicate.*
11. Baumgardt J, Jäckel D, Helber-Böhlen H, et al. Preventing and reducing coercive measures-an evaluation of the implementation of the safewards model in two locked wards in Germany. *Front Psychiatry* 2019;10:340. *Not alternative to seclusion (explicit).*
12. Baumgardt J, Jäckel D, Helber-Böhlen H, et al. Corrigendum: preventing and reducing coercive measures-an evaluation of the implementation of the safewards model in two locked wards in Germany. *Front Psychiatry* 2020;11:162. *Not alternative to seclusion (explicit).*
13. Berring L, & Bak, J. A new way of handling conflicts. *The Nurse* 2015;115(13):89-93. *Not in English (for KQ1).*
14. Bhat S, Rentala S, Nanjgowda RB, et al. Effectiveness of milieu therapy in reducing conflicts and containment rates among schizophrenia patients. *Invest Educ Enferm* 2020;38(1). *Not high-income country (KQ2).*
15. Bilgin H, Keser Ozcan N and Boyacioglu NE. Nursing students' opinions on mechanical detection method. *Turkiye Klinikleri Journal of Nursing Science*. 2013;5(2):85-92. *Qualitative study.*

16. Bille V. Impact of the preventive emotions management questionnaire on the rates of isolation and mechanical restraint measures in the psychiatric admission unit. 2022. ClinicalTrials.gov identifier: NCT05306717. <https://www.clinicaltrials.gov/ct2/show/NCT05306717>. *No outcomes of interest (protocol/study registration)*.
17. Biondo J. De-escalation with dance/movement therapy: A program evaluation. *American Journal of Dance Therapy* 2017;39(2):209-25. *Not inpatient mental health*.
18. Borckardt JJ, Madan A, Grubaugh AL, Danielson CK, Pelic CG, Hardesty SJ, Hanson R, Herbert J, Cooney H, Benson A, Frueh BC. Systematic investigation of initiatives to reduce seclusion and restraint in a state psychiatric hospital. *Psychiatr Serv*. 2011 May;62(5):477-83. *Not inpatient mental health*.
19. Boumans CE, Walvoort SJ, Egger JI, et al. The methodical work approach and the reduction in the use of seclusion: how did it work? *Psychiatr Q* 2015;86(1):1-17. *No comparator group (KQ2)*.
20. Bowers L. Association between staff factors and levels of conflict and containment on acute psychiatric wards in England. *Psychiatr Serv* 2009;60(2):231-9. *Not alternative to seclusion (explicit)*.
21. Bowers L, Ross J, Nijman H, et al. The scope for replacing seclusion with time out in acute inpatient psychiatry in England. *J Adv Nurs* 2012;68(4):826-35. *No comparator group (KQ2)*.
22. Bowers L, Van Der Merwe M, Nijman H, et al. The practice of seclusion and time-out on English acute psychiatric wards: the city-128 study. *Arch Psychiatr Nurs* 2010;24(4):275-86. *Not alternative to seclusion (explicit)*.
23. Bowers L, Wright S, Stewart D. Patients subject to high levels of coercion: staff's understanding. *Issues Ment Health Nurs* 2014;35(5):364-71. *Qualitative study*.
24. Buican BJ. The implementation of a psychosocial rehabilitation program at Hawaii state hospital. US: ProQuest Information & Learning; 2001. *Forensic population*.
25. Canatsey K, Roper JM. Removal from stimuli for crisis intervention: using least restrictive methods to improve the quality of patient care. *Issues Ment Health Nurs* 1997;18(1):35-44. *No comparator group (KQ2)*.
26. Cano N, Boyer L, Garnier C, et al. [Patients' perception of seclusion in psychiatry: ethical perspectives]. *Encephale* 2011;37 Suppl 1:S4-10. *Qualitative study*.
27. Cano N, Boyer L, Garnier C, et al. [Patients' perception of seclusion in psychiatry: ethical perspectives]. *Encephale* 2011;37 Suppl 1:S4-10. *Qualitative study*.
28. Carlson JM, Holm MB. Effectiveness of occupational therapy for reducing restraint use in a psychiatric setting. *Am J Occup Ther* 1993;47(10):885-9. *Not alternative to seclusion (explicit)*.
29. Cashin A. Seclusion: the quest to determine effectiveness. *J Psychosoc Nurs Ment Health Serv* 1996;34(11):17-21. *Not alternative to seclusion (explicit)*.
30. Veterans Affairs: Ralph H. Johnson VA Medical Center. Position Description (Chleston, SC). *Review or other design not of interest*.
31. Chabora N, Judge-Gorny M, Grogan K. The Four S Model in action for de-escalation. An innovative state hospital-university collaborative endeavor. *J Psychosoc Nurs Ment Health Serv* 2003;41(1):22-8. *2011 or before (for KQ1)*.
32. Chalmers A, Harrison S, Mollison K, et al. Establishing sensory-based approaches in mental health inpatient care: a multidisciplinary approach. *Australas Psychiatry* 2012;20(1):35-9. *Review or other design not of interest*.

33. Chengappa KN, Ebeling T, Kang JS, et al. Clozapine reduces severe self-mutilation and aggression in psychotic patients with borderline personality disorder. *J Clin Psychiatry* 1999;60(7):477-84. *No comparator group (KQ2)*.
34. Chengappa KN, Levine J, Ulrich R, et al. Impact of risperidone on seclusion and restraint at a state psychiatric hospital. *Can J Psychiatry* 2000;45(9):827-32. *Not alternative to seclusion (explicit)*.
35. Chengappa KN, Vasile J, Levine J, et al. Clozapine: its impact on aggressive behavior among patients in a state psychiatric hospital. *Schizophr Res* 2002;53(1-2):1-6. *Not alternative to seclusion (explicit)*.
36. Chieze M, Hurst S, Kaiser S, et al. Effects of seclusion and restraint in adult psychiatry: A systematic review. *Front Psychiatry* 2019;10:491. *Not alternative to seclusion (explicit)*.
37. Clark LL, Lekkai F, Murphy A, et al. The use of positive behaviour support plans in mental health inpatient care: A mixed methods study. *J Psychiatr Ment Health Nurs* 2020;27(2):140-50. *Not NA (KQ1)*.
38. Commission J. Specifications Manual for Joint Commission National Quality Measures (v2015B). *Not inpatient mental health*.
39. Craig JH, Sanders KL. Evaluation of a program model for minimizing restraint and seclusion. *Advances in Neurodevelopmental Disorders* 2018;2(4):344-52. *Pediatric population*.
40. Curie CG. SAMHSA's commitment to eliminating the use of seclusion and restraint. *Psychiatr Serv* 2005;56(9):1139-40. *2011 or before*.
41. Currier GW, Farley-Toombs C. Datapoints: use of restraint before and after implementation of the new HCFA rules. *Psychiatr Serv* 2002;53(2):138. *Not alternative to seclusion (explicit)*.
42. de Cuyper K, Opgenhaffen T, Peeters T, et al. [Flemish guideline for the prevention and use of seclusion and restraint]. *Tijdschr Psychiatr* 2021;63(4):276-82. *Not in English*.
43. de Cuyper K, Opgenhaffen T, Peeters T, et al. [Flemish guideline for the prevention and use of seclusion and restraint]. *Tijdschr Psychiatr* 2021;63(4):276-82. *Duplicate*.
44. Digby R, Bushell H, Bucknall TK. Implementing a psychiatric behaviours of concern emergency team in an acute inpatient psychiatry unit: staff perspectives. *Int J Ment Health Nurs* 2020;29(5):888-98. *Qualitative study*.
45. Dike CC, Lamb-Pagone J, Howe D, et al. Implementing a program to reduce restraint and seclusion utilization in a public-sector hospital: clinical innovations, preliminary findings, and lessons learned. *Psychol Serv* 2021;18(4):663-70. *Forensic population*.
46. Doedens P, Vermeulen J, Boyette LL, et al. Influence of nursing staff attitudes and characteristics on the use of coercive measures in acute mental health services-a systematic review. *J Psychiatr Ment Health Nurs* 2020;27(4):446-59. *Qualitative study*.
47. Donat DC. Impact of a mandatory behavioral consultation on seclusion/restraint utilization in a psychiatric hospital. *J Behav Ther Exp Psychiatry* 1998;29(1):13-9. *No comparator group (KQ2)*.
48. Du M, Wang X, Yin S, et al. De-escalation techniques for psychosis-induced aggression or agitation. *Cochrane Database Syst Rev* 2017;4(4):Cd009922. *Not alternative to seclusion (explicit)*.
49. Duffy RM, Kelly BD. Can the world health organisation's 'quality rights' initiative help reduce coercive practices in psychiatry in Ireland? *Ir J Psychol Med* 2020:1-4. *Not NA (KQ1)*.

50. Ejneborn Looi GM, Engström Å, Sävenstedt S. A self-destructive care: self-reports of people who experienced coercive measures and their suggestions for alternatives. *Issues Ment Health Nurs* 2015;36(2):96-103. *Qualitative study*.
51. Espinosa L, Harris B, Frank J, et al. Milieu improvement in psychiatry using evidence-based practices: the long and winding road of culture change. *Arch Psychiatr Nurs* 2015;29(4):202-7. *SR or CPG*.
52. Ezeobebe IE, Malecha AT, Mock A, et al. Patients' lived seclusion experience in acute psychiatric hospital in the United States: a qualitative study. *J Psychiatr Ment Health Nurs* 2014;21(4):303-12. *Qualitative study*.
53. Finch K, Lawrence D, Williams MO, et al. A systematic review of the effectiveness of safeguards: has enthusiasm exceeded evidence? *Issues Ment Health Nurs* 2022;43(2):119-36. *SR or CPG*.
54. Finch K, Lawrence D, Williams MO, et al. A systematic review of the effectiveness of safeguards: has enthusiasm exceeded evidence? *Issues Ment Health Nurs* 2022;43(2):119-36. *Duplicate*.
55. Fletcher J, Hamilton B, Kinner SA, et al. Safewards impact in inpatient mental health units in Victoria, Australia: staff perspectives. *Front Psychiatry* 2019;10:462. *No comparator group (KQ2)*.
56. Fletcher J, Spittal M, Brophy L, et al. Outcomes of the Victorian safeguards trial in 13 wards: impact on seclusion rates and fidelity measurement. *Int J Ment Health Nurs* 2017;26(5):461-71. *No outcomes of interest (mixed population adult and pediatric for outcomes of interest, only report fidelity for adult wards which is not an outcome of interest)*.
57. Garner B. The evaluation of relaxation massage therapy as an intervention treatment for reducing the level of arousal and aggression on a young adult psychiatric inpatient unit. 2006. ClinicalTrials.gov identifier: NCT00421070. <https://www.clinicaltrials.gov/ct2/show/NCT00421070>. *Pediatric population*.
58. Gaskin CJ, McVilly KR, McGillivray JA. Initiatives to reduce the use of seclusion and restraints on people with developmental disabilities: a systematic review and quantitative synthesis. *Res Dev Disabil* 2013;34(11):3946-61. *SR or CPG*.
59. Gaynes BN, Brown C, Lux LJ, et al. AHRQ comparative effectiveness reviews. Strategies To De-escalate Aggressive Behavior in Psychiatric Patients. Rockville (MD): Agency for Healthcare Research and Quality (US), 2016. *SR or CPG*.
60. Gaynes BN, Brown CL, Lux LJ, et al. Preventing and de-escalating aggressive behavior among adult psychiatric patients: a systematic review of the evidence. *Psychiatr Serv* 2017;68(8):819-31. *SR or CPG*.
61. Gerle E, Fischer A, Lundh LG. "Voluntarily admitted against my will": patient perspectives on effects of, and alternatives to, coercion in psychiatric care for self-injury. *J Patient Exp* 2019;6(4):265-70. *Qualitative study*.
62. Gleerup CS, Østergaard SD, Hjulær RS. Seclusion versus mechanical restraint in psychiatry - a systematic review. *Acta Neuropsychiatr* 2019;31(5):237-45. *SR or CPG*.
63. Goldbloom DL, Mojtabai R, Serby MJ. Weekend prescribing practices and subsequent seclusion and restraint in a psychiatric inpatient setting. *Psychiatr Serv* 2010;61(2):193-5. *Review or other design not of interest*.
64. Goulet M-H, Larue C, Dumais A. Evaluation of seclusion and restraint reduction programs in mental health: A systematic review. *Aggression and Violent Behavior* 2017;34:139-46. *SR or CPG*.

65. Goulet MH, Larue C, Dumais A. From study day to centre for the study of control measures: an example of codevelopment. *Int J Ment Health Nurs* 2012;21(5):493. *Review or other design not of interest.*
66. Guivarch J, Cano N. [Use of restraint in psychiatry: feelings of caregivers and ethical perspectives]. *Encephale* 2013;39(4):237-43. *Qualitative study.*
67. Haefner J, Dunn I, McFarland M. A quality improvement project using verbal de-escalation to reduce seclusion and patient aggression in an inpatient psychiatric unit. *Issues Ment Health Nurs*. 2021 Feb;42(2):138-144. *Duplicate.*
68. Haines-Delmont A, Goodall K, Duxbury J, et al. An evaluation of the implementation of a "no force first" informed organisational guide to reduce physical restraint in mental health and learning disability inpatient settings in the UK. *Front Psychiatry* 2022;13:749615. *Forensic population.*
69. Hallett N, Dickens GL. De-escalation: A survey of clinical staff in a secure mental health inpatient service. *Int J Ment Health Nurs* 2015;24(4):324-33. *Qualitative study.*
70. Hallett N, Dickens GL. De-escalation: A survey of clinical staff in a secure mental health inpatient service. *Int J Ment Health Nurs* 2015;24(4):324-33. *Qualitative study.*
71. Hammervold UE, Norvoll R, Sagvaag H. Post-incident reviews after restraints-potential and pitfalls. Patients' experiences and considerations. *J Psychiatr Ment Health Nurs* 2022;29(3):472-83. *Qualitative study.*
72. Hammervold UE, Norvoll R, Vevatne K, et al. Post-incident reviews-a gift to the ward or just another procedure? Care providers' experiences and considerations regarding post-incident reviews after restraint in mental health services. A qualitative study. *BMC Health Serv Res* 2020;20(1):499. *Qualitative study.*
73. Hammervold UE, Norvoll R, Sagvaag H. Post-incident reviews after restraints-potential and pitfalls. Patients' experiences and considerations. *J Psychiatr Ment Health Nurs* 2022;29(3):472-83. *Qualitative study.*
74. Hawsawi T, Power T, Zugai J, et al. Nurses' and consumers' shared experiences of seclusion and restraint: A qualitative literature review. *Int J Ment Health Nurs* 2020;29(5):831-45. *No outcomes of interest: Abstract results do not report on S/R, just LOS and rating of ward burden.*
75. Hayashi F, Harsany A, Varvara M, et al. The elimination of seclusion in a geriatric inpatient unit: using environmental modification to effect a cultural change. *The American Journal of Geriatric Psychiatry* 2015;23(3, Supplement):S122-S3. *No outcomes of interest: Abstract results do not report on S/R, just LOS and rating of ward burden.*
76. Hernandez A, Riahi S, Stuckey MI, et al. Multidimensional approach to restraint minimization: the journey of a specialized mental health organization. *Int J Ment Health Nurs* 2017;26(5):482-90. *Forensic population.*
77. Hernandez A, Riahi S, Stuckey MI, et al. Multidimensional approach to restraint minimization: the journey of a specialized mental health organization. *Int J Ment Health Nurs* 2017;26(5):482-90. *Duplicate.*
78. Hirsch S, Steinert T. Measures to avoid coercion in psychiatry and their efficacy. *Dtsch Arztebl Int* 2019;116(19):336-43. *SR or CPG.*
79. Hoff AL, Faustman WO, Wieneke M, et al. The effects of clozapine on symptom reduction, neurocognitive function, and clinical management in treatment-refractory state hospital schizophrenic inpatients. *Neuropsychopharmacology* 1996;15(4):361-9. *Not alternative to seclusion (explicit).*

80. Huckshorn KA. Reducing seclusion restraint in mental health use settings: core strategies for prevention. *J Psychosoc Nurs Ment Health Serv* 2004;42(9):22-33. *Review or other design not of interest.*
81. Huckshorn KA. Re-designing state mental health policy to prevent the use of seclusion and restraint. *Adm Policy Ment Health* 2006;33(4):482-91. *Review or other design not of interest.*
82. Huckshorn KA. Reducing seclusion and restraint use in inpatient settings: a phenomenological study of state psychiatric hospital leader and staff experiences. *J Psychosoc Nurs Ment Health Serv* 2014;52(11):40-7. *Qualitative study.*
83. Huckshorn KA, LeBel J, Jacobs HE. An organizational approach to reducing and preventing restraint and seclusion use with people with acquired brain injury. *NeuroRehabilitation* 2014;34(4):671-80. *Not inpatient mental health.*
84. Huckshorn KA. Reducing seclusion and restraint use in inpatient settings: a phenomenological study of state psychiatric hospital leader and staff experiences. *J Psychosoc Nurs Ment Health Serv* 2014;52(11):40-7. *Duplicate.*
85. Huf G, Alexander J, Gandhi P, et al. Haloperidol plus promethazine for psychosis-induced aggression. *Cochrane Database Syst Rev* 2016;11(11):Cd005146. *Not alternative to seclusion (explicit).*
86. Huf G, Coutinho ES, Ferreira MA, et al. TREC-SAVE: a randomised trial comparing mechanical restraints with use of seclusion for aggressive or violent seriously mentally ill people: study protocol for a randomised controlled trial. *Trials* 2011;12:180. *Not high-income country (KQ2).*
87. Hunter RH, Wilkniss, S., Gardner, W. I., & Silverstein, S. M. The multimodal functional model--advancing case formulation beyond the "diagnose and treat" paradigm: improving outcomes and reducing aggression and the use of control procedures in psychiatric care. *Psychological Services* 2008;5(1):11-25. *2011 or before.*
88. Ifteni P, Szalontay AS, Teodorescu A. Reducing restraint with clozapine in involuntarily admitted patients with schizophrenia. *Am J Ther* 2017;24(2):e222-e6. *Not alternative to seclusion (explicit).*
89. Inoue KaT, Hisashi and Nakao, Kayo and Fukui, Sayaka and Fukui, Nobuhiko and Sakaguchi, Motoaki and Yonashiro, Takayuki and Fujiwara, Maiko and Kaiya, Hisanobu and Okazaki, Yuji. A report on research on the use of Risperidone oral solution in a clinical setting. 2006. *Not alternative to seclusion (explicit).*
90. Janssen W, Noorthoorn E, Linge R, et al. The influence of staffing levels on the use of seclusion. *Int J Law Psychiatry* 2007;30(2):118-26. *Not alternative to seclusion (explicit).*
91. Jayaram G, Samuels J, Konrad SS. Prediction and prevention of aggression and seclusion by early screening and comprehensive seclusion documentation. *Innov Clin Neurosci* 2012;9(7-8):30-8. *No comparator group (KQ2).*
92. Kalagi J, Otte I, Vollmann J, et al. Requirements for the implementation of open door policies in acute psychiatry from a mental health professionals' and patients' view: a qualitative interview study. *BMC Psychiatry* 2018;18(1):304. *Qualitative study.*
93. Kalagi J, Otte I, Vollmann J, et al. Requirements for the implementation of open door policies in acute psychiatry from a mental health professionals' and patients' view: a qualitative interview study. *BMC Psychiatry* 2018;18(1):304. *Qualitative study.*
94. Kennedy HG, Mullaney R, McKenna P, et al. A tool to evaluate proportionality and necessity in the use of restrictive practices in forensic mental health settings: the DRILL tool (drum restriction, intrusion and liberty ladders). *BMC Psychiatry* 2020;20(1):515. *Forensic population.*

95. Kingdon DG, Bakewell EW. Aggressive behaviour: evaluation of a non-seclusion policy of a district psychiatric service. *Br J Psychiatry* 1988;153:631-4. *No comparator group (KQ2)*.
96. Kirkpatrick H. Inpatients had mostly negative experiences of seclusion during short term treatment in a mental health facility. *Evidence Based Mental Health* 2000;3(4):128. *Qualitative study*.
97. Knox DK, Holloman GH, Jr. Use and avoidance of seclusion and restraint: consensus statement of the american association for emergency psychiatry project beta seclusion and restraint workgroup. *West J Emerg Med* 2012;13(1):35-40. *Review or other design not of interest*.
98. Kontio R, Lahti M, Pitkänen A, et al. Impact of eLearning course on nurses' professional competence in seclusion and restraint practices: a randomized controlled study (ISRCTN32869544). *J Psychiatr Ment Health Nurs* 2011;18(9):813-21. *Not NA (KQ1)*.
99. Kozub ML, Skidmore R. Least to most restrictive interventions. A continuum for mental health care facilities. *J Psychosoc Nurs Ment Health Serv* 2001;39(3):32-8. *Review or other design not of interest*.
100. Krieger E, Fischer R, Moritz S, et al. [Post-seclusion/post-restraint debriefing with patients-overview and current situation]. *Nervenarzt* 2021;92(1):44-9. *Not in English (for KQ1)*.
101. Kunøe N, Nussle HM, Indregard AM. Protocol for the Lovisenberg Open Acute Door Study (LOADS): a pragmatic randomised controlled trial to compare safety and coercion between open-door policy and usual-care services in acute psychiatric inpatients. *BMJ Open* 2022;12(2):e058501. *Not alternative to seclusion (explicit)*.
102. Lai CY, Su YY, Lin ST, et al. Music and restraint: emotional control effects on psychiatric patients kept in seclusion. *Journal of Nursing and Healthcare Research* 2010;6:308-18. *Not alternative to seclusion (explicit)*.
103. Lantta T, Varpula J, Cheung T, et al. Prevention and management of aggressive behaviour in patients at psychiatric hospitals: a document analysis of clinical practice guidelines in Hong Kong. *Int J Ment Health Nurs* 2020;29(6):1079-91. *Qualitative study*.
104. Larue C, Dumais A, Drapeau A, et al. Nursing practices recorded in reports of episodes of seclusion. *Issues Ment Health Nurs* 2010;31(12):785-92. *Not alternative to seclusion (explicit)*.
105. LeBel J. First randomised controlled-trial research on seclusion and restraint reduction achieves intent. *Evid Based Ment Health* 2014;17(2):40-1. *Forensic population*.
106. LeBel JL, Duxbury JA, Putkonen A, et al. Multinational experiences in reducing and preventing the use of restraint and seclusion. *J Psychosoc Nurs Ment Health Serv* 2014;52(11):22-9. *Review or other design not of interest*.
107. Lee SJ, Cox A, Whitecross F, et al. Sensory assessment and therapy to help reduce seclusion use with service users needing psychiatric intensive care. *Journal of Psychiatric Intensive Care* 2010;6(2):83-90. *No comparator group (KQ2)*.
108. Ling S, Cleverley K, Perivolaris A. Understanding mental health service user experiences of restraint through debriefing: a qualitative analysis. *Can J Psychiatry* 2015;60(9):386-92. *Qualitative study*.
109. Long CG, Afford M, Harris R, et al. Training in de-escalation: an effective alternative to restrictive interventions in a secure service for women. *Journal of Psychiatric Intensive Care* 2016;12:11-8. *Forensic population*.
110. Mahlke CI. A randomized controlled trial comparing joint crisis plans with crisis cards for people with bipolar disorders, schizophrenia and other psychotic disorders to reduce

- involuntary admission and coercive measures. 2017. ClinicalTrials.gov identifier: NCT03240380. <https://www.clinicaltrials.gov/ct2/show/NCT03240380>. *No outcomes of interest.*
111. Maier GJ, Van Rybroek GJ, Mays DV. A report on staff injuries and ambulatory restraints: dealing with patient aggression. *J Psychosoc Nurs Ment Health Serv* 1994;32(11):23-9. *Forensic population.*
 112. Mangaoil RA, Cleverley K, Peter E. Immediate staff debriefing following seclusion or restraint use in inpatient mental health settings: A scoping review. *Clin Nurs Res* 2020;29(7):479-95. *Review or other design not of interest.*
 113. Mann-Poll PS, Noorthoorn EO, Smit A, et al. Three pathways of seclusion reduction programs to sustainability: ten years follow up in psychiatry. *Psychiatr Q* 2020;91(3):819-34. *Not NA (KQ1).*
 114. Manzano-Bort Y, Mir-Abellán R, Via-Clavero G, et al. Experience of mental health nurses regarding mechanical restraint in patients with psychomotor agitation: A qualitative study. *J Clin Nurs* 2022;31(15-16):2142-53. *Qualitative study.*
 115. Manzano-Bort Y, Mir-Abellán R, Via-Clavero G, et al. Experience of mental health nurses regarding mechanical restraint in patients with psychomotor agitation: A qualitative study. *J Clin Nurs* 2022;31(15-16):2142-53. *Qualitative study.*
 116. Mayers P, Keet N, Winkler G, et al. Mental health service users' perceptions and experiences of sedation, seclusion and restraint. *Int J Soc Psychiatry* 2010;56(1):60-73. *Qualitative study.*
 117. McKeown M, Thomson G, Scholes A, et al. "Catching your tail and firefighting": the impact of staffing levels on restraint minimization efforts. *J Psychiatr Ment Health Nurs* 2019;26(5-6):131-41. *Qualitative study.*
 118. Moran A, Cocoman A, Scott PA, et al. Restraint and seclusion: a distressing treatment option? *J Psychiatr Ment Health Nurs* 2009;16(7):599-605. *Qualitative study.*
 119. Morrison P, Lehane M. Staffing levels and seclusion use. *J Adv Nurs* 1995;22(6):1193-202. *Review or other design not of interest.*
 120. Muir-Cochrane EC, Baird J, McCann TV. Nurses' experiences of restraint and seclusion use in short-stay acute old age psychiatry inpatient units: a qualitative study. *J Psychiatr Ment Health Nurs* 2015;22(2):109-15. *Qualitative study.*
 121. Muir-Cochrane EC, Baird J, McCann TV. Nurses' experiences of restraint and seclusion use in short-stay acute old age psychiatry inpatient units: a qualitative study. *J Psychiatr Ment Health Nurs* 2015;22(2):109-15. *Qualitative study.*
 122. Mullen A, Browne G, Hamilton B, et al. Safewards: an integrative review of the literature within inpatient and forensic mental health units. *Int J Ment Health Nurs* 2022;31(5):1090-108. *SR or CPG.*
 123. Nagayama Y, Hasegawa M. Nursing care process for releasing psychiatric inpatients from long-term seclusion in Japan: modified grounded theory approach. *Nurs Health Sci* 2014;16(3):284-90. *Qualitative study.*
 124. Newton-Howes G. Use of seclusion for managing behavioural disturbance in patients. *Advances in Psychiatric Treatment* 2013;19:422-8. *Not alternative to seclusion (explicit).*
 125. Nocete Navarro L, López de Loma Osorio V, Bravo Ortiz MF, et al. [Mental health and human rights: the experience of professionals in training with the use of mechanical restraints in Madrid, Spain]. *Salud Colect* 2021;17:e3045. *Qualitative study.*
 126. Noorthoorn EO, Voskes Y, Janssen WA, et al. Seclusion reduction in Dutch mental health care: did hospitals meet goals? *Psychiatr Serv* 2016;67(12):1321-7. *Not alternative to seclusion (explicit).*

127. Oberleitner LL. Aversiveness of traditional psychiatric patient restriction. *Arch Psychiatr Nurs* 2000;14(2):93-7. *Review or other design not of interest.*
128. Oostermeijer S, Brasier C, Harvey C, et al. Design features that reduce the use of seclusion and restraint in mental health facilities: a rapid systematic review. *BMJ Open* 2021;11(7):e046647. *SR or CPG.*
129. Palazzolo J. [About the use of seclusion in psychiatry: the patients' point of view]. *Encephale* 2004;30(3):276-84. *Qualitative study.*
130. Palazzolo J, Favre P, Halim V, et al. [Apropos of using patient isolation in psychiatry: point of view of nurses]. *Encephale* 2000;26(6):84-92. *Qualitative study.*
131. Papadopoulos C, Bowers L, Quirk A, et al. Events preceding changes in conflict and containment rates on acute psychiatric wards. *Psychiatr Serv* 2012;63(1):40-7. *Qualitative study.*
132. Petti TA, Mohr WK, Somers JW, et al. Perceptions of seclusion and restraint by patients and staff in an intermediate-term care facility. *J Child Adolesc Psychiatr Nurs* 2001;14(3):115-27. *Qualitative study.*
133. Putkonen A, Kuivalainen S, Louheranta O, et al. Cluster-randomized controlled trial of reducing seclusion and restraint in secured care of men with schizophrenia. *Psychiatr Serv* 2013;64(9):850-5. *Forensic population.*
134. Quenum Y. Impact of joint crisis plan on the duration of isolation measures in psychiatry. 2019. ClinicalTrials.gov identifier: NCT03984682. <https://www.clinicaltrials.gov/ct2/show/NCT03984682>. *Other; no outcomes of interest.*
135. Randazzo S. Reserpine in psychotic patients. *Full text unavailable.*
136. Raveesh BN, Gowda GS, Gowda M. Alternatives to use of restraint: A path toward humanistic care. *Indian J Psychiatry* 2019;61(Suppl 4):S693-s7. *Not alternative to seclusion (explicit).*
137. Rixe DBaJ. Use of joint crisis plans for psychiatric patients suffering from psychotic disorders in the context of integrated treatment planning to reduce coercive and measures. German Clinical Trials Register. *Pediatric population.*
138. Rugkasa J. Reducing Coercion in Norway (RECON). 2019. *No outcomes of interest (protocol/study registration).*
139. Ryan CJ, Bowers L. Coercive manoeuvres in a psychiatric intensive care unit. *J Psychiatr Ment Health Nurs* 2005;12(6):695-702. *Not alternative to seclusion (explicit).*
140. Ryan R, Happell B. Learning from experience: using action research to discover consumer needs in post-seclusion debriefing. *Int J Ment Health Nurs* 2009;18(2):100-7. *Qualitative study.*
141. Sailas E, Fenton M. Seclusion and restraint for people with serious mental illnesses. *Cochrane Database Syst Rev* 2000;2000(2):Cd001163. *SR or CPG.*
142. Sambrano R, Cox L. 'I sang Amazing Grace for about 3 hours that day': understanding indigenous Australians' experience of seclusion. *Int J Ment Health Nurs* 2013;22(6):522-31. *Qualitative study.*
143. Shields M. Holding inpatient psychiatry accountable. ProQuest LLC, 2020. *Not alternative to seclusion (explicit).*
144. Short R, Sherman ME, Raia J, et al. Safety guidelines for injury-free management of psychiatric inpatients in precrisis and crisis situations. *Psychiatr Serv* 2008;59(12):1376-8. *2011 or before.*
145. Sivakumaran H, George K, Pfukwa K. Reducing restraint and seclusion in an acute aged person's mental health unit. *Australas Psychiatry* 2011;19(6):498-501. *No comparator group (KQ2).*

146. Smidth M LBL. Implementing de-escalation in emergency units in psychiatric and general hospitals in Slagelse – a pilot study. *International Journal of Integrated Care* 2019;19(4):243. *Not inpatient mental health.*
147. Smith GM, Ashbridge DM, Davis RH, et al. Correlation between reduction of seclusion and restraint and assaults by patients in Pennsylvania's state hospitals. *Psychiatr Serv* 2015;66(3):303-9. *Not alternative to seclusion (explicit).*
148. Smith GM, Davis RH, Bixler EO, et al. Pennsylvania State Hospital system's seclusion and restraint reduction program. *Psychiatr Serv* 2005;56(9):1115-22. *2011 or before.*
149. Starkman H. Medical monitoring for agitated patients pilot RCT - medical monitoring. 2015. ClinicalTrials.gov identifier: NCT02512705. <https://www.clinicaltrials.gov/ct2/show/NCT02512705>. *No comparator group (KQ2).*
150. Steinert T. [Benchmarking of freedom-restricting coercive measures in psychiatric hospitals]. *Z Evid Fortbild Qual Gesundheitswes* 2011;105(5):360-4. *No outcomes of interest.*
151. Steinert T, Bechdorf A, Mahler L, et al. Implementation of guidelines on prevention of coercion and violence (PreVCo) in psychiatry: study protocol of a randomized controlled trial (RCT). *Front Psychiatry* 2020;11:579176. *No outcomes of interest.*
152. Steinert T, Fischer-Erlewein E, Kuster W, et al. Prävention von Gewalt im psychiatrischen Krankenhaus: Erste Ergebnisse einer multizentrischen Arbeitsgemeinschaft aus Baden-Württemberg und Bayern. *Krankenhauspsychiatrie* 2002;13:132-7. *No outcomes of interest.*
153. Steinert T, Zinkler M, Elsässer-Gaißmaier HP, et al. [Long-term tendencies in the use of seclusion and restraint in five psychiatric hospitals in Germany]. *Psychiatr Prax* 2015;42(7):377-83. *Not alternative to seclusion (explicit).*
154. Steinert T, Zinkler M, Elsässer-Gaißmaier HP, et al. [Long-term tendencies in the use of seclusion and restraint in five psychiatric hospitals in Germany]. *Psychiatr Prax* 2015;42(7):377-83. *Not alternative to seclusion (explicit).*
155. Sullivan AM, Bezmen J, Barron CT, et al. Reducing restraints: alternatives to restraints on an inpatient psychiatric service--utilizing safe and effective methods to evaluate and treat the violent patient. *Psychiatr Q* 2005;76(1):51-65. *2011 or before.*
156. Sutton D, Wilson M, Van Kessel K, et al. Optimizing arousal to manage aggression: a pilot study of sensory modulation. *Int J Ment Health Nurs* 2013;22(6):500-11. *Qualitative study.*
157. Swanson JW, Swartz MS, Elbogen EB, et al. Psychiatric advance directives and reduction of coercive crisis interventions. *J Ment Health* 2008;17(3):255-67. *Not inpatient mental health.*
158. Teitelbaum A, Volpo S, Paran R, et al. [Multisensory environmental intervention (snoezelen) as a preventive alternative to seclusion and restraint in closed psychiatric wards]. *Harefuah* 2007;146(1):11-4, 79-80. *Full text unavailable.*
159. Tekkaş K, Bilgin H. [Professional containment methods used in psychiatry wards: justifications for their utilization, types, international practices, and perceptions]. *Turk Psikiyatri Derg* 2010;21(3):235-42. *SR or CPG.*
160. Terpstra TL, Terpstra TL, Pettee EJ, et al. Nursing staff's attitudes toward seclusion & restraint. *J Psychosoc Nurs Ment Health Serv* 2001;39(5):20-8. *Qualitative study.*
161. U.S. Department of Health and Human Services SAMHSA. Promoting alternatives to the use of seclusion and restraint: A national strategy to prevent seclusion issue brief and restraint in behavioral health services. 2010. *Not alternative to seclusion (explicit).*

162. Välimäki M. The effectiveness of user-driven intervention to manage patient aggression in mental health services. 2016. *Duplicate*.
163. van Melle AL, Gerritsen S, Zomer LJC, et al. [High and intensive care as a next step in the reduction of coercion]. *Tijdschr Psychiatr* 2021;63(5):351-7. *Not alternative to seclusion (explicit)*.
164. Van Rybroek GJ, Kuhlman TL, Maier GJ, et al. Preventive aggression devices (PADS): ambulatory restraints as an alternative to seclusion. *J Clin Psychiatry* 1987;48(10):401-5. *2011 or before*.
165. VanDerNagel JE, Tuts KP, Hoekstra T, et al. Seclusion: the perspective of nurses. *Int J Law Psychiatry* 2009;32(6):408-12. *Qualitative study*.
166. Varpula J, Välimäki M, Lantta T, et al. Safety hazards in patient seclusion events in psychiatric care: A video observation study. *J Psychiatr Ment Health Nurs* 2022;29(2):359-73. *Qualitative study*.
167. Verlinde AA, Snelleman W, van den Berg H, et al. [Involuntary medication as the intervention of choice: can this be regarded as 'substitution' or as a preventive measure? a prospective cohort study]. *Tijdschr Psychiatr* 2014;56(10):640-8. *Not alternative to seclusion (explicit)*.
168. Visalli H, McNasser G, Johnstone L, et al. Reducing high-risk interventions for managing aggression in psychiatric settings. *J Nurs Care Qual* 1997;11(3):54-61. *No comparator group (KQ2)*.
169. Voskes Y, van Melle AL, Widdershoven GAM, et al. High and intensive care in psychiatry: A new model for acute inpatient care. *Psychiatr Serv* 2021;72(4):475-7. *Not NA (KQ1)*.
170. Wharewera-Mika JP, Cooper EP, Wiki NR, et al. Strategies to reduce the use of seclusion with tāngata whai i te ora (Māori mental health service users). *Int J Ment Health Nurs* 2016;25(3):258-65. *Qualitative study*.
171. Whittington R, Baskind E, Paterson B. Coercive measures in the management of imminent violence: restraint, seclusion and enhanced observation. In: Richter D, Whittington R, eds. *Violence in Mental Health Settings: Causes, Consequences, Management*. New York, NY: Springer New York, 2006:145-72. *SR or CPG*.
172. Yakov S, Birur B, Bearden MF, et al. Sensory reduction on the general milieu of a high-acuity inpatient psychiatric unit to prevent use of physical restraints: A successful open quality improvement trial. *J Am Psychiatr Nurses Assoc* 2018;24(2):133-44. *Not alternative to seclusion (explicit)*.
173. Ye J, Xiao A, Wang C, et al. Evaluating the effectiveness of a CRSCE-based de-escalation training program among psychiatric nurses: a study protocol for a cluster randomized controlled trial. *BMC Health Serv Res* 2020;20(1):642. *Not high-income country (KQ2)*.

APPENDIX E. QUALITY RATINGS FOR ALL ELIGIBLE STUDIES

Author, Year, PMID, Design	Free of Discrepancies	Clarity: Pop	Clarity: Int/Com	Clarity: Outcomes	Clarity: Setting	Missing Results	Outcome Ascertainment	RCT		Observational Study		
								Adequate Randomization	Adequate Allocation Concealment	Cohort Rep	Comparator Rep	Adjustment for Confounders
<i>Hospital/Unit Restructuring</i>												
Hochstrasser, 2018, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	Yes Regression adjustment (Low RoB)
Hunter, 1993, 8444440, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Jenkins, 2014, No PMID, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Rohe, 2017, 26820456, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
<i>Staff Education/Training</i>												
Bowers, 2008, 18844799, Concurrent	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	Yes Regression adjustment (Low RoB)
Forster, 1999, 10565060, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Haefner, 2021, 32749904, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
<i>Sensory Modulation</i>												
Lloyd, 2013, No PMID, Concurrent	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	No Crude analysis ^b (High RoB)
Cummings, 2010, 20349887, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	No Crude analysis ^b (High RoB)
Azuela, 2018, No PMID, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Novak, 2012, 23014117, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No



Author, Year, PMID, Design	Free of Discrepancies	Clarity: Pop	Clarity: Int/Com	Clarity: Outcomes	Clarity: Setting	Missing Results	Outcome Ascertainment	RCT		Observational Study		
								Adequate Randomization	Adequate Allocation Concealment	Cohort Rep	Comparator Rep	Adjustment for Confounders
												Crude analysis ^b (High RoB)
Sivak, 2012, 22439145, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Smith, 2013, 24305908, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Zimmermann, 2020, No PMID, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	No Crude analysis ^b (High RoB)
<i>Risk Assessment</i>												
Abderhalden, 2008, 18700217, RCT	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	No (Low RoB)	No (Low RoB)	NA	NA	NA
van de Sande, 2011, 22016437, RCT	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	No (Low RoB)	No (Low RoB)	NA	NA	NA
Blair, 2017, 26897657, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Clarke, 2010, 20712684, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Unclear	Unclear	No Crude analysis ^b (High RoB)
Harrington, 2019, 31206989, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	No Crude analysis ^b (High RoB)
Manning, 2022, 36006571, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Unclear	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Trauer, 2010, No PMID, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	Yes Regression adjustment (Low RoB)
<i>Comprehensive/Mixed</i>												
Bowers, 2015, 26166187, RCT	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes ^d (High RoB)	Self-report ^a (High RoB)	No (Low RoB)	No (Low RoB)	NA	NA	NA



Author, Year, PMID, Design	Free of Discrepancies	Clarity: Pop	Clarity: Int/Com	Clarity: Outcomes	Clarity: Setting	Missing Results	Outcome Ascertainment	RCT		Observational Study		
								Adequate Randomization	Adequate Allocation Concealment	Cohort Rep	Comparator Rep	Adjustment for Confounders
Valimaki, 2022, 36040740, RCT	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	No (Low RoB)	No (Low RoB)	NA	NA	NA
Boumans, 2014, 23890418, Concurrent	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Noorthoom, 2014, Concurrent	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB))	NA	NA	Yes (Low RoB)	Yes (Low RoB)	Yes Regression adjustment (Low RoB)
Blair, 2015, 25751828, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Unclear	Unclear	No Crude analysis ^b (High RoB)
Dickens, 2020, 32691495, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes ^e (High RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	Yes Regression adjustment (Moderate RoB)
Hellerstein, 2007, No PMID, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Khadivi, 2004, 15534024, Pre-post	Yes (Low concern)	No (High concern) ^c	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Lewis, 2009, 19291492, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Unclear	Yes (Low RoB)	No Crude analysis ^b (High RoB)
McDonagh, 2019, No PMID, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Unclear	Unclear	No Crude analysis ^b (High RoB)
Pollard, 2007, 17102932, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	Yes Regression adjustment (Moderate RoB)
Richmond, 1996, 8936879, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	No Crude analysis ^b (High RoB)



Author, Year, PMID, Design	Free of Discrepancies	Clarity: Pop	Clarity: Int/Com	Clarity: Outcomes	Clarity: Setting	Missing Results	Outcome Ascertainment	RCT		Observational Study		
								Adequate Randomization	Adequate Allocation Concealment	Cohort Rep	Comparator Rep	Adjustment for Confounders
Stoll, 2022, 35650555, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Taxis, 2002, 11901660, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Unclear	Unclear	No Crude analysis ^b (High RoB)
Whitecross, 2020, 32391731, Pre-post	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Yes (Low RoB)	No Crude analysis ^b (High RoB)
Zuehlke, 2016, 27845534, Pre-post	Yes (Low concern)	No (High concern) ^c	Yes (Low concern)	Yes (Low concern)	Yes (Low concern)	No (Low RoB)	Self-report ^a (High RoB)	NA	NA	Yes (Low RoB)	Unclear	No Crude analysis ^b (High RoB)

Notes. ^a Self-report of seclusion and/or restraint events of timing of events (including that reported in records); ^b Conducted unadjusted analysis; ^c Unclear sample size, unclear total number of patients or minimal details on patient population; ^d ≥36% missing data on the patient-staff conflict checklist, which was the primary outcome and a tool completed by a ward nurse at the end of each shift to document patient behavior and ward containment measures; ^e 36% missing data on the patient-staff conflict checklist, which was the primary outcome and a tool completed by a ward nurse at the end of each shift to document patient behavior and ward containment measures. Intervention was described as being compliant with JCAHO but limited details on core component of the intervention of agitation.

Abbreviations. con=control; int=intervention; pop=population; RCT=randomized controlled trial; rep=representativeness; RoB=risk of bias.



APPENDIX F. DESIGN DETAILS

Author, Year, PMID, Country	Study Design	Study Dates	Setting	Inclusion Criteria	Exclusion Criteria
<i>Hospital/Unit Restructuring</i>					
Hochstrasser, 2018, 29331599, Switzerland	Pre-post	Jan 2010 to Dec 2015	Single hospital; 15 adult inpatient psychiatric units	Patients ≥18 years of age and admitted to 1 of 15 wards during the study period with capacity for seclusion	NR
Hunter, 1993, 8444440, United States	Pre-post	Mar 1989 to Dec 1990	Single hospital; 2 22-bed locked adult inpatient psychiatric units	Patients admitted to either unit with capacity for seclusion	NR
Rohe, 2017, 26820456, Germany	Pre-post	Jan 2005 to Dec 2014	Single hospital; 10 inpatient psychiatric units	Patients admitted to the 10 units with a capacity for seclusion	NR
Jenkins, 2014, No PMID, United Kingdom	Pre-post	Feb 2011 to Feb 2012	Single hospital; 2 10-bed inpatient psychiatric units (pre-post ward move)	Patients admitted to either unit with capacity for seclusion	NR
<i>Staff Education/Training</i>					
Bowers, 2008, 18844799, United Kingdom	Concurrent control	July 2004 to Jan 2006	Eight acute inpatient psychiatric wards in large metropolitan area	Project advertised to 13 wards, of which 3 applied to participate and were interviewed. Two wards were accepted with an additional ward introduced 9-months into the intervention phase.	NR
Forster, 1999, 10565060, United States	Pre-post	Jan 1995 to Dec 1996	Single hospital; 4 acute adult inpatient psychiatric units	Patients admitted to the 4 units with a capacity for seclusion	NR
Haefner, 2021, 32749904, United States	Pre-post	Oct 2018 to Feb 2019	37-bed adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
<i>Sensory Modulation</i>					
Lloyd, 2013, No PMID, Australia	Concurrent control	Jan to Dec 2011 (Intervention)	Single hospital; 2 20-bed acute adult inpatient psychiatric units	Patients admitted to 2 units with capacity for seclusion	NR

Author, Year, PMID, Country	Study Design	Study Dates	Setting	Inclusion Criteria	Exclusion Criteria
		started July 2011)			
Cummings, 2010, 20349887, United States	Concurrent control	NR	Single hospital; 2 acute inpatient psychiatric units	Patients admitted to either unit with capacity for seclusion	NR
Azuela, 2018, No PMID, New Zealand	Pre-post	Sept 2014 to Aug 2016	Two acute adult inpatient mental health services	Patients admitted to either service with capacity for seclusion	NR
Novak, 2012, 23014117, Australia	Pre-post	NR	Single hospital; 40-bed acute inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
Sivak, 2012, 22439145, United States	Pre-post	Jul 2010 to Mar 2011	Single hospital; 2 adult inpatient psychiatric units	Patients admitted to either unit with capacity for seclusion	NR
Smith, 2013, 24305908, United Kingdom	Pre-post	Sept 2010 to Dec 2012	Single hospital; 15-bed male inpatient psychiatric intensive care unit	Patients admitted to the unit with capacity for seclusion	NR
Zimmermann, 2020, No PMID, United States	Pre-post	Jan 2019 to Mar 2020	16-bed acute adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
<i>Risk Assessment</i>					
Abderhalden, 2008, 18700217, Switzerland	RCT	Jun 2002 to Apr 2004	Fourteen adult inpatient psychiatric units from 324 across 32 psychiatric hospitals.	Wards where most patients had an acute psychiatric disorder; patients were admitted directly onto the ward; usually discharged in 3 months; 18-65 years old; the ward admitted all potential patients and was not specialized for the treatment of specific disorders.	NR
van de Sande, 2011, 22016437, Netherlands	RCT	NR	Single hospital; 36 beds across 4 adult inpatient psychiatric units	Patients admitted to the 4 units with capacity for seclusion	NR

Author, Year, PMID, Country	Study Design	Study Dates	Setting	Inclusion Criteria	Exclusion Criteria
Blair, 2017, 26897657, United States	Pre-post	Oct 2010 to Sept 2012	Single hospital; 120-bed adult inpatient psychiatric service	Patients admitted to the psychiatric service with capacity for seclusion	NR
Clarke, 2010, 20712684, Canada	Pre-post	NR	Single hospital; 11-bed psychiatric intensive care unit	Patients admitted to the psychiatric intensive care unit with a capacity for seclusion who provided verbal, documented consent	NR
Harrington, 2019, 31206989, Australia	Pre-post	Oct 2005 to Apr 2009	Single hospital; 25-bed acute adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
Manning, 2022, 36006571, United States	Pre-post	NR	Single acute adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	Patients with a very short length of stay and those deemed inappropriate for the intervention by a clinician (eg., active alcohol withdrawal or similar medication treatments)
Trauer, 2010, No PMID, Australia	Pre-post	Jan 2006 to Jan 2007	Single hospital; 2 22-bed adult inpatient psychiatric units	Patients admitted to either unit with capacity for seclusion	(Post hoc) all admissions in which the patient had been admitted to the ground floor ward, or had been transferred to or from it, were excluded. Data analysis occurred for only 1 ward, the first floor ward.

Author, Year, PMID, Country	Study Design	Study Dates	Setting	Inclusion Criteria	Exclusion Criteria
<i>Comprehensive/Mixed</i>					
Bowers, 2015, 26166187, United Kingdom	RCT	NR	15 hospitals; 31 acute adult inpatient psychiatric units	Acute psychiatric wards for adults of any gender	Wards with specialist function, who planned major changes, or where ≥ 2 criteria were met: no permanent ward manager in post, a locum consultant solely responsible for inpatient care, >30% nursing staff vacancy rate
Välimäki, 2022, 36040740, Finland	RCT	Jan 2015 to Dec 2017	15 hospitals; 28 inpatient psychiatric units	Wards that are Finnish speaking, have at least 1 psychiatric ward, are open 24/7, and are able to use coercive measures defined in the Finnish Mental Health Act	NR
Boumans, 2014, 23890418, Netherlands	Concurrent	Apr 2008 to Jun 2010	Single hospital; 4 adult inpatient psychiatric units (21-bed intensive care, 7-bed acute intensive care, 20-bed specialized care, and 18-bed forensic unit)	Patients admitted to the 4 units with a capacity for seclusion	NR
Noorthoorn, 2014, No PMID, Netherlands	Concurrent	Jan 2003 to June 2005	Two hospitals; 1 45-bed and one 38-bed adult inpatient psychiatric unit	Patients admitted to either unit with capacity for seclusion	NR
Blair, 2015, 25751828, United States	Pre-post	2000 to 2013	Single hospital; inpatient psychiatry service	Patients admitted to the psychiatry service with capacity for seclusion	NR
Dickens, 2020, 32691495, Australia	Pre-post	Apr 2019 to Jan 2020	One health district; 142 beds across eight adult inpatient psychiatric units	All inpatient mental health units within the health district; patients admitted to the 8 units with capacity for seclusion	Units with current or past utilization of Safewards interventions; units non-

Author, Year, PMID, Country	Study Design	Study Dates	Setting	Inclusion Criteria	Exclusion Criteria
					responsive to research requests
Hellerstein, 2007, 17890979, United States	Pre-post	Sept 2000 to Apr 2006	Single hospital; 24-bed General Clinical Research Inpatient Unit; 12-bed Schizophrenia Research Unit; 22-bed Washington Heights Community Service Unit	Patients admitted to the 3 units with a capacity for seclusion	NR
Khadivi, 2004, 15534024, United States	Pre-post	2000 to 2001	Single hospital; 3 acute adult inpatient psychiatric units	Patients admitted to the 3 units with capacity for seclusion	NR
Lewis, 2009, 19291492, United States	Pre-post	2004 to 2006	Single hospital; 88 beds across 5 adult inpatient psychiatric units; 1 general acute unit and four specialty-based service lines	Patients admitted to the 5 units with capacity for seclusion	NR
McDonagh, 2019, No PMID, United States	Pre-post	2009 to 2018	Single (VA) hospital; 1 adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
Pollard, 2007, 17102932, United States	Pre-post	Oct 1998 to Jul 2002	Single (VA) hospital; 1 acute adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
Richmond, 1996, 8936879, United States	Pre-post	Feb 1992 to Feb 1993	Single (VA) hospital; 4 30-bed adult inpatient psychiatric units (three locked and one unlocked)	Patients admitted to the 4 units with capacity for seclusion	NR
Stoll, 2022, 35650555, Switzerland	Pre-post	Jun 2019 to Sept 2020	Two hospitals; 1 19-bed closed acute geriatric inpatient psychiatric unit and one 19-bed open acute adult inpatient psychiatric unit	Patients admitted to either unit with capacity for seclusion	

Author, Year, PMID, Country	Study Design	Study Dates	Setting	Inclusion Criteria	Exclusion Criteria
Taxis, 2002, 11901660, United States	Pre-post	Jun 1996 to Feb 2000	Single hospital; 86-bed acute adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR
Whitecross, 2020, 32391731, Australia	Pre-post	Aug 2016 to Jul 2017 (Intervention started Feb 2017)	Single hospital; 58-bed adult inpatient psychiatric unit	Patients admitted to the psychiatry service with capacity for seclusion	NR
Zuehlke, 2016, 27845534, United States	Pre-post	Oct 2012 to Sept 2013	Single (VA) hospital; 15-bed adult inpatient psychiatric unit	Patients admitted to the unit with capacity for seclusion	NR

Abbreviations. NR=not reported; RCT=randomized controlled trial; VA=Veterans Affairs.

APPENDIX G. BASELINE DATA

Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
<i>Hospital/Unit Restructuring</i>						
Hochstrasser, 2018, 29331599, Switzerland, Pre-post	2015	15; 2803	NR	46.3 (16.5)	45.9%	ICD-10 F0 organic, including symptomatic, mental disorders: 4.5% F1 mental and behavioral disorders due to psychoactive substance use: 22.5% F2 schizophrenia, schizotypal and delusional disorders: 19.9% F3 mood (affective) disorders: 28.6% F4 neurotic, stress-related and somatoform disorders: 15.3% F6 disorders of adult personality and behavior: 6.6% Other psychiatric diagnosis: 1.6% No psychiatric diagnosis: 1.0%
	2014	15; 2922	NR	45.4 (16.5)	49.7%	ICD-10 F0 organic, including symptomatic, mental disorders: 4.8% F1 mental and behavioral disorders due to psychoactive substance use: 22.5% F2 schizophrenia, schizotypal and delusional disorders: 19.2% F3 mood (affective) disorders: 30.9% F4 neurotic, stress-related and somatoform disorders: 12.1% F6 disorders of adult personality and behavior: 8.0% Other psychiatric diagnosis: 1.5% No psychiatric diagnosis: 1.0%
	2013	15; 2989	NR	45.8 (16.5)	47.9%	ICD-10 F0 organic, including symptomatic, mental disorders: 5.9% F1 mental and behavioral disorders due to psychoactive substance use: 24.4% F2 schizophrenia, schizotypal and delusional disorders: 17.9%

Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
						F3 mood (affective) disorders: 30.4% F4 neurotic, stress-related and somatoform disorders: 10.9% F6 disorders of adult personality and behavior: 7.5% Other psychiatric diagnosis: 1.2% No psychiatric diagnosis: 1.9%
2012		15; 2873	NR	45.8 (17.1)	49.2%	ICD-10 F0 organic, including symptomatic, mental disorders: 5.4% F1 mental and behavioral disorders due to psychoactive substance use: 23.7% F2 schizophrenia, schizotypal and delusional disorders: 18.6% F3 mood (affective) disorders: 30.1% F4 neurotic, stress-related and somatoform disorders: 10.3% F6 disorders of adult personality and behavior: 8.2% Other psychiatric diagnosis: 1.6% No psychiatric diagnosis: 2.1%
2011		15; 2848	NR	46.9 (17.6)	47.1%	ICD-10 F0 organic, including symptomatic, mental disorders: 6.2% F1 mental and behavioral disorders due to psychoactive substance use: 25.9% F2 schizophrenia, schizotypal and delusional disorders: 18.2% F3 mood (affective) disorders: 27.0% F4 neurotic, stress-related and somatoform disorders: 11.8% F6 disorders of adult personality and behavior: 7.0% Other psychiatric diagnosis: 1.8% No psychiatric diagnosis: 2.1%
2010		15; 2924	NR	45.9 (16.9)	47.1%	ICD-10 F0 organic, including symptomatic, mental disorders: 5.1% F1 mental and behavioral disorders due to psychoactive substance use: 26.7%

Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
						F2 schizophrenia, schizotypal and delusional disorders: 20.3% F3 mood (affective) disorders:27.8% F4 neurotic, stress-related and somatoform disorders:9.9% F6 disorders of adult personality and behavior: 6.6% Other psychiatric diagnosis: 1.6% No psychiatric diagnosis: 2.1%
Hunter, 1993 8444440, US, Pre-post	After hospital restructuring	2; 78	White: 56.1% Black: 26.7% Hispanic: 13.9% American Indian: 0.0% Other: 2.3%	44	50%	Diagnostic Tool NR Schizophrenic disorder: 51.4% Major affective disorder: 20.6% Organic brain syndrome: 4.1% Personality disorder: 3.1% Mental retardation: 1.2% Other: 19.6%
	Before hospital restructuring	2; 66	White: 50.1% Black: 29.6% Hispanic: 18.1% American Indian: 0.2% Other: 1.6%	44	50%	Diagnostic Tool NR Schizophrenic disorder: 44.4% Major affective disorder: 22.9% Organic brain syndrome: 2.0% Personality disorder: 4.7% Mental retardation: 0.6% Other: 25.4%
Rohe, 2017, 26820456 Germany, Pre-post	Architecturally positive redesign	10; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	10; NR	NR	NR	NR	NR
Jenkins, 2014, No PMID, United Kingdom, Pre-post	Purpose-built psychiatric intensive care unit	1; 18	NR	41.6 (12.8)	100%	ICD-10 F1 mental and behavioral disorders due to psychoactive substance use: 0% F3 Mood disorders: 6% F6 Behavior and personality disorders: 0% F20 Schizophrenia, schizotypal and delusional disorders: 12%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
						F42 OCD: 0%
	Old unit	1; 18	NR	40.2 (12.7)	83.4%	ICD-10 F1 mental and behavioral disorders due to psychoactive substance use: 1% F3 Mood disorders: 3% F6 Behavior and personality disorders: 1% F20 Schizophrenia, schizotypal and delusional disorders: 12% F42 OCD:1%
Staff Education/Training						
Bowers, 2008, 18844799, UK, Concurrent	City Nurses intervention – escalation training	3; NR	NR	NR	NR	NR
	Concurrent control (practice as usual)	3; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	8; NR	NR	NR	NR	NR
Forster, 1999 10565060, United States, Pre-post	Staff training	4; 3010	NR	NR	NR	NR
	Pre-intervention (practice as usual)	4; 2560	NR	NR	NR	NR
Haefner, 2021, 32749904, United States, Pre-post	Post-test	1; 342	NR	18-25: 27.2% 26-35: 29.5% 36-45: 24.0% 46>: 19.3%	54.1%	Diagnostic Tool NR Schizophrenia: 31.3% Schizoaffective disorder: 17.8% Depression: 9.1% Bipolar: 25.4% Psychotic disorder: 16.4%
	Pre-test	1; 388	NR	18-25: 21.9% 26-35: 38.4% 36-45: 19.1% 46>: 20.1%	52.3%	Diagnostic Tool NR Schizophrenia: 30.4% Schizoaffective disorder: 14.2% Depression: 10.6%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
						Bipolar: 25.0% Psychotic disorder: 19.3%
<i>Sensory Modulation</i>						
Lloyd, 2013, No PMID Australia, Concurrent	Sensory modulation room	1; NR	NR	NR	NR	NR
	Concurrent control (practice as usual)	1; NR	NR	NR	NR	NR
Cummings, 2010, 20349887, United States, Concurrent	Comfort room	1; NR	NR	NR	NR	NR
	Concurrent control (practice as usual)	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	NR	NR
Azuela, 2018, No PMID, New Zealand, Pre-post	Sensory modulation room	2; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	2; NR	NR	NR	NR	NR
Novak, 2012, 23014117, Australia, Pre-post	Sensory room	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	NR	NR
	Study	1; 75 ^a	NR	Under 20: 12.0% 20–39: 64.7% 40–59: 13.3% 60 or over: 0.0%	17.3%	Diagnostic Tool NR Schizophrenia/other psychoses: 33.3% Manic episode or bipolar affective disorder: 24.0% Depression: 8.0% Borderline personality disorder: 5.3% Other: 4.0%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
Missing: 25.3%						
Sivak, 2012, 22439145, United States, Pre-post	Comfort room	5; NR	White 81.4%	Range 18-79	NR	NR
	Pre-intervention (practice as usual)	5; NR	NR	50-59: 36.6%	NR	NR
Smith, 2013, 24305908, United Kingdom, Pre-post	Sensory room	1; NR	NR	NR	100%	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	100%	NR
Zimmermann, 2020, No PMID, United States, Pre-post	Serenity room	1; 321	NR	NR	NR	NR
	Pre-intervention (practice as usual)	NR	NR	NR	NR	NR
Risk Assessment						
Abderhalden, 2008, 18700217, Switzerland, RCT	Intervention wards	4; NR	NR	39.0 (13.1)	54.4%	ICD-10 F0 organic, including symptomatic, mental disorders: 3.8% F1 mental and behavioral disorders due to psychoactive substance use: 26.2% F2 schizophrenia, schizotypal and delusional disorders: 33.4% F3 mood (affective) disorders: 15.5% F4 neurotic, stress-related and somatoform disorders: 14.3% F6 disorders of adult personality and behavior: 4.0% Other: 2.7%
	Waitlist control (practice as usual)	5; NR	NR	38.0 (14.3)	55.2%	ICD-10 F0 organic, including symptomatic, mental disorders: 4.3% F1 mental and behavioral disorders due to psychoactive substance use: 24.2% F2 schizophrenia, schizotypal and delusional disorders: 35.7%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
						F3 mood (affective) disorders: 15.3% F4 neurotic, stress-related and somatoform disorders: 11.5% F6 disorders of adult personality and behavior: 5.0% Other: 4.1%
	Preference arm (practice as usual)	5; NR	NR	41.7 (15.9)	47.5%	ICD-10 F0 organic, including symptomatic, mental disorders: 1.7% F1 mental and behavioral disorders due to psychoactive substance use: 27.0% F2 schizophrenia, schizotypal and delusional disorders: 26.5% F3 mood (affective) disorders: 21.4% F4 neurotic, stress-related and somatoform disorders: 21.9% F6 disorders of adult personality and behavior: NR Other: 1.4%
	Study	14; 2364	NR	39.5 (14.2)	53.4%	ICD-10 F0 organic, including symptomatic, mental disorders: 3.3% F1 mental and behavioral disorders due to psychoactive substance use: 24.3% F2 schizophrenia, schizotypal and delusional disorders: 31.0% F3 mood (affective) disorders: 16.2% F4 neurotic, stress-related and somatoform disorders: 14.3% F6 disorders of adult personality and behavior: 3.2% Other: 2.8%
van de Sande, 2011, 22016437, Netherlands, RCT	Structured risk assessment – intervention period	2; 207	Ethnic minority: 34%	38	65%	Diagnostic Tool NR Psychotic disorder: 66.0% Personality disorder: 28.0% Drug misuse first diagnosis: 9.0%
	Structured risk assessment - baseline	2; 80	Ethnic minority: 39%	38 (13)	66%	Diagnostic Tool NR Psychotic disorder: 74.0% Personality disorder: 25.0% Drug misuse first diagnosis: 4.0%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
	Control (practice as usual) – intervention period	2; 251	Ethnic minority: 31%	39.4	55%	Diagnostic Tool NR Psychotic disorder: 49.0% Personality disorder: 8.0% Drug misuse first diagnosis: 3.0%
	Control (practice as usual) – baseline	2; 90	Ethnic minority: 18%	40 (11)	60%	Diagnostic Tool NR Psychotic disorder: 57.0% Personality disorder: 6.0% Drug misuse first diagnosis: 3.0%
Blair, 2017, 26897657, United States, Pre-post	Evidence-based principles to reduce seclusion / restraint	1; 8029	Black: 16.5% Spanish/Hispanic: 23.6% White: 55.3% Other: 4.6%	> = 12yo: 5.0% 13–65: 87.2% > = 66: 7.8%	51.5%	NR
	Pre-intervention (practice as usual)	1; 3884	Black: 15.9% Spanish/Hispanic: 23.9% White: 56.3% Other: 3.9%	> = 12yo: 4.9% 13–65: 85.9% > = 66: 9.2%	50.3%	NR
Clarke, 2010, 20712684, Canada, Pre-post	Brøset Violence Checklist	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; 48 (pilot trial)	NR	NR	NR	NR
Harrington, 2019, 31206989, Australia, Pre-post	Risk assessment (Clinical Risk Management Initiative)	1; 965	NR	Range 18-65	NR	ICD-10 Schizophrenia, schizoaffective disorder, or psychosis: 51.8%
	Pre-intervention (practice as usual)	1; 1090	NR	Range 18-65	NR	ICD-10 Schizophrenia, schizoaffective disorder, or psychosis: 50.5%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
Manning, 2022, 36006571, United States, Pre-post	Risk assessment (Modified Agitation Severity Scale)	1; 389	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; 352	NR	NR	NR	NR
	Study	1; 742	Asian: 0.7% Black or African American: 11.1% Indigenous: 8.6% White: 74.2% Other: 3.9% Unknown: 1.5% Hispanic: 3.8% Non-Hispanic: 96.2%	35.76 (12.43)	50.1%	NR
Trauer, 2010, No PMID, Australia	The Management of Acute Arousal Program	1; 132	NR	36.3	62%	ICD-10 Schizophrenia: 32.3% Psychosis: 8.5% Schizoaffective: 14.0% Bipolar: 10.4% (Hypo)mania: 3.7% Any personality disorder: 23.8% Borderline pers. disorder: 11.0% Adjustment disorder: 4.9% Anxiety disorder: 3.0% PTSD: 1.8%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
						Stress:1.2% Eating disorder: 1.8% Intentional self harm: 3.7% Depression: 23.2% Tobacco: 42.7% Drug misuse: 30.5% Alcohol misuse: 18.3% Suicidal ideation: 10.4%
	Pre-intervention (practice as usual)	1; 149	NR	38.4	59%	ICD-10 Schizophrenia: 38.8% Psychosis: 10.6% Schizoaffective: 8.5% Bipolar: 10.1% (Hypo)mania: 4.3% Any personality disorder: 18.6% Borderline pers. disorder: 5.8% Adjustment disorder: 3.2% Anxiety disorder: 2.7% PTSD: 2.7% Stress: 4.3% Eating disorder: 0.5% Intentional self harm: 1.1% Depression: 14.9% Tobacco: 31.4% Drug misuse: 16.0% Alcohol misuse: 8.5% Suicidal ideation: 2.1%
<i>Comprehensive/Mixed</i>						
Bowers, 2015, 26166187, UK, RCT	Safewards	16; NR	NR	NR	NR	Diagnoses NR
	Control wards (physical health program)	15; NR	NR	NR	NR	Diagnoses NR
	Intervention wards	13; 4163	NR	41.5 (6.5)	49%	Diagnoses NR



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
Välimäki, 2022, 36040740, Finland, RCT	Control wards (practice as usual)	15; 4186	NR	40.0 (5.1)	56%	Diagnoses NR
	Study	27; 8349	NR	40.6 (5.7)	53%	Diagnoses NR
Boumans, 2014, 23890418, Netherlands, Concurrent	Methodological Work Approach	1; 134	NR	39.5 (12.4)	79.9%	DSM-IV Emotional disorder: 8.2% Bipolar disorder: 8.2% Psychotic disorder: 59.0% Substance use disorder: 41.8% Other disorders: 11.2% Axis 1 unspecified disorders: 11.9% Personality disorders: 33.6% Intellectual disabilities: 3.7%
	Control (practice as usual)	3; 544	NR	38.0 (12.8)	61.8%	DSM-IV Emotional disorder: 22.2% Bipolar disorder: 4.8% Psychotic disorder: 41.0% Substance use disorder: 27.8% Other: 14.3% Axis 1 unspecified disorders: 19.1% Personality disorders: 39.2% Intellectual disabilities: 5.7%
Noorthoorn, 2014, No PMID, Netherlands, Concurrent	Intervention	1; 768	NR	45.6 (14.8)	43%	DSM-IV Axis 1 Psychosocial problem: 3.0% Anxiety disorder: 16.0% Depressive disorder: 28.0% Bipolar I disorder: 7.0% Psychotic disorder: 17.0% Dementia and brain disorder: 3.0% Undetermined: 28.0% DSM-IV Axis 2 Cluster A personality disorder: 5.4% Personality disorder NAO: 4.0% Undetermined: 17.0% No information: 75%



Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
	Pre-intervention (practice as usual)	1; 702	NR	38.8 (11.7)	46%	DSM-IV Axis 1 Psychosocial problem: 3.0% Anxiety disorder: 21.0% Depressive disorder: 18.0% Bipolar I disorder: 10.0% Psychotic disorder: 22.0% Dementia and brain disorder: 3.0% Undetermined:24.0% DSM-IV Axis 2 Cluster A personality disorder:9.3% Personality disorder NAO: 9.0% Undetermined: 31.0% No information: 50.0%
Blair, 2015, 25751828, United States, Pre-post	Engagement Model	NR; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	NR; NR	NR	NR	NR	NR
Dickens, 2020, 32691495, Australia, Pre-post	Safewards	8; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	8: NR	NR	NR	NR	NR
Hellerstein, 2007, 17890979, United States, Pre-post	Comprehensive intervention	3; NR	NR	NR ^b	49-67%	NR
	Pre-intervention	NR	NR	NR	NR	NR
Khadivi, 2004, 15534024, United States, Pre-post	Comprehensive intervention	3;NR	NR	NR	NR	NR

Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
	Pre-intervention (practice as usual)	3;NR	NR	NR	NR	NR
Lewis, 2009, 19291492, United States, Pre-post	Crisis Prevention Management program	5; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	5; NR	NR	NR	NR	NR
McDonagh, 2019, No PMID, United States	Recovery-oriented programming	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	NR	NR
Pollard, 2007, 17102932, United States, Pre-post	Report study-level only	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	NR	NR
Richmond, 1996, 8936879, United States, Pre-post	Comprehensive intervention	3; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	3; NR	NR	NR	NR	NR
Stoll, 2022, 35650555, Switzerland, Pre-post	Moral case deliberation	2; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	2; NR	NR	NR	NR	NR

Author, Year, PMID, Country, Design	Group Names	N Total Units; N Patients	Race/Ethnicity, %	Age, Mean (SD) or %	Male, %	Clinical Diagnosis, %
Taxis, 2002, 11901660, United States, Pre-post	Comprehensive intervention	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	NR	NR
Whitecross, 2020, 32391731, Australia, Pre-post	Psychiatric behavior of concern team	1; 89	NR	37.3 (9.8)	62.9%	Diagnostic Tool NR <u>Primary Diagnosis</u> Schizophrenia or other psychosis: 68.5% Affective disorder: 15.7% Personality disorder or other: 15.7% <u>Secondary Diagnosis</u> Alcohol abuse/dependence: 1.1% Drug abuse/dependence: 51.7% ID/ABI/Developmental disorder: 4.5%
	Pre-intervention (practice as usual)	1; 108	NR	36.6 (9.7)	62.0%	Diagnostic Tool NR <u>Primary Diagnosis</u> Schizophrenia or other psychosis: 69.4% Affective disorder: 18.5% Personality disorder or other: 12.0% <u>Secondary Diagnosis</u> Alcohol abuse/dependence: 5.6% Drug abuse/dependence: 58.3% ID/ABI/Developmental disorder: 6.5%
Zuehlke, 2016, 27845534, United States, Pre-post	Recovery-oriented program of care	1; NR	NR	NR	NR	NR
	Pre-intervention (practice as usual)	1; NR	NR	NR	NR	NR
	Study	1; 352	NR	NR	NR	NR

Notes. ^a Report sample for patients experiencing a seclusion event, including repeat patients. The unique number of patients was not reported; ^b 4% of population was aged 13-18. Abbreviations. ABI=acquired brain injury; ICD-10=International Classification of Diseases 10th Revision; ID=intellectual disability; NR=not reported; S/R=seclusion and restraint.



APPENDIX H. PROTOCOL DETAILS

Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
<i>Hospital/Unit Restructuring</i>						
Hochstrasser, 2018, Switzerland, Pre-post	Department of Adult Psychiatry, University of Basel	Open-door policy with recovery oriented care	No	Not explicit; cite previous evidence	An open-door policy will reduce frequency of seclusion and forced medication	Environment: <ul style="list-style-type: none"> Six previously closed psychiatric wards were permanently opened in August 2011 Processes for monitoring seclusion and forced medication Additional changes included more patient-centered and recovery-oriented care, family and caregiver involvement, new psychotherapy concepts, implementation of a primary nursing care delivery model, and other elements
	NA	Pre-intervention (practice as usual)	NA	NA	NA	NA
Hunter, 1993, United States, Pre-post	Greater Bridgeport Community Mental Health Center	After hospital restructuring	No	Response to staffing shortages and shifts in patient population. Modeled off the Massachusetts Mental Health Center day hospital-inn program. Various consultations and meetings at all levels of the hospital (staff/management, units, disciplines)	NR	Environment: <ul style="list-style-type: none"> Two 22-bed locked wards were transformed into an unlocked day hospital program, transitional residential program, and intensive care unit with close monitoring and 24-hour nursing care. Patients are triaged to the appropriate level of supervision and nursing care. Residential program is supervised, activities designed to prepare patients to return to the community. Education: <ul style="list-style-type: none"> Day hospital patients provided education on how to administer their own medications. Incentivization: <ul style="list-style-type: none"> Intensive unit has clearly defined privileges (not specified) Restriction: <ul style="list-style-type: none"> Therapeutic environment of intensive unit designed to create a structured social milieu with clear expectations.
	NA	Before hospital restructuring	NA	NA	NA	NA
Jenkins, 2014, United	NHS mental health hospital	Purpose built psychiatric	No	Three years prior, an independent assessment by the Psychiatric Intensive Care Advisory Service (a	It was hypothesized that a new and improved ward environment would	Environment:



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Kingdom, Pre-post		intensive care unit		collaboration between the National Association for Psychiatric Intensive Care Units and the Royal College of Psychiatrists' Center for Quality Improvement) highlighted environmental difficulties within the old unit, and recommended development of a new ward. Specific methods to design new ward not reported.	be associated with a reduction in arousal and aggression levels overall as measured by formal reports and continuous monitoring records.	<ul style="list-style-type: none"> • Ensuite facilities created for bedrooms with separate Section 136 facilities (areas to assess patients detained by the police) • Gender-specific areas and a seclusion area conforming to Department of Health guidelines • Seclusion area located more proximally to the nursing station • Greater access to therapeutic activity space with a designated activities room and development of specific visiting areas • Increased levels of visibility as measured by all areas of the ward being visible from the staff base, clear lines of sight and observation systems available in all doors and windows • Increased privacy for patients as all bedrooms are singles
	NA	Old unit	NA	NA	NA	<p>Environment:</p> <ul style="list-style-type: none"> • Furniture was used to partition bedrooms in an attempt to achieve privacy in shared bedrooms
Rohe, 2017, Germany, Pre-post	University Hospital in Tübingen	Architecturally positive redesign	No	Response to structural and therapeutic limitations of former unit built in 1894. Specific methods used to inform design of new building not reported.	NR	<p>Environment:</p> <ul style="list-style-type: none"> • A new building with floors able to serve as open or closed wards, design features to allow natural light in rooms, warm/light tones were used for coloring to increase feelings of warmth and friendliness. • Areas with open space, large lounge, and social areas
		NA	Pre-intervention (practice as usual)	NA	NA	NA
Staff Education and Training						
Bowers, 2008, United Kingdom, Concurrent	City Nurses project	City Nurses intervention – escalation training	No	Replication study of City Nurses project which showed significant reductions in patient aggression, conflict, absconding and self-harm and improvements in ward atmosphere and nurse–patient interaction (Bowers et al	Increases in staff appreciation of patients, skills in managing patients, and rules and routines of ward life is associated with reduced conflict and containment.	<p>Persuasion:</p> <ul style="list-style-type: none"> • Changes and the methods by which they were achieved were negotiated with staff, with feedback on outcomes periodically provided to the wards • Appointed City Nurses worked with wards to increase staff's positive appreciation of patients. <p>Modeling:</p> <ul style="list-style-type: none"> • Two City Nurses clinical experts worked with the wards' staff 3 days per week to demonstrate low-conflict, low-containment, high-therapy nursing.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
				2006, ⁴ Brennan et al. 2006, ⁵ Flood et al 2006). ⁶		
		Concurrent control (practice as usual)	NA	NA	NA	NA
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Forster, 1999, United States, Pre-post	John George Psychiatric Pavilion	Staff training	No	Multidisciplinary local hospital work group consisting of physicians, psychologists, nurses, social workers, and administrators, to evaluate hospital policy regarding the use of S/R. The committee met biweekly to develop policy recommendations.	Structured S/R programs including interdisciplinary committees and mandatory staff education are associated with a reduction in S/R by shaping staff attitudes towards less restrictive alternatives.	<p>Education:</p> <ul style="list-style-type: none"> The use of S/R was added to the weekly staff meeting agenda. <p>Persuasion:</p> <ul style="list-style-type: none"> Policy changes received the full support of the hospital administration. Administrators participated in training sessions and emphasized that the goal of the program was to reduce S/R and reduce staff injuries. Progress of the effort was disseminated hospital wide. <p>Training:</p> <ul style="list-style-type: none"> Mandatory full day trainings all staff with any patient contact. The course had 3 goals: (1) awareness of the factors leading to patient agitation and violence; (2) promote the knowledge/use of less restrictive measures; and (3) to increase safe staff reactions to violence. The program emphasized optimal containment techniques practiced to minimize the risk of patient or staff injury. Inappropriate uses of restraint were discussed, and participants role-played verbal interventions as less restrictive alternatives to physical containment.
		Pre-intervention (practice as usual)	NA	NA	NA	NA

⁴ Bowers L, Flood C, Brennan G, et al. (2006) A trial to reduce conflict and containment on acute psychiatric wards: city nurses. *Journal of Psychiatric and Mental Health Nursing* 13, 165–172.

⁵ Brennan G, Flood C, & Bowers L. (2006) Constraints and blocks to change and improvement on acute psychiatric wards – lessons from the City Nurses project. *Journal of Psychiatric and Mental Health Nursing* 13, 475–482.

⁶ Flood C, Brennan G, Bowers L, et al. (2006) Reflections on the process of change on acute psychiatric wards during the City Nurses project. *Journal of Psychiatric and Mental Health Nursing* 13, 260–268.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
Haefner, 2021, United States, Pre-post	Department of Defense (DoD) and the Agency for Healthcare Research and Quality	De-escalation training (TeamSTEPPS)	No	TeamSTEPPS integrates teamwork in the delivery of health care designed to improve patient safety in high-risk environments. Jean Watson's Theory of Human Care (Watson, 2012) ⁷ formed the framework of the project.	TeamSTEPPS moves nursing staff away from using seclusion by using verbal de-escalation and encourages patients to regain emotional control and reduce aggressive behavior	<p>Education:</p> <ul style="list-style-type: none"> Posters summarizing the TeamSTEPPS training placed at the nurses' station, the staff lounge, and the report room. Nurses received a laminated card with the de-escalation process to attach to her/his identification badge. <p>Persuasion:</p> <ul style="list-style-type: none"> Unit leadership communicated support of the project. Staff were encouraged to use verbal de-escalation to manage aggressive behavior rather than seclusion. Staff were encouraged to have a more authentic engagement with the patients to reduce patients' aggressive behavior. <p>Training:</p> <ul style="list-style-type: none"> Two-step education program aimed at increasing the nurses' knowledge of verbal de-escalation. Three self-learning TeamSTEPPS computer modules followed by in-class demonstrations of de-escalation techniques.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Sensory Modulation						
Lloyd, 2013, Australia, Concurrent	Queensland Health Seclusion and Restraint Committee	Sensory modulation room	No	SM room was designed in following specifications described by Champagne and Stromberg (2004) ⁸ and implemented in an acute inpatient setting following the recommendation of the Queensland Health Seclusion and Restraint committee.	<p>1) Patients would report reduced distress after use of the SM environment.</p> <p>2) The unit in which SM was introduced would have reduced frequency and duration of seclusion for the period after the introduction of SM compared with the period prior to</p>	<p>Education:</p> <ul style="list-style-type: none"> Provided staff education and exposure to the SM room. An SM Open Day was held to introduce patients to SM with opportunity to experience various modalities within the approach. <p>Persuasion:</p> <ul style="list-style-type: none"> Staff / patients were encouraged to use the SM for early intervention when they became aware of increasing patient distress. <p>Training:</p> <ul style="list-style-type: none"> Phase 1 included an SM Open Day where patients and staff were introduced to SM; Phase 2 was

⁷ Watson J. (2012). Human caring science: A theory of nursing (2nd ed.). Jones & Bartlett Learning.

⁸ Champagne T, & Stromberg N. (2004). Sensory approaches in inpatient psychiatric settings. Innovative alternatives to seclusion and restraint. *Journal of Psychosocial Nursing*, 43(9), 35–44.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
					the introduction of SM whereas the twin ward where SM was not available would show no such change	<p>basic SM training provided to ward staff over several weeks; Phase 3 included on-going one-on-one coaching with a trainer made available to staff by appointment.</p> <p>Environment:</p> <ul style="list-style-type: none"> A psychiatric intensive care room was converted into a SM room which included equipment and stimuli. <p>Enablement:</p> <ul style="list-style-type: none"> Access and modification to SM room was tailored to patients following a post-admission sensory screen to identify the sensory stimulation likely to be calming. Patients themselves or staff could request use of the SM room.
		Pre-intervention (practice as usual) concurrent control	NA	NA	NA	NA
Cummings, 2010, United States, Concurrent	New Hampshire Hospital	Comfort room	No	Hospital leadership aimed to reduce the use of S/R. The comfort room project started from suggestions from a patient and a staff member. A quality improvement team was formed to oversee the project.	The addition of a comfort room will reduce the use of S/R.	<p>Education:</p> <ul style="list-style-type: none"> Patients shown the comfort room on admission. <p>Persuasion:</p> <ul style="list-style-type: none"> Patients are encouraged to use the room as needed and bring their own music into the room. Nursing staff at the unit were asked to make suggestions to hospital leadership on project implementation. Nurse managers empowered nursing staff to assist patients in managing their distress without the use of seclusion or restraint. <p>Restriction:</p> <ul style="list-style-type: none"> Staff may enter the comfort room any time a patient demonstrates unsafe behavior. Comfort room monitored by staff via video. <p>Environment:</p> <ul style="list-style-type: none"> Comfort room door locked from the outside to allow patients to leave the room at will. Comfort room walls painted light blue and decorated with wallpaper and seascape artwork. Dimmer light switch allowed patients to control brightness of the room.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
						<ul style="list-style-type: none"> Multisensory reclining chair; oak entertainment center with television, DVD/VCR and CD player; calming music; books, puzzles, weighted blankets, stress balls and magazines <p>Enablement:</p> <ul style="list-style-type: none"> When a patient shows signs of distress, the nurse enters a dialogue with the patient to determine the meaning of the behavior. If the patient is in distress, then the nurse may offer the comfort room as a first step in helping the patient progress to a calmer space.
		Concurrent control (practice as usual)	NA	NA	NA	NA
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Azuela, 2018, New Zealand, Pre-post	Dissertation produced at the Auckland University of Technology	Sensory modulation room	No	The SM program was designed based on existing guidelines (Azuela & Robertson, 2016; ⁹ Champagne, 2008; ¹⁰ Sutton & Nicholson, 2011). ¹¹	NR	<p>Persuasion:</p> <ul style="list-style-type: none"> Project champions lead the implementation of SM room and had regular contact with the research team. Project champions were linked with a peer support group. <p>Training:</p> <ul style="list-style-type: none"> SM training focused on knowledge of clinical principles; therapeutic use of self; use of assessments; selection of sensory modulation activities; displaying supportive attitudes when using a sensory room; and development of personal safety plans with service users. <p>Environment:</p> <ul style="list-style-type: none"> SM tools included (eg, weighted blankets, stress balls, scented sprays, and music player) The units received support in the setting up of SM rooms and other environmental modifications within the units.

⁹ Azuela G, & Robertson L (2016). The effectiveness of a sensory modulation workshop on health professional learning. *The Journal of Mental Health Training, Education and Practice*, 11(5), 317-331. doi:10.1108/JMHTEP-08-2015-0037

¹⁰ Champagne T. (2008). *Sensory modulation & environment: Essential elements of occupation* (3rd ed.). Southampton, MA: Champagne Conferences & Consultation.

¹¹ Sutton D, & Nicholson E (2011). *Sensory modulation in acute mental health wards: A qualitative study of staff and service users' perspectives*. Auckland, New Zealand: Te Pou o Te Whakaaro Nui.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Novak, 2012, Australia, Pre-post	Study Researchers	Sensory room	No	The theoretical basis for sensory rooms emerged from the trauma-informed care, sensory modulation, self-management and recovery literature. ¹² Authors cited the design followed "best practice principles" ¹³	The introduction of the sensory room would: (1) reduce distress reported by consumers who used the room; (2) reduce disruptive and disturbed behaviors demonstrated by consumers who used the room; and (3) reduce rates of seclusion and aggression on the unit.	Education: <ul style="list-style-type: none"> Staff were educated about the room Consumers were routinely educated about the room and encouraged to use it when they felt distressed or needed 'time-out' Persuasion: <ul style="list-style-type: none"> Staff encouraged to offer time in the room to patient at the first sign of distress or agitation. Patients encouraged to use the room when they felt distressed Environment: <ul style="list-style-type: none"> An existing interview room was converted into a sensory room. The design included a homely environment with scenic pictures, comfortable furnishings and a range of sensory modulation items including weighted blanket, music, magazines/books, rocking chair, scents and a fit ball
	NA	Pre-intervention (practice as usual)	NA	NA	NA	NA
Sivak, 2012, United States, Pre-post	Delaware Psychiatric Center	Comfort room	No	The New York Office of Mental Health website (MacDaniel, 2009) ¹⁴ details specific information in the development of comfort rooms which was used as a template.	Use of the comfort rooms would be effective in decreasing client behaviors that could result in the use of seclusion or restraint. Within 4 months of instituting the comfort rooms, there would be 0	Education: <ul style="list-style-type: none"> Hospital administrators formed a committee, presented the initiative to internal / external stakeholders Information about comfort rooms shared via newsletters Weekly ward meetings with staff and patients to discuss committee progress

¹² MacDaniel M, Van Bramer J, and Hogan MF. Comfort rooms: a preventative tool to reduce the use of restraint and seclusion in facilities that serve individuals with mental illness (2009). New York, NY: New York State Office of Mental Health; National Executive Training Institute (NETI). Training curriculum for reduction of seclusion and restraint. Draft curriculum manual (2003). Alexandria, VA: National Association of State Mental Health Program Directors, National Technical Assistance Center for State Mental Health Planning; Champagne T and Stromberg N (2004). Sensory approaches in inpatient psychiatric settings: innovative alternatives to seclusion and restraint. *Journal of Psychosocial Nursing and Mental Health Services*; 42: 1–8.

¹³ MacDaniel M, Van Bramer J, and Hogan MF. Comfort rooms: a preventative tool to reduce the use of restraint and seclusion in facilities that serve individuals with mental illness (2009). New York, NY: New York State Office of Mental Health

¹⁴ MacDaniel M. (2009, February). Comfort rooms: A preventative tool used to reduce the use of restraint and seclusion in facilities that serve individuals with mental illness. Retrieved from the New York Office of Mental Health website: http://www.omh.state.ny.us/omhweb/resources/publications/comfort_room/



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
					<p>use of S/R at the hospital. Within 4 months of instituting the comfort rooms, there would be a 50% reduction in client-to-client assaults and self injurious behavior.</p>	<ul style="list-style-type: none"> • Staff instructed to suggest comfort room use to clients prior to engaging in any behaviors that could result in negative outcomes. <p>Persuasion:</p> <ul style="list-style-type: none"> • Clients reminded of the importance of keeping the comfort room in good condition. • Staff suggest patients use comfort room prior behaviors that led to seclusion or restraint. • Policies governing the use of comfort rooms were developed with agreement of the patient committee members. <p>Incentivization:</p> <ul style="list-style-type: none"> • Contest to name the comfort room. Winner received \$5 coupon for the hospital's canteen and acknowledged publicly. <p>Restriction:</p> <ul style="list-style-type: none"> • Patients read the comfort room agreement form and initial the form prior to use. If unable/unwilling to initial the agreement form the use of the comfort room was not allowed. <p>Environment:</p> <ul style="list-style-type: none"> • Wall murals voted by patients painted in each room • Chalkboard painted walls in each room to enable drawing • Drop ceilings to decrease noise level; light panels with sky scenes to improve ambiance • Recliner, rocking chair, foam chair, lap desk, television and DVD player, drawing tools, paper games and puzzles, aromatherapy <p>Enablement:</p> <ul style="list-style-type: none"> • Client survey to identify items to include in the comfort rooms • Clients could volunteer to use the rooms for up to 30 minutes when they feel anxious or angry.
		Pre-intervention (practice as usual)	NA	NA	NA	NA



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
Smith, 2013, United Kingdom, Pre-post	Study Researchers	Sensory Room	No	Based on prior evidence that sensory rooms can reduce the use of seclusion on inpatient units and result in decreased patient distress. Introduction to sensory room occurred after consultation with both staff and patients.	NR	Environment: <ul style="list-style-type: none"> The sensory room has light blue painted walls, laminate flooring, and 1 window which has a black out roller blind. The following equipment was placed in the room: a large floor mounted bubble tube, an optic mat, a light/image emitting projector, 2 lying bean bags, 2 sitting bean bags, a variety of cushions, an iPod dock/iPod, and drawers containing magazines, stress relief toys, chewing gum, and educational materials promoting relaxation and healthy living.
		NA	Pre-intervention (practice as usual)	NA	NA	NA
Zimmermann, 2020, United States, Pre-post	Dissertation produced at Brandman University and implemented at Mohave Mental Health	Serenity room	No	The serenity room was based on the comfort room model, established from The Theory of Comfort (Allgood & Tomey, 2010). ¹⁵	Serenity room decreases the use of S/R in patients who are experiencing increased anxiety, anger, and aggression.	Education: <ul style="list-style-type: none"> 35 staff were provided education on the use of the serenity room. Patients made aware of the sensory room as a treatment option Environment: <ul style="list-style-type: none"> Serenity room was painted, decorated, and furnished with a desk, rocking chair, and oversized bean bag, and sensory items like kinetic sand, stretch balls, and fidget spinners.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Risk Assessment						
Aberhalden, 2008, Switzerland, RCT	Developers of the The Brøset Violence Checklist (Almvik & Woods 1999) ¹⁶	Structured risk assessment (BVC)	No	Implemented validated Swiss version of the Brøset Violence Checklist (BVC)	Risk assessments can reduce the frequency and severity of patient aggression and use of coercive measures.	Education: <ul style="list-style-type: none"> Staff were provided explicit recommendations for interventions based on risk assessment scores. Persuasion: <ul style="list-style-type: none"> Staff discussed preventive measures with patients from a list provided on the risk assessment form. High risk patients received multidisciplinary team consultation to discuss the need for immediate intervention. Environment:

¹⁵ Allgood MR, & Tomey AM. (2010). *Nursing Theorists and Their Works*. Maryland Heights: Mosby Elsevier.

¹⁶ Almvik R & Woods P. (1999) Predicting inpatient violence using the Brøset Violence Checklist (BVC). *International Journal of Psychiatric Nursing Research* 4, 498–505.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
						<ul style="list-style-type: none"> A structured short-term risk assessment (BVC) administered during the first 3 days of hospitalization. The BVC requires nurses to rate 6 patient behaviors (confusion, irritability, boisterousness, verbal threats, physical threats, and attacks on objects) and to perform an overall subjective assessment of the risk of imminent violence. Ratings were conducted twice daily.
		Wait-list control (practice as usual)	NA	NA	NA	NA
		Preference arm (practice as usual)	NA	NA	NA	NA
van de Sande, 2011, Netherlands, RCT	Developers of the The Brøset Violence (Almvik & Woods 1999) ^g , past trial by Abderhalden et al. (2008), and study investigators	Structured risk assessment (BVC)	No	Implemented BVC. Sought to extend work Abderhalden et al (2008) ¹⁷ by exploring the added value of using the checklist during a patient's stay in addition to once during admission.	Structured short-term risk assessment can improve clinical decision-making and can result in timely de-escalation actions, avoiding coercive interventions.	<p>Training:</p> <ul style="list-style-type: none"> All psychiatric nurses and doctors on the wards were trained to use the risk assessment instruments. <p>Environment:</p> <ul style="list-style-type: none"> Patients were monitored daily by nurses using risk assessment scales. Daily scales included the Crisis Monitor, BVC and the Kennedy–Axis V (short version) to identify risks of loss of control. Weekly scales included the Kennedy–Axis V (full version), the Brief Psychiatric Rating Scale, the Dangerousness Scale and the Social Dysfunction and Aggression Scale were used to evaluate changes in mental state. The Crisis Monitor scale ratings were discussed by the multidisciplinary team daily and at weekly clinical meetings. <p>Environment:</p> <ul style="list-style-type: none"> Risk assessment scales incorporated into short-term clinical decision making, intervention planning and evaluation. The Crisis Monitor scores guided discussions on how to deal with observed changes in risks, such

¹⁷ Abderhalden C, Needham I, Dassen T, Halfens R, Haug HJ, Fisher JE. Structured risk assessment and violence in acute psychiatric wards: randomised controlled trial. Br J Psychiatry 2008; 193: 44–50.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
		Control (practice as usual)	NA	NA	NA	as timely verbal de-escalation, behavioral limit-setting, and observation.
Blair, 2017, United States, Pre-post	Developers of the BVC (Almvik & Woods 1999), ¹⁸ supplemented by Hartford Hospital, Connecticut	Structured risk assessment (BVC)	No	Implemented a previously validated risk assessment tool (BVC) in combination with other evidence-based strategies for reducing violence/aggression (eg., staff education, trauma informed care, assessment of S/R practices, etc)	Use of prevention strategies of aggression can reduce use of S/R.	<p>Training:</p> <ul style="list-style-type: none"> Staff completed a 2-day training based on a trauma-informed model of care intended to reduce staff behaviors that can exacerbate “trauma reactions” in patients. <p>Restriction:</p> <ul style="list-style-type: none"> Physician renewal orders required for S/R increased from 4 to 2 hours. <p>Environment:</p> <ul style="list-style-type: none"> BVC used daily documentation completed by a physician on arrival and by nursing staff during each shift. Introduced new nursing assignments to maximize staff presence in the milieu. Required that the Medical Director and the Director of Nursing examine all S/R events. Environmental enhancements included assessing the patient’s “sensory diet” on admission to identify personalized coping strategies to reduce aggression. Created comfort rooms with calming lights, sensory items, and music.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Clarke, 2010, Canada, Pre-post	Developers of the The Brøset Violence Checklist (Almvik & Woods 1999)	Structured risk assessment (BVC)	No	Implemented previously validated risk assessment tool (BVC) developed by Almvik & Woods (1999) ¹⁹	The BVC may assist health-care workers in the prevention of or reduction in the impact of violence through an early identification of patients with the potential for violence for which least restrictive	<p>Education:</p> <ul style="list-style-type: none"> Participating staff members were oriented to the use of the risk assessment tool by the research nurse in brief 15-min sessions, either in a group or individually. <p>Environment:</p> <ul style="list-style-type: none"> BVC was completed by general duty nursing staff on each shift for the first 72 hours of admission. Nurses completed a form for each patient assigned to them on that shift.

¹⁸ Almvik R. & Woods P. (1999) Predicting inpatient violence using the Brøset Violence Checklist (BVC). *International Journal of Psychiatric Nursing Research* 4, 498–505.

¹⁹ Almvik R. & Woods P. (1999) Predicting inpatient violence using the Brøset Violence Checklist (BVC). *International Journal of Psychiatric Nursing Research* 4, 498–505.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
		Pre-intervention (practice as usual)	NA	NA	interventions can be employed.	<ul style="list-style-type: none"> Nurses involved in each aggressive incident were interviewed post incident to determine whether it could have been prevented.
Harrington, 2019, Australia, Pre-post	Study researchers	Risk assessment (Clinical Risk Management Initiative; CRMI)	No	A model for managing clinical risk to replace standard visual observation. This model was based on clinical engagement principles and was developed using a participatory action research framework involving staff and consumer focus groups. The model was piloted and refined before full implementation.	The model would be associated with a decrease in adverse events and an increase in staff satisfaction levels.	<p>Education:</p> <ul style="list-style-type: none"> Extensive education program describing changes to patient care and the expectations of staff Staff explain to medium risk patients planned management strategies The Patient Safety Plan described: possible early warning signs indicating change to risk; possible activities to decrease exacerbation of risk (identified by patient); and management strategies. <p>Persuasion:</p> <ul style="list-style-type: none"> All clinical staff encouraged to regularly engage with medium risk patients, regular assessment, planning, and prevention Patients asked to identify and participate in activities to decrease exacerbation of risk Regular staff meetings allowed for feedback to improve the CRMI and to provide support and clarification when needed. <p>Training:</p> <ul style="list-style-type: none"> Staff trained on how to conduct the risk assessment <p>Environment:</p> <ul style="list-style-type: none"> The CRMI established a tailored risk review process in which risk assessments were at designed periods. Patients were categorized into 'low,' 'medium', or 'high' risk status. Risk assessments for every patient were documented at weekly for discussion at multidisciplinary clinical review meetings. Members of the clinical team performed routine ward checks with low-risk patients every 2-3 hours. Change in mental status or risk was reported to contact nurse or shift leader. Medium-risk patients were allocated a contact nurse who was responsible for engaging in regular risk assessment.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
		Pre-intervention (practice as usual)	NA	NA	NA	<ul style="list-style-type: none"> High-risk patients were managed in the High Care Area or in the Low Dependency Unit with 1:1 nursing. <p>Enablement:</p> <ul style="list-style-type: none"> The patient safety plan was completed in collaboration with patients whenever possible.
Manning, 2022, United States, Pre-post	Study researchers	Risk assessment (modified Agitation Severity Scale; MASS)	No	Implemented a modified version of the Agitation Severity Scale (Strout, 2011) ²⁰ (MASS). Modifications were made to allow for rapid clinical assessment and linking the scale to a treatment protocol.	Rapid clinical assessment of agitation can inform clinical decision making to avoid aggressive and violent behavior and reduce involuntary medication administration and S/R practices.	<p>Education</p> <ul style="list-style-type: none"> A list of non-pharmacologic interventions compiled based on published guidelines and with input of nursing staff <p>Persuasion</p> <ul style="list-style-type: none"> Medication use was encouraged as second line treatment. Staff were encouraged to employ behavioral interventions to reduce agitation: speak with patient about frustration, encourage patient to channel feelings into activity, identify wants and feelings, redirect attention and offer choices, encourage relaxation techniques, offer fluids/food, and encourage self-time out. <p>Training</p> <ul style="list-style-type: none"> Physicians and nursing staff were trained in the use of the MASS and Agitation Treatment Scale. <p>Restriction</p> <ul style="list-style-type: none"> Seclusion or restraint were only a last resort and required notification of the physician. MASS agitation scores determined which interventions were appropriate: very mild score = behavioral intervention; mild score = oral medication; moderate score = intramuscular injection; high score = seclusion/restraint. <p>Environment</p> <ul style="list-style-type: none"> Treatment protocol incorporated 4 pharmacologic tracks based on agitation score upon admission. Preference was for behavioral intervention followed by oral medication, intramuscular medication and then seclusion or restraint as a

²⁰ Strout TD. Development of an agitation rating scale for use with acute presentation behavioral management patients [Doctoral dissertation, Connell School of Nursing]. Boston College. 2011. <https://dlib.bc.edu/islandora/object/bc-ir%3A101860/datastream/PDF/download/citation.pdf>



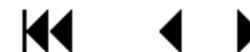
Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
		Pre-intervention (practice as usual)	NA	NA	NA	<p>treatment of last resort. Seclusion or restraint also required notification of the physician.</p> <ul style="list-style-type: none"> Agitation scores entered directly into the electronic medical record that corresponded with a management strategy. <p>Enablement</p> <ul style="list-style-type: none"> Patients were encouraged to use coping skills and relaxation techniques
Trauer, 2010, Australia, Pre-post	Study researchers	Management of Acute Arousal Program (MAAP): assessment, psychosocial interventions, pharmacological interventions, and debriefing.	No	Developed based on prior research showing that enhanced management of problem behaviors and improved monitoring results in lower rates of seclusion ²¹	The expectation was that there would be a reduction in seclusion in the 6 months of the intervention compared with the 6 months before its introduction.	<p>Education:</p> <ul style="list-style-type: none"> 24 to 48 hours after an episode of MAAP, patients were offered a debriefing with a member of staff who had not been involved in the episode. Ward staff were also given manuals and pocket-sized reference materials, and regular opportunities to meet with senior staff to review the operation of the program. <p>Persuasion:</p> <ul style="list-style-type: none"> Time-out: the patient is asked to go voluntarily to an area in the unit for a specific period of time away from others A Practice Development Nurse was appointed for the 6 month implementation to provide training and ongoing support and monitoring. Senior clinicians on the ward would ask about the initiation of any MAAP episodes at an informal check-in with shift leaders and staff. <p>Training:</p> <ul style="list-style-type: none"> All clinical staff were trained in MAAP in 2 sessions. The training included all elements of MAAP and use of the documentation system. Training was also provided to new staff as required. <p>Environment:</p> <ul style="list-style-type: none"> Ward nursing staff initially assessed patients displaying agitated or aggressive behavior using the Fremantle Arousal Scale. According to the level of arousal, a psychosocial intervention was applied,

²¹ D’Orio BM, Purselle D, Stevens D, and Garlow SJ (2004). Reduction of episodes of seclusion and restraint in a psychiatric emergency service. *Psychiatric Services*. 55:581583; Schreiner, G.M., Crafton, C.G. and Sevin, J.A. (2004) Decreasing the use of mechanical restraints and locked seclusion. *Administration and Policy in Mental Health*. 31: 449463.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
						selecting from an ordered list: ventilation, redirection, time-out, restraint, or seclusion <ul style="list-style-type: none"> Each MAAP episode was initiated as required and continued until a low level of arousal was reestablished. 'As required' or PRN medications could be given at any stage. Enablement <ul style="list-style-type: none"> Ventilation: patients provided opportunities express fears, frustration anger, anxiety and triggers. Redirection: staff explored with the patient solutions to assist them in gaining control including distraction.
	NA	Pre-intervention (practice as usual)	NA	NA	NA	NA
Comprehensive/Mixed						
Bowers, 2015, United Kingdom, RCT	Study researchers	Safewards	No	The Safewards Model was developed by Bowers (2014) ²² to explain variable rates of conflict and containment and identify a large number of 'staff modifiers' that can impact on the likelihood of conflict or containment incidents. The model enabled the creation of a list of interventions that could enhance the staff modifiers and thereby reduce conflict and containment rates. Panels of expert nurses, service users, and carers identified the top intervention strategies to be included in pilot studies which were subsequently reduced into a package of 10 interventions.	Wards randomized to Safewards vs control would show fewer conflicts and less constraints defined as (coerced medication, seclusion, restraint, and special observation).	Education: <ul style="list-style-type: none"> Advisory statements (called 'soft words') on handling flashpoints were hung in the nursing office and changed every few days. Persuasion: <ul style="list-style-type: none"> Staff required to say something good about each patient at nursing shift handover. Staff encouraged to scan for potential bad news a patient might receive from friends, relatives or staff, and intervening promptly to talk it through. Staff provided reassuring explanations to all patients following potentially frightening incidents. A display of positive messages about the ward from discharged patients was introduced. Training: <ul style="list-style-type: none"> A de-escalation model used by the best de-escalator on the staff (as elected by the ward) expanded the skills of the remaining ward staff. Environment: <ul style="list-style-type: none"> Structured, innocuous, personal information was shared between staff and patients (eg., music

²² Bowers L, 2014. Safewards: a new model of conflict and containment on psychiatric wards. *J. Psychiatr. Ment. Health Nurs.* 21, 499–508.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
						<p>preferences, favorite films) via a 'know each other' folder kept in the day room.</p> <ul style="list-style-type: none"> A crate of distraction and sensory modulation tools to use with agitated patients included stress toys, music players with soothing music, light displays, and textured blankets. <p>Modeling:</p> <ul style="list-style-type: none"> A de-escalation model used by the best de-escalator on the staff (as elected by the ward concerned) expanded the skills of the remaining ward staff. <p>Enablement:</p> <ul style="list-style-type: none"> Publicized standards of behavior by and for patients and staff were mutually agreed upon. A regular patient meeting to bolster, formalize, and intensify inter-patient support
		Control wards (physical health program)	NA	Wards in the control condition implemented a set of interventions directed at improving staff physical health. Staff on the control wards were told that improvements in their own physical health would lead to them delivering care more effectively, and thereby reduce conflict and containment.	Improvement in physical health was predicted by the Safewards Model to have no impact on conflict and containment.	<p>Education:</p> <ul style="list-style-type: none"> Desk exercise poster placed in ward office Staff completed diet assessment and feedback was provided. <p>Incentivization:</p> <ul style="list-style-type: none"> Staff participated in pedometer-based competitions. <p>Environment:</p> <ul style="list-style-type: none"> Supplies of health snacks, exercise magazines, and health promotion literature were available in ward offices. <p>Enablement:</p> <ul style="list-style-type: none"> Linkages to local sports and exercise facilities were made.
Valimaki, 2022, Finland, RCT	Study researchers	VIOLIN (Violence Intervention)	No	Informed by previous research (The EUNOMIA [European Evaluation of Coercion in Psychiatry and Harmonization of Best Clinical Practice] study (Fiorillo 2011) ²³) that developed trainings for professionals on the management of aggressive behaviors and improved	Patient condition, treatment environment and ward culture may affect patient behavior. The use of coercive methods can be prevented with staff education about user-	<p>Education:</p> <ul style="list-style-type: none"> Program contents were taught to staff via lectures, seminars, workshops, and site visits. Knowledge on evidence-based studies demonstrating how to fill possible quality gaps shared with staff members. Strengths, weaknesses, opportunities, and threats related to unit changes were captured.

²³ Fiorillo A, De Rosa C, Del Vecchio V, et al. How to improve clinical practice on involuntary hospital admissions of psychiatric patients: suggestions from the EUNOMIA study. *Eur Psychiatry*. 2011;26(4):201-207. doi:10.1016/j.eurpsy.2010.01.013



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
				communication between community and hospital teams. Present study (VIOLIN) was designed to improve treatment culture and reduce the need for coercive methods. A pilot study was undertaken with staff members, patients, and relatives in 1 hospital ward prior to present study to ensure acceptability, understandability, usefulness, and feasibility of the intervention.	centered, humane approaches as well as collaboration between patients, family members and staff members.	<ul style="list-style-type: none"> Information packages including intervention materials were made available to staff to support competency. <p>Persuasion:</p> <ul style="list-style-type: none"> Support available from the project team included monthly monitoring and support calls or emails to prompt and encourage change in staff members. <p>Training:</p> <ul style="list-style-type: none"> Hands-on-support was provided by the trial team. The contact persons worked with staff to help them gain confidence in the new ideas of the intervention. The understanding of the intervention was reviewed using an interim evaluation. <p>Enablement:</p> <ul style="list-style-type: none"> Local meetings involving staff members, patients, relatives, and the trial team specified detailed areas to be developed and the specific steps to be taken. Possible barriers and facilitating factors for change were identified.
		Control Wards (practice as usual)	NA	NA	NA	NA
Boumans, 2014, Netherlands, Concurrent	Vincent van Gogh psychiatric hospital	Methodical Work Approach	No	The Methodical Work Approach (Coussens 2010; Tiemens et al 2010; Winkelaar 2001) ²⁴ is part of the professional training of almost all mental health personnel in the Netherlands and Belgium. The approach entails a systematic, transparent, and goal-driven way of working with cyclic evaluation and adjustment of the working process. A new format was developed for the treatment in which problems, goals, and means could be specified per life domain. These life domains were derived from the Camberwell Assessment of Needs Short Appraisal	Implementation of the Methodical Work Approach would lead to a reduction in the use of seclusion	<p>Education:</p> <ul style="list-style-type: none"> The program included education on the negative effects of coercive measures and feedback to all ward teams about their use of these measures. <p>Persuasion:</p> <ul style="list-style-type: none"> In the team members' daily reports, and during meetings and consultations, staff were encouraged to describe their interventions in relation to the goals and means in the life domains listed in the treatment plan. All staff members on the ward were actively involved in intervention preparation and were invited to the expert group to redesign the treatment process. <p>Training:</p> <ul style="list-style-type: none"> Training program included 3 sessions attended by all multidisciplinary team members. During these sessions the principles of the Methodical Work Approach were introduced, and the 5 phases of the

²⁴ Coussens A. (2010). Methodisch Werken in De Gezondheidszorg. Garant: Antwerpen & Apeldoorn; Tiemens, B., Kaasenbrood, A. & De Niet, G. (2010). Evidence Based werken in de GGZ. Houten: Bohn Stafleu van Loghum; Winkelaar, P. H. (2001). Methodisch Werken: Inleiding Tot Methodisch Handelen Met En Voor Mensen. Leusden: De Tijdstroom.



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				<p>Schedule (Andresen et al. 2000)²⁵ and were clustered into a suitable framework with the following domains: daily living activities; social, financial, sexual, or psychiatric problems; and substance-use disorders. A domain 'existential questions' was added because of apparent needs in the specific patient group.</p>		<p>treatment process were explained. The procedure for the treatment process, as designed by the expert group, was demonstrated and integrated in the routine of the ward.</p> <ul style="list-style-type: none"> • During the first training program the teams started to practice with the formulation of care plans using the Methodical Work Approach and were given feedback on the quality of the plans. • A second training program of the Methodical Work Approach lasted 3 days and the application of the approach into daily practice was elaborated on and illustrated with examples of patient care. • The program also included a workshop on the principles of evidence-based practice. The search for means to achieve goals was discussed and nurses learned how to ask 'answerable questions', as well as how to execute a search strategy in the literature. Guidelines were given to the nurses for deciding whether and how to use the evidence they found to modify their plans. <p>Environment:</p> <ul style="list-style-type: none"> • The Methodical Work Approach involves 5 phases: (i) translation of problems into goals; (ii) search for means to realize the goals; (iii) formulation of an individualized plan by matching specific means to individual needs and preferences; (iv) implementation of the plan; and (v) evaluation and readjustment. The 5 phases of the Methodical Work Approach can apply to several aspects of the treatment process: the therapeutic relationship, the treatment process, and/or the conditions for treatment. <p>Enablement:</p> <ul style="list-style-type: none"> • A key element of the Methodical Work Approach is the individual plan, which describes the goals of the patient, as well as the specific means to achieve these goals. Both goals and means are chosen in line with the patient's individual needs and references. The resulting procedure was as follows: the coordinating nurse assisted with the formulation of patient goals for specific life domains. When the family was involved, the coordinating nurse enquired about the family's vision on the goals of the patient and invited the

²⁵ Andresen R, Caputi P, & Oades LG (2000). Interrater reliability of the Camberwell assessment of need short appraisal schedule. *Australian and New Zealand Journal of Psychiatry*, 34 (5), 856–861.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
						<p>family to participate in the treatment process. The multidisciplinary team then met with the patient and family to outline the short- and long-term goals and the means to achieve these. All decisions made at the meeting were recorded in the treatment plan. Progress was regularly evaluated and discussed with the patient and family. When delays were observed, possible causes were sought at all levels of the treatment process, and adjustments to the plan made accordingly. At follow up meetings the team evaluated, together with the patient and family, whether the goals had been reached and whether continuation of treatment at the ward was still indicated.</p>
		Control (practice as usual)	NA	NA	NA	NA
Noorthoorn, 2014, Netherlands, Concurrent	NR	Intervention	No	<p>Based on the assumption that seclusion did more harm as being traumatic and the assumption that restraint in general reflected more the relation between staff and clients, a project was started to abandon seclusion and diminish other forms of restraint in three years. The project was accompanied by a process evaluation built on and supported by a project leader and a researcher to supply data to the staff of the experimental ward.</p>	NR	<p>Training:</p> <ul style="list-style-type: none"> • Team training aimed at prevention of aggression, dealing with conflict and restoring relationship with patient. Individual coaching provided as follow-up to team training. <p>Environment:</p> <ul style="list-style-type: none"> • A proactive approach in detecting behavior preceding aggression was implemented by using information from the patient, the family, and community nurses in developing means to deal with patient behavior, described within a specified signaling plan. • Family participation was appreciated as a main component of treatment. • At regular intervals researchers provided feedback on the numbers of restraint measures implemented to the team. • After an involuntary admission, dangerousness criteria as formulated within the home environment were re-evaluated within the context of the admission. • Team cohesion was stimulated by frequent team meetings. • During first admission, information was gathered to compile specified signaling plans (<i>ie</i>, plans aimed at early detection of behavior preceding aggression). <p>Restriction:</p>



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		Control (practice as usual)	NA	NA	NA	<ul style="list-style-type: none"> • Clear boundaries and limitations with respect to acting out behavior were communicated at admission. <p>Enablement:</p> <ul style="list-style-type: none"> • Agreement with the patient on treatment and signaling plan was valued as an important means in early detection of behavior preceding aggression. • All staff members had an important input in developing treatment plans.
Blair, 2015, USA, Pre-post	Salem Health Psychiatric Center	Engagement Model	No	In 2001, based on the Sanctuary approach of Sandra Bloom (1997), the authors' hospital initiated the Engagement Model (Murphy & Bennington-Davis, 2005). The goal of this model was to implement an acute care, inpatient psychiatric recovery model that provided a safe and healing environment founded on trauma-informed care. Positive therapeutic alliances would be built with patients and efforts were directed toward individualization of treatment, with maximization of patient involvement. Management and staff desired to shift power and control from staff to patients as much as possible and reduce or eliminate the need for S/R.	NR	<p>Education:</p> <ul style="list-style-type: none"> • Community meetings are an opportunity to educate patients about the trauma-informed model of care. <p>Persuasion:</p> <ul style="list-style-type: none"> • Spontaneous interventions are welcomed and staff are encouraged to think "outside the box" when exploring alternatives. <p>Training:</p> <ul style="list-style-type: none"> • Annual Professional Assault Crisis Training required for all psychiatric, ED, float pool, and Security Services staff members. • Security staff earn mastery in the use of de-escalation techniques. <p>Environment:</p> <ul style="list-style-type: none"> • Admission screening tools provide information about individual patient trauma history, triggers, history of assault or aggression, and strategies the patient finds helpful for self-calming. • Twice daily community meetings are led by patients with staff guidance to discuss community expectations, issues, and concerns. Non-threatening, recovery-focused discussion questions are asked. The community guidelines and nonviolence policy are read at each meeting. • A special community meeting can be to address brewing problems or debrief an incident that has already occurred. These meetings can be requested by staff or patients. • Staff have developed a more defined low stimulus protocol for intrusive or disruptive patients, increased the use of spontaneous staff "huddles"



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						<p>for problem solving, and promoted greater individual initiative in creating early self-management plans for challenging cases.</p> <ul style="list-style-type: none"> • Management team performed a root cause analysis on all incidents of S/R, with subsequent all-staff review in a nonjudgmental forum. • One staff member remains with a more challenging patient, engaging with him or her on a consistent basis until he or she begins to stabilize. • Rooms may be made available where patients can go for a quieter atmosphere. • Groups focused on active practice of relaxation or distraction techniques may be held in side rooms. • Staff have been offered the opportunity to eat free family-style meals with patients. Staff receive traditional 30-minute lunch breaks at a different time. • Staff spend less time in the nursing station or offices. An increased staff presence in the milieu can take the form of simply sitting and chatting with patients or reading a newspaper in the day area during downtime. • Two small side rooms are used as patient television viewing areas, so that the main day area promotes conversation and personal interactions. <p>Enablement:</p> <ul style="list-style-type: none"> • Managers offer themselves as resources rather than as the ultimate decision makers. • Ongoing recognition of unit successes and individual staff initiatives related to improved patient care is encouraged. • Staff to feel empowered in terms of decision making when acute situations occur. • Therapy staff have met twice per week with each patient to discuss patient-identified strengths, goals, progress, and treatment team recommendations. • When requests are reasonable and not dangerous, they are included in choice options including allowance for pet visits, use of music/headphones at times that are outside of the normal unit guidelines, loosening of American Dietary Association restrictions, authorized use of

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	NA	Pre-intervention (practice as usual)	NA	NA	NA	NA computers, or supervised use of guitar or karaoke equipment.
Dickens, 2020, Australia, Pre-post	Study researchers	Safewards	No	Safewards intervention was developed by Bowers et al. (2014). ²⁶ A plan for Safewards implementation was devised with a group of select staff from each participating ward who volunteered or were nominated by the unit manager to facilitate the application of the interventions on their unit.	The introduction of Safewards would be associated with significant reductions in reported (i) conflict; (ii) serious conflict (physical violence); (iii) containment; (iv) highly coercive containment (seclusion, restraint, forced medication) after controlling for potential confounding variables; and (v) with significant improvements in the measured violence prevention climate.	<p>Education:</p> <ul style="list-style-type: none"> Safewards was introduced to nursing staff via hour long ward in-service sessions. <p>Training:</p> <ul style="list-style-type: none"> 12-week implementation phase included train-the-trainer sessions for clinical nurse consultants, introductory in-service education sessions, and educational materials were provided.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Hellerstein, 2007, United States, Pre-post	New York State Psychiatric Institute (NYSPI)	Comprehensive intervention	No	In the year 2000, NYSPI initiated an institute-wide program to reduce rates of restraint and seclusion. A multidisciplinary group of physicians, nurses, mental health aides, and quality management personnel convened to review the literature, identify characteristics of NYSPI patients who were restrained or secluded, and to compare NYSPI with other institutions to determine factors contributing	Intervention would 1) reduce the number of patients placed in restraint or seclusion 2) reduce the length of time patients spend in seclusion or restraint and 3) achieve these reductions without increasing adverse outcomes as measured by patient-related staff	<p>Education:</p> <ul style="list-style-type: none"> Clinical staff educated about appropriate indications for S/R. Staff discussions focused on situations that could potentially require the use of S/R and how clinicians could find alternatives. The Coping Agreement Questionnaire collected information on what agitates patients, how they respond when upset, and how they would prefer to be treated while on the unit. Also elicits family input on coping methods. <p>Persuasion:</p>

²⁶ Bowers L, Alexander J, Bilgin H, et al. (2014). Safewards: the empirical basis of the model and a critical appraisal. *Journal of Psychiatric and Mental Health Nursing*, 21, 354–364.



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
				to higher rates of restraint and seclusion use.	injuries, elopements, and fights and assaults.	<ul style="list-style-type: none"> Staff encouraged to discontinue restraints or open the seclusion room door if the patient was sleeping. Clinical staff used individual patients' responses on the Coping Agreement Questionnaire to help them find ways to deal with agitation. <p>Restriction:</p> <ul style="list-style-type: none"> The time a patient could remain in S/R after an initial physician's order before a second order was required was decreased from 4 to 2 hours. Clinical director must evaluate all patients who had 2 or more consecutive episodes of restraint or seclusion. Clinical practices were changed, so that if security personnel were called to deal with an agitated patient restraint and seclusion were no longer an automatic result. <p>Environment:</p> <ul style="list-style-type: none"> Additional staff were assigned to escort small groups of patients to the hospital's enclosed garden. Staff members could escort an individual patient off-unit if it was thought to be likely to help him or her become calmer. <p>Enablement:</p> <ul style="list-style-type: none"> Policies were changed to allow for off-unit privileges earlier during hospitalization.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Khadivi, 2004, United States, Pre-post	Bronx Lebanon Hospital Center	Comprehensive intervention	No	Designed to be compatible with the mandates of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to respect patients' autonomy by minimizing the use of S/R in psychiatric and nonpsychiatric settings.	NR	<p>Education:</p> <ul style="list-style-type: none"> Staff education provided on early recognition of agitation and clinical intervention. <p>Training:</p> <ul style="list-style-type: none"> Staff trained to recognize of signs of agitation among patients and engage in early clinical intervention. <p><i>N.B. All staff members had previously been trained on assault prevention measures; however, this training varied and specific training on violence prevention was not given during the study period.</i></p> <p>Environment:</p>



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		Pre-intervention (practice as usual)	NA	NA	NA	<ul style="list-style-type: none"> History of inpatient violence was collected within the admission form. Continuous nursing monitoring was implemented to minimize the duration of episodes of S/R. Post episode debriefing of the staff and the patient took place with a review of each episode by the senior nurse and a physician.
Lewis, 2009, United States, Pre-post	Henry Phipps Psychiatric Clinic	Crisis Prevention Management (CPM) program	No	A group of psychiatric nurses created an evidenced-based performance improvement program informed by the Public Health Prevention Model (Huckshorn, 2004). ²⁷ The model uses primary, secondary, and tertiary prevention strategies to decrease the use of S/R. A committee comprised of nurses from all of the inpatient units developed a vision for patient care delivery.	Changing the culture of patient care is believed to be a necessity for any real S/R reduction efforts.	<p>Persuasion:</p> <ul style="list-style-type: none"> Each unit had nurses who "championed" the new model, reinforced that S/R hinder recovery; pushed peers to become more proactive and creative with [alternative] interventions. All staff in the department attended a day-long workshop designed to facilitate cultural change through presentations, discussion, and staff input into the development of various aspects of the model. Signs were posted on the unit and verbal reminders were given to move staff closer to the patients. When implementing the Comfort Cart the nurse assisted the patient and stayed with them to offer support, participate, and offer feedback. <p>Training:</p> <ul style="list-style-type: none"> Psychiatric Emergency Training included information on primary, secondary, and tertiary interventions. Presented performance improvement measures, aspects of relationship building, verbal de-escalation techniques, and research findings. Nurse Managers were trained to serve as "on-call clinicians" for debriefing process. <p>Environment:</p> <ul style="list-style-type: none"> Daily Safety Focused Community Meetings were modified to add specific content stressing the importance of feeling and being safe in the milieu. The Phipps Aggression Screening Tool was implemented at admission to identify individuals at

²⁷ Huckshorn KA (2004). Reducing seclusion and restraint use in mental health settings: Core strategies for prevention. *Journal of Psychosocial Nursing*, 42(9), 22–33.



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						<p>increased risk for violent behavior. Staff utilized the responses to plan care.</p> <ul style="list-style-type: none"> Twice a day, several hours after shift report, all nursing staff met briefly to discuss any current or potential safety issues. A witnessing debriefing process included an immediate post event debriefing led by the “on-call witness.” to gather data regarding the triggers and contributing factors in the event, what interventions were attempted, and what barriers were present to impede the success of the interventions. A chart review, a patient interview, and a case conference with the nursing team involved in the incident occurred. The conference was used to identify contributing factors, alternative actions, and changes necessary to prevent future events. A key component of a successful witnessing process is establishing a non-punitive environment where staff is encouraged to share their thoughts, feelings, and opinions. Staff can implement and evaluate interventions more effectively by sharing what is (or is not) working well for a patient. <p>Enablement:</p> <ul style="list-style-type: none"> The Personal Safety Plan is initiated on admission to gather information delineating the patient’s response to distress and identify what interventions will be most helpful for him to stay in control. It sets the expectation that the individual is a partner in his health care team. If the individual was unwilling to participate, information was obtained from family, care providers, or previous records.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
McDonagh, 2019, United States, Pre-post	Ralph H Johnson VA Medical Center	Recovery-oriented programming	Yes	Identified reducing S/R is a national priority and movement towards recovery-oriented/patient centered care as a VHA priority	NR	<p>Education:</p> <ul style="list-style-type: none"> Staff education provided Recovery-oriented curriculum developed including self-help resource book/worksheet <p>Persuasion:</p> <ul style="list-style-type: none"> Frontline staff were included from the beginning in policy design/implementation. Established a “commitment to resilience” to inspire innovative solutions within a dynamic environment.



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		Pre-intervention (practice as usual)	NA	NA	NA	<ul style="list-style-type: none"> Developed a “pre-occupation with failure” and did not accept the current S/R rate <p>Training:</p> <ul style="list-style-type: none"> Various trainings provided to patients (eg., illness management, recovery training, social skills training) <p>Environment:</p> <ul style="list-style-type: none"> Therapeutic Assistants were hired. Coordination with various departments to put on 4-6 hours of daily programming (Nutrition service, VA police, Human resources, Dental Service, Chaplin Service, Voluntary service, SC State Department of Veteran's Affairs) Programming included recovery groups, substance use disorder/post-traumatic stress disorder/depression groups, illness management and recovery training, social skills-training, recreation therapy, nutrition group, safety outside the hospital, occupational,, oral hygiene, non-secular groups, various entertainment activities, VA benefits, discharge planning and individual/family meetings. <p>Modeling:</p> <ul style="list-style-type: none"> Deference to expertise as staff relied on local subject matter experts for guidance/Integration of peer support specialists
Pollard, 2007, United States, Pre-post	VA Puget Sound Health Care System	Comprehensive intervention	Yes	Local quality improvement initiative (formal and informal) initiated in response to the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) 2000 standards ²⁸ for the utilization of S/R	NR	<p>Education:</p> <ul style="list-style-type: none"> Facility policies and procedures for the use of S/R were updated to reflect the emphasis on expanded leadership involvement in S/R usage. Videotapes were prepared to serve as stimuli for discussions regarding risks of restraint, alternatives to restraint, and the senior leadership commitment to a restraint free environment. <p>Persuasion:</p> <ul style="list-style-type: none"> Explored staff concerns about the new standards through informal discussion and focus groups..

²⁸ Joint Commission on Accreditation of Healthcare Organizations: Comprehensive Accreditation Manual for Hospitals: The Official Handbook. Oakbrook Terrace, Illinois, Joint Commission Resources, 2000.



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		Pre-intervention (practice as usual)	NA	NA	NA	<p>Positive feedback provided to staff from both senior unit management and facility leadership on the use of alternatives.</p> <ul style="list-style-type: none"> Aggregated and trended data were presented and discussed monthly at the facility clinical executive committee meeting. Staff discussions regarding alternatives to the use of S/R occurred. <p>Environment;</p> <ul style="list-style-type: none"> Mental health and nursing leadership were tasked with reviewing all episodes of behavioral restraints for appropriateness and for meeting specified documentation requirements. The committee was also tasked with identifying of opportunities for improvement of care and patient safety.
Richmond, 1996, United States, Pre-post	Fort Lyon VAMC	Comprehensive intervention	Yes	In November 1991 the medical center implemented a facility wide training program on prevention and management of disturbed behavior with the aim of reducing the number of S/R hours and reducing job-related injuries due to managing assaultive behavior.	NR	<p>Education:</p> <ul style="list-style-type: none"> Nursing staff educated on the need to use least restrictive alternatives to keep patients out of S/R. <p>Persuasion:</p> <ul style="list-style-type: none"> Staff were instructed to use and document the effectiveness of least restrictive measures on all patients exhibiting disruptive behavior. <p>Training:</p> <ul style="list-style-type: none"> Staff training on prevention and management of disturbed behavior included early assessment of disrupted behavior, intervention using least restrictive alternatives and a team approach to using physical restraint if least restrictive alternatives are ineffective. Alternatives included: one-to-one verbal intervention, time out, relaxation techniques, physical/diversional activity, changing the medication regimen or medication as needed.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Stoll, 2022, Switzerland, Pre-post	Study Researchers	Moral case deliberation	No	Used the framework of clinical ethics support to help practitioners consider the use of coercion by determining the morally most justifiable course	With monthly moral case deliberation 1) formal coercive measures in general and seclusion,	<p>Persuasion:</p> <ul style="list-style-type: none"> Monthly moral case deliberation meetings occurred in which staff addressed concrete, past, or anticipated moral challenges related to coercion.



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				of action (Hem et al., 2015). ²⁹ Moral case deliberation, a form of clinical ethics support, was specifically adopted for the intervention (Molewijk et al., 2008) ³⁰	isolation, and coerced medication in particular will become a) less frequent and b) less intense; and 2) health practitioners will show higher moral attentiveness, estimate the intensity of coercion more accurately, exhibit a more negative attitude towards coercion, and disapprove coercion more often than before.	<ul style="list-style-type: none"> Health practitioners meet to reflect collaboratively and systematically on concrete clinical cases . Moral case deliberation took approximately 60 minutes and was structured by one of several conversation methods, chosen according to the purpose of the session. Methods could focus on the process (eg, self-reflection, teambuilding, skills training) or the product (eg, solutions, compromises, answers). Instead of giving normative recommendations, a trained facilitator focused on the quality of the deliberation process and the meaningfulness of the moral issues.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Taxis, 2002, United States, Pre-post	Study researchers	Comprehensive intervention	No	Intervention developed via discussion groups with nurses and a review of the literature with concerns including (1) lack of alternatives employed prior to restraining patients, (2) a culture that was resistant to change and (3) issues regarding safety when implementing restraint and seclusion. Audits of events of S/R to alternatives identified. Leadership sought to create a culture shift 'from control to collaboration' to reduce use of S/R. A comprehensive change program was recommended.	NR	<p>Education:</p> <ul style="list-style-type: none"> Staff education included lectures, skill-building interactive activities, and group discussions. Content included collaboration and de-escalation techniques, 1:1 discussions, diversional activities, ethical considerations, use of medication, and skills for improved documentation, among others. Patient education was designed to empower the patient in self-monitoring and self-care during upsetting event (eg, anger reduction strategies) <p>Persuasion:</p> <ul style="list-style-type: none"> Staff encouraged to develop individualized plans with patients. A large story board that had graphs and charts with this information was placed in a prominent location on the unit. <p>Training:</p> <ul style="list-style-type: none"> Treatment planning teams were trained and encouraged to develop individualized plans for all patients.

²⁹ Hem MH, Pedersen R, Norvoll R, Molewijk B. Evaluating clinical ethics support in mental healthcare: a systematic literature review. *Nurs Ethics*. 2015;22(4):452–66.

³⁰ Molewijk AC, Abma TA, Stolper M, Widdershoven G. Teaching ethics in the clinic The theory and practice of moral case deliberation. *J Med Ethics*. 2008 Feb;34(2):120-4.



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						<ul style="list-style-type: none"> • Nursing employees completed a training program that emphasized the ethical aspects of work-related boundaries, successful interaction styles to assist the patient in self-monitoring and utilization of adaptive problem-solving skills. • The assault program was developed to give structured individual attention to the patient and focus on the development of nonviolent coping skills. This program included detailed behavioral goals and required a collaborative and educational exchange between a staff member and the patient. <p>Environment:</p> <ul style="list-style-type: none"> • A larger paradigm shift from a culture of control to collaboration. The goal of these changes was to create an environment that fostered the treatment of all persons with respect, dignity, and mutuality. • A 23-item audit tool was developed that addressed the issues of justification of S/R, assessment, care during and after the procedure, and documentation. The nurse who released the patient from S/R was assigned the audit tool. • Quarterly reports were compiled that tracked incidents and trends by shift, unit, and patient which were distributed to unit nurses. • Environmental alterations included the Oasis Room, which was renovated with carpet, comfortable furniture, and reading material. The room was designed to provide patients with a quiet pleasant environment to practice calming techniques. • Events of S/R were evaluated by the nurse project manager to determine appropriateness of the event, attempts to use less restrictive alternatives prior to the incident, care during the incident, and care immediately after the incident. <p>Enablement:</p> <ul style="list-style-type: none"> • Creating behavioral goals required a collaborative and educational exchange between a staff member and the patient. • There was a consistent emphasis from the project manager and the management team that the staff maximize collaborative exchanges and de-emphasize control tactics.



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		Pre-intervention (practice as usual)	NA	NA	NA	NA
Whitecross, 2020, Australia, Pre-post	Study researchers	Psychiatric behavior of concern (Psy-BOC) team	No	After experiencing a substantial increase in aggression in 2016, the service sought to examine the causes and design a new response approach. The “Plan, Do, Study, Act” (PDSA) methodology was used to understand the need for, design, and refine a multidisciplinary team-based response (Taylor et al., 2014). ³¹	Implementation of Psy-BOC would reduce restrictive intervention (e.g., seclusions and security involvement) use and harmful behavior occurrence on the unit.	<p>Education:</p> <ul style="list-style-type: none"> Created and distributed "A Behaviors of Concern (Psy-BOC) Call Psychiatry" guideline to educate staff. <p>Environment:</p> <ul style="list-style-type: none"> A rostered multidisciplinary team was made available during business hours (triage psychiatry or registrar assistance provided after business hours support) with expertise in behavioral management to assist the treatment team in managing behavioral deterioration. Disciplines represented included medical, nursing, psychology, social work, occupational therapy, art and music therapy, and consumer and carer peer support. A Psy-BOC call signaled a need for support in responding to an escalating behavior of concern. The call was sent via SMS to the rostered Psy-BOC team members. <p>Modeling:</p> <ul style="list-style-type: none"> The Psy-BOC team modelled how to respond during de-escalation to build staff and patient capacity and contributed to behavior management planning.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
Zuehlke, 2016, United States, Pre-post	Long Beach VA	Recovery-oriented program of care	Yes	The VHA has embraced/endorsed the recovery-oriented care model with prior research showing efficacy of recovery interventions in quality-of-care improvements (U.S. Department of Veterans Affairs, Veterans Health Administration, 2013). ³²	Recovery-based models of care and the fostering of empowerment and hope may yield more positive patient outcomes.	<p>Training:</p> <ul style="list-style-type: none"> The staff recovery intervention education was an 8-week training designed to be brief, basic, and applicable to everyday nursing on an inpatient unit. Each 20-min session presented a new recovery-oriented skill and included role playing. <p>Environment:</p> <ul style="list-style-type: none"> Interdisciplinary recovery team meetings occurred weekly and included inpatient leadership, peer

³¹ Taylor MJ, McNicholas C, Nicolay C, et al. Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Qual Saf* 2014; 23: 290–298.

³² U.S. Department of Veterans Affairs, Veterans Health Administration. (2013). Handbook 1160.06. *Inpatient Mental Health Services Handbook*. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID2937



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						<p>specialists, and a rotating group of frontline nursing staff. These meetings allowed for the discussion of recovery-based improvements on the unit.</p> <ul style="list-style-type: none"> • Patients gave input to programmatic changes during weekly community meetings. • Recovery-oriented group programming (psychoeducational, recreational, peer-support, and process therapy groups) were increased during the weekdays and added to the weekends. • A certified peer specialist was added to the inpatient unit as an integrated team member who met with patients individually for recovery goal development, assisted patients with accessing resources, and led support group. <p>Enablement:</p> <ul style="list-style-type: none"> • Treatment planning process was modified to include more direct patient participation. Patients were provided a worksheet about goals, objectives, strengths, and preferences, which was incorporated into the treatment plan.
		Pre-intervention (practice as usual)	NA	NA	NA	NA
APNA statement, 2018 ^a	American Psychiatric Nurses Association (APNA)	Position Statement on S/R	No	NR	NA	<p>Education:</p> <ul style="list-style-type: none"> • Opportunities for professional growth and learning to develop a treatment approach that promotes individual safety, as well as autonomy and a sense of personal control <p>Persuasion:</p> <ul style="list-style-type: none"> • Oversight of S/R as part of an organization’s performance improvement effort with data open for inspection by internal and external regulators • Advocate for policies at federal, state, and organizational levels that will protect individuals from needless trauma associated with S/R. • Argue that individuals have the right to be treated with respect and dignity and in a safe, humane, culturally sensitive and developmentally appropriate manner that respects individual choice and maximizes self-determination. <p>Training:</p> <ul style="list-style-type: none"> • Opportunities for professional growth and learning to develop a treatment approach that promotes

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Ashcraft, 2012 ^a	Recovery Innovations Inc.	No force first (NFF) policy	No	Leadership moved towards a recovery-oriented model following "dismal outcomes produced by the traditional approach to service delivery"	NA	<p>individual safety, as well as autonomy and a sense of personal control.</p> <ul style="list-style-type: none"> • Healthcare organizations must make commitments to assure that staff are adequately trained and currently competent to perform treatment processes, milieu management, de-escalation techniques and S/R. <p>Restriction:</p> <ul style="list-style-type: none"> • S/R must never be used for staff convenience or to punish or coerce individuals. • S/R must be used for the minimal amount of time necessary and only to ensure the physical safety of the individual or others, and when less restrictive measures have proven ineffective. <p>Environment:</p> <ul style="list-style-type: none"> • Create a work culture that supports minimal S/R use and that will enable the vision of elimination to be realized. • Support evidence-based practice through research on the variables associated with the prevention and management of behavioral emergencies. • Effective administrative and clinical structures and processes must be in place to prevent behavioral emergencies and to support the implementation of alternatives. <hr/> <p>Education:</p> <ul style="list-style-type: none"> • Design and implement self-directed education to reduce reliance on "compliance oriented" services such as medication monitoring. <p>Persuasion:</p> <ul style="list-style-type: none"> • Changing the mission statement from one that focused on stabilization to one that embodied a commitment to recovery. • NFF is stressed during new employee selection and orientation. • NFF policy defined the use of force and coercion as a treatment failure. • Critical incidents were tracked and reported with feedback provided to staff and stakeholders. • The leadership team held open forums for staff members to express their fears associated with elimination of S/R Leadership replaced fears with the recovery values of hope, choice, and empowerment.



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Clement, 2021 ^a	Clement J. Zablocki VA Medical Center	Least restrictive means, documentation & staff training	Yes	To produce a policy that maintains the Medical Center's alignment with The Joint Commission's standards related to the use of S/R	NA	<ul style="list-style-type: none"> • Weekly e-mails presented stories and videos of the downside of using force. <p>Training:</p> <ul style="list-style-type: none"> • Staff training in effective de-escalation techniques and the NFF process. • Support the training of law enforcement personnel, families, and guardians in the NFF process. • Staff are trained that the only restrictive intervention allowed in the facility is emergency forced psychotropic medication. • Debriefing reports are reviewed with quality management personnel as part of the ongoing training. <p>Restriction:</p> <ul style="list-style-type: none"> • President and chief executive officer mandated that S/R practices would no longer be used and that the NFF policy would be implemented companywide. • Force of any kind is used only as a last resort, even when people may appear to be a danger to themselves or others. • Use involuntary inpatient treatment only for individuals who present a clear danger to self or others and only after choice-based voluntary alternatives were attempted. <p>Environment:</p> <ul style="list-style-type: none"> • Characterize staff-patient relationships as "risk-sharing" partnerships instead of "risk management" control • Development of a recovery culture that stresses the importance of helping to develop meaning, purpose, and spirituality in people's lives • Over 50% of staff members are peer support specialists, who understand the trauma caused by S/R. <p>Education:</p> <ul style="list-style-type: none"> • Education provided on least restrictive interventions that should be considered before initiating restraints (eg, decreasing stimulation). • Patient and family are educated on behaviors that require the use of S/R and least restrictive alternatives. • Criteria for discontinuing restraints is communicated to the patient.



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						<p>Persuasion:</p> <ul style="list-style-type: none"> Staff are expected to be active participants in care planning and to engage in skillful communication with team members to ensure S/R minimization. Providers should recognize individual manifestations of fatigue, anxiety, and increasing stress, and intervene as soon as possible. Staff should deploy active listening, reality orientation, or affirm disorientation based on the situation and provide family or visitor support. <p>Training:</p> <ul style="list-style-type: none"> Individuals ordering S/R must have previously completed requirements for education on S/R policy. Staff caring for patients in S/R must demonstrate competency on (1) Strategies to identify staff and patient behaviors, events, and environmental factors that may trigger the use of S/R (2) De-escalation techniques (3) Safe use of restraints (4) Application of hospital approved types of restraints (5) Safe use of seclusion. Staff who perform and document patient assessments when S/R are used must demonstrate competency in (1) Assessments needed to identify risks for patients and staff related to S/R (2) Identification of alternatives to S/R, requirements for continued monitoring, and assessment and reassessment needs of patients (3) Skills to manage emergency responses related to S/R. <p>Restriction:</p> <ul style="list-style-type: none"> S/R use is limited to clinically justified situations or when warranted by patient behavior that threatens the physical safety of the patient, staff, or others. S/R may not be used for coercion, discipline, convenience, or retaliation and may not be based solely on a patient's history of dangerous behavior. Alternatives should be used or considered prior to S/R. If S/R is employed, the least restrictive intervention is used to protect the patient, staff, or others. If S/R is initiated or discontinued by a nurse without an initial order, a licensed independent practitioner must be notified within 1 hour and an order must be



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Iwamasa, 2017 ^a	VHA Seclusion and Restraint Reduction Workgroup	Seclusion and Restraint Reduction Toolkit	Yes	In 2017, a Seclusion and Restraint Reduction Workgroup convened and used the National Association of State Mental Health Program Directors' Six Core Strategies Approach to Reduce the Use of Seclusion and Restraint (Huckshorn, 2004, ³³ 2006) ³⁴ as the framework for developing this toolkit. Also included existing VHA tools and resources that do not necessarily fit neatly	NA	<p>entered in the electronic health record within 6 hours.</p> <ul style="list-style-type: none"> • As needed, PRN orders, or trials of S/R are not acceptable. • Time limited orders must be entered in the electronic health record and are not to exceed 4 hours. <p>Environment:</p> <ul style="list-style-type: none"> • Decrease stimulation and promote a calm environment, via noise reduction strategies, evaluation of light levels, calming music or TV and aromatherapy. Provide opportunity for physical activity, distraction, or diversional activities • Promote comfort and evaluate need for adequate pain management. Ensure basic needs are met and sensory aids are in place • Medical Center Director and Associate Director for Patient Care Services are responsible for ensuring policy compliance. • Registered Nurses caring for patients are responsible for plus performing and/or supervising patient monitoring, application and removal of S/R and provision of nursing care. • Restraint and Seclusion committee are responsible for analyzing S/R data to identify opportunities for improvement, recommend action plans to improve S/R processes, and decrease S/R. <p>Education:</p> <ul style="list-style-type: none"> • Facility leaders complete a self-assessment of current S/R practices and a plan for making the zero S/R vision a practice reality by analyzing other successful organizations. • Staff education should include debriefing with each patient after each restraint episode. • Toolkit includes information brochure for patients/families, and a voluntary treatment agreement. <p>Persuasion:</p> <ul style="list-style-type: none"> • Facility plans contain clear expectations, outcomes, and timelines. Facility leadership requests

³³ Huckshorn KA (2004; Sept). Reducing the use of seclusion and restraint in mental health systems: A public health prevention approach with interventions. *Journal of Psychosocial Nursing and Mental Health Services*. (September Special Issue; Guest Editor), 42, 22–33.

³⁴ Huckshorn KA (2006) Re-designing State mental health policy to prevent the use of seclusion and restraint. *Administration and Policy in Mental Health*, 33, 482– 491.



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				into the 6 core strategy categories.		<p>feedback patients and families regarding the use of S/R.</p> <ul style="list-style-type: none"> • All strategies are directed at persuading clinicians to reduce S/R with the goal of providing recovery-oriented services. • Effective debriefing can help to foster the belief that the event was clinically driven event to assist the patient with regaining control vs punitive. • Self-control strategies should be incorporated within treatment plans using a collaborative approach between staff and Veterans. <p>Environment:</p> <ul style="list-style-type: none"> • Facility leadership ensures the unit environmental design provides opportunities for relaxation and promotes space for therapeutic staff and Veteran interactions. • Leadership to work towards developing a culture of safety. Facility executives should provide guidance, direction, participation, and ongoing review of processes within the facility as they relate to patient care, the facility’s mission, philosophy of care and guiding values that demonstrate congruence to obtaining a zero S/R environment. • Use of comfort rooms, meditation, relaxation, and sensory modulation • Toolkit includes a design guide which emphasizes home-like, non-institutional, and patient-centered environments that imbue healing, familiarity, and a sense of being valued. • Inpatient staff should collaborate with quality management to access data and run reports used to assess process improvement efforts. • Implement a regular data review workgroup meeting schedule and review and update existing S/R policies as needed. • Mental health environment of care checklist focuses on the removal of environmental hazards that could increase the risks of self-harm. <p>Enablement:</p> <ul style="list-style-type: none"> • Input from patients and their families is critical to understanding existing problems and developing approaches which align with mission of reducing S/R.



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VA Northern California HCS ^a	VA Northern California Health Care System: Mather Behavioral Health Inpatient Care Unit	"Code green" response	Yes	NR	NA	<p>Persuasion:</p> <ul style="list-style-type: none"> Any staff member concerned with a patient's potential for perpetrating a behavioral emergency should notify other staff. Clinical consultation may help to avert an escalation to a behavioral emergency. During a code green, the team leader creates a plan which involves verbal intervention (if anyone in the response group as a positive relationship with the patient they should be assigned responsibility for the verbal de-escalation) and show of support/force in which the patient is given the reason for the team response and offered a clear behavioral options. <p>Training:</p> <ul style="list-style-type: none"> All staff complete training on prevention and management of behavioral emergencies and disruptive behavior. The training course will include information on hospital policies, verbal intervention strategies and physical control techniques. <p>Restriction:</p> <ul style="list-style-type: none"> Code green is initiated only after appropriate clinical measures and de-escalation strategies have been ineffective. If the patient is unable to regain control a "therapeutic containment" is performed using appropriate techniques. Only non-offensive physical interventions are authorized in behavioral emergencies. To prevent injury to staff and the patient, physical restraint should not be attempted with fewer than 3 team members. <p>Environment:</p> <ul style="list-style-type: none"> Any VA employee observing a behavioral emergency may initiate a code green. If a professional staff member of a mental health program is present, they should assume this responsibility. The procedure is initiated by accessing the overhead paging system, then announcing "code green, (dayroom, group room, north corridor, etc)." Upon becoming aware of the code green, available staff, police, and other employees in the vicinity should converge on that location but "stand away" from the patient unless instructed otherwise. All nonessential personnel should be removed



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
Wale, 2011 ^a	New York City Health and Hospitals Corporation (HHC)	Seclusion and Restraint Reduction Initiative	No	In 2007, to continue the culture change from a medical model to a patient-centered rehabilitation and recovery-oriented service system, HHC launched the S/R Reduction Initiative. The goals of the initiative included further reductions in S/R use and continued culture change to make the psychiatric inpatient and emergency services more patient centered and trauma informed. Interdisciplinary change teams that would oversee the initiative at each facility were established. Teams included all disciplines, peer counselors, hospital security staff, and training and quality-improvement personnel.	NA	<p>(including patients and visitors) as well as all potentially injurious objects.</p> <ul style="list-style-type: none"> • Quiet Room is a safe area with enhanced monitoring to escort patients with escalating anxiety or aggression. • During a code green, the team leader creates a plan which involves task assignment and transfer of responsibility. (The team leader may request another team member take the lead if he/she feels the patient would respond better or if another staff member has more experience.) <p>Enablement:</p> <ul style="list-style-type: none"> • A debriefing should follow within 48 hours of the completion of any code green procedure. The purpose of the debriefing is to focus on needed areas of improvement in managing such incidents and to allow staff to ventilate feelings. <hr/> <p>Education:</p> <ul style="list-style-type: none"> • Guideline on the use of sensory modulation tools and techniques was distributed along with a sensory modulation staff training course. • HHC issued corporate guidelines to assist facilities with the revisions to facility-specific policies and procedures to bring them in line with changes in The Joint Commission and Centers for Medicaid and Medicare Services regulations. <p>Persuasion:</p> <ul style="list-style-type: none"> • HHC contracted with Office of Technical Assistance (OTA) faculty to provide consultation. At each site, the consultants met with the facility's behavioral health leadership team, quality-improvement staff, nursing leadership, and frontline staff to get a thorough picture of the facility's efforts to reduce the use of S/R. The consultants reviewed S/R documentation in a random sample of facility records. They then prepared summary reports of their findings, and their analysis of hospital strengths and priority areas recommended for improvement. <p>Incentivization:</p> <ul style="list-style-type: none"> • A competition was announced with a prize for the facility demonstrating the greatest improvement in a year. <p>Training:</p>



Author, Year, Country, Design	Producer	Label	VA Protocol	Methods to Produce Protocol	Hypothesis	Intervention Function Content
						<ul style="list-style-type: none"> • “Creating Violence Free and Coercion Free Mental Health Treatment Environments for the Reduction of Seclusion and Restraint” training from the OTA included 3 2-day training sessions. Participants were introduced to 6 core strategies that have been proven to reduce S/R use including concepts of primary and secondary prevention, leadership roles and responsibilities, key characteristics of trauma-informed care systems, using data to inform practice, environmental factors that can be modified to create a safer or calmer environment, rigorous post-event debriefing, and consumer and family roles in the inpatient setting. • Train-the-trainer models for crisis prevention and management were developed including sixteen highly interactive sessions to develop crisis de-escalation skills using a graded system of alternatives. • HHC hired sensory modulation experts to train staff. • Training modules for hospital police to clarify their role when asked to respond to a patient who is agitated or in crisis. <p>Restriction:</p> <ul style="list-style-type: none"> • A 2-hour maximum limit on an S/R order for adults <p>Other:</p> <ul style="list-style-type: none"> • HHC facilities were asked to submit S/R data to the corporate office before the project was officially announced so that a baseline could be analyzed. Since the kick-off, facilities have been submitting data on S/R use and patient and staff injuries with monthly data reviews. The data are also shared quarterly in a comprehensive data book with corporate and individual facility S/R trend charts.

Notes. ^a Protocol without evaluation study results.

Abbreviations. APNA=American Psychiatric Nurses Association; BPRS=Brief Psychiatric Rating Scale; BVC=Brøset Violence Checklist; CPM=crisis prevention management; CRMI=clinical risk management initiatives; DoD=Department of Defense; HHC=Health and Hospitals Corporation; JCAHO=Joint Commission on Accreditation of Healthcare Organizations; MAAP=Management of Acute Arousal Program; MASS=modified agitation severity scale; NFF=no force first; NYSPI=New York State Psychiatric Institute; OTA=Office of Technical Assistance; PDSA=plan, do, study, act; PRN=pro re nata; SM=sensory modulation; S/R=seclusion and restraint; VA=Veterans Affairs.



APPENDIX I: INTERVENTION RESOURCE NEEDS

Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
<i>Hospital/Unit Restructuring</i>									
Hochstrasser 2018 29331599	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hunter 1993 8444440	Housing program staffed by mental health workers; intensive unit staffed by nurses. Multidisciplinary team responsible for all day hospital and intensive care patients regardless of which unit they are located at any given time	NR	Group based recreation program with activities in a community setting intended to raise residents' level of functioning and promote their return to community living	NR	NR	Upon admission to acute day hospital patients are evaluated to determine intensive care unit or residential program placement	NR	NR	Patients transferred to different units maintained the same care team throughout their stay; Intensive inpatient unit restructured around group-based treatment
Rohe 2017 26820456	NR	NR	NR	NR	NR	NR	NR	NR	NR
Jenkins 2014 No PMID	NR	NR	NR	Ensuite facilities for bedrooms, greater privacy as each bedroom was a single, separate Section 136 facilities (areas to assess patients detained by the police), gender specific areas, visiting area,	NR	NR	NR	NR	NR

Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
				designated activities room and a seclusion area conforming to Department of Health guidelines.					
<i>Staff Education/Training</i>									
Bowers 2008 18844799	Two City nurses were appointed for the project who were clinical experts in acute inpatient care with long experience in practice development	NR	A structure of rules and routines for ward life was implemented	NR	NR	NR	NR	NR	NR
Forster 1999 10565060	Management of Assaultive Behavior team consisted of a multidisciplinary group who met biweekly; "charismatic leader" headed staff training program	NR	NR	NR	NR	NR	NR	NR	NR
Haefner 2021 32749904	Multidisciplinary team of registered nurses, psychiatric pharmacy technicians, psychiatric nurse practitioners, social workers, occupational therapists and activity therapists	NR	NR	NR	NR	NR	NR	NR	NR



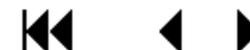
Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
<i>Sensory Modulation</i>									
Lloyd 2013 No PMID	NR	NR	NR	Psychiatric intensive care room converted into sensory modulation room	\$5,000 of sensory modulation equipment including bean bag chairs, musical instruments, therapy balls and aromatherapy	Screening form to determine which sensory modulation format would benefit the patient	NR	NR	NR
Cummings 2010 20349887	Multiple staff members including nursing staff, executive staff and managers, representatives from maintenance, engineering, staff development, and rehabilitation departments involved in brainstorming and setting up the comfort room over a 2 year period	NR	NR	Comfort room to promote a healthy, therapeutic, supportive, and safe environment; locked from the outside allowing patients to leave when they no longer felt distressed	Lighting with a dimmer switch, wallpaper, light blue wall paint, multisensory reclining chair, oak entertainment center with a television DVD/VCR and CD player, calming music, books, puzzles, weighted blankets, stress balls, and magazines.	After each instance of comfort room use, staff documented whether the episode was considered effective in reducing distress	NR	NR	NR
Azuela 2018 No PMID	NR	NR	NR	NR	NR	NR	NR	NR	NR
Novak 2012 23014117	NR	Sensory room created a homely environment including scenic pictures and comfortable furnishing	NR	An existing interview room was converted into a sensory room	Comfortable furnishings and a range of sensory modulation items including weighted blanket, music, magazines, books, rocking chair, scents, and fit ball	A sensory room assessment form was developed. Consumers rated their level of distress on a 10-point scale and clinicians rated 11 common behavioral disturbances before and after room use. Age diagnosis,	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
						duration of use, whether medication was used, what items were used in the room and whether seclusion was required was also documented			
Sivak 2012 22439145	Multidisciplinary team including financial office representative to approve costs, procurement office representative to assist with ordering, performance improvement department representative for data collection, a psychologist, activity department representative for comfort measures guidance, 2 direct-care RNs, 2 nursing supervisors, carpenter for comfort room construction, infection control nurse and safety manager	NR	NR	One room on each unit was converted into a comfort room; comfort rooms installed with drop ceilings for noise control and sky scene light panels to improve ambiance; chalkboard covered wall and mural wall voted on by clients placed in each comfort room	Recliner, rocking chair, foam chair, carpets, lap desk, television, and Blu-ray disc player in each comfort room	Comfort room use login sheet; comfort room agreement form signed by clients prior to each use; comfort room voluntary feedback form	NR	NR	NR
Smith 2013 24305908	NR	NR	NR	Sensory room was 5 meters by 2.5 meters with light blue painted walls, laminate flooring and	Large floor mounted bubble tube, an optic mat, a light/image emitting projector, 2 lying bean bags, 2	NR	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
				one window with a black out roller blind	sitting bean bags, a variety of cushions, an iPod dock/ iPod and drawers containing; magazines, stress relief toys, chewing gum and educational materials promoting relaxation and healthy living				
Zimmermann 2020 No PMID	Human service workers and nursing staff responsible for supervising the use of serenity room	NR	NR	Serenity room to provide a safe environment for patients to self-soothe and practice alternative coping strategies	Rocking chair, oversized bean bag, curtains, inspirational quotes and chalkboard wall, built in desk area, sound machine, kinetic sand, stretch balls and strings, fidget spinners, inspirational books, liquid filled non-toxic floor tiles, Himalayan salt lamp night light, and squeeze balls	NR	NR	NR	NR
<i>Risk Assessment</i>									
Abderhalden 2008 18700217	Group staff meetings to discuss preventive measures for a small subgroup of high-risk patients	NR	NR	NR	NR	Structured short-term risk assessment for every new patient during the first 3 days of hospitalization and twice daily thereafter	NR	Short-term risk assessment completed within 3 days of admission and twice daily during the rest of the inpatient stay	NR
van de Sande 2011 22016437	NR	NR	NR	NR	NR	The Crisis Monitor for early recognition of patterns associated with escalation and symptom severity change; Brøset	NR	5 minutes per patient to administer daily Crisis Monitor; 15 minutes per patient to	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
						Violence Checklist and the Kennedy–Axis V (short version) scale to identify risks of loss of control; Kennedy–Axis V (full version), Brief Psychiatric Rating Scale (BPRS), Dangerousness Scale, Social Dysfunction and Aggression Scale to evaluate mental state changes and current patient behavior		administer weekly assessment measures	
Blair 2017 26897657	NR	NR	NR	NR	NR	Medical Director and the Director of Nursing examined all S/R events to determine if a formal administrative review was needed (based on severity and outcome). Review included questions on staff knowledge of the patient, the specific de-escalation intervention(s) used and the communication about the patient's status prior to the event.	Physician review frequency increased to every 2 h from every 4 h for patients over the age of 18	NR	NR
Clarke 2010 20712684	Six full-time nursing staff charged with the responsibility of completing the Brøset Violence Checklists	NR	NR	NR	NR	Brøset Violence Checklist completed by general duty nursing staff for each patient assigned to him or her on each shift	NR	Brøset Violence Checklist completed during each nursing shift for the first 72 h of admission	NR
Harrington 2019 31206989	Patients categorized as medium risk were allocated a contact nurse responsible for	NR	NR	Secure high-care area for high-risk patient population	NR	Risk assessment completed on admission, when mental status changed, or at a minimum of once per	Ward rounds conducted 2–3x an hour and at strategic times such as	Risk assessments were completed on admission, at first psychiatrist consultant review,	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
	ensuring that regular engagements occurred; patients in the high-risk category managed in either a secure high-care area with a staff: patient ratio of 2:5 or in the open ward with 1:1 nursing.					week to categorize patients as 'low', 'medium', or 'high' risk; Medium and high risk patients had risk reviews regularly throughout the day while low risk patients had risk reviews 1x per shift; Patient Safety Plan captured possible early warning signs for change in risk, activities to decrease exacerbation of risk and management strategies	shift change and meal time; Medium risk patients required an initial comprehensive engagement by contact nurse and subsequent reviews occurred no less frequently than 1x an hour; patients requiring 4+ engagements an hour were reviewed for change in risk status to high-risk patients requiring only hourly engagements were considered for change to low-risk	and with change in mental status; Risk review conducted 1x per shift for low-risk patients; risk reviewed conducted regularly throughout the day for medium and high-risk patients	
Manning 2022 36006571	NR	NR	NR	NR	NR	Modified Agitation Severity Scale (MASS) to assess current severity of patient agitation	NR	One minute to score the Modified Agitation Severity Scale at time of admission and then twice daily per patient	NR
Trauer 2010 No PMID	Staff not involved in the MAAP event engaged in a patient debriefing; A Practice Development Nurse was appointed for	NR	NR	Time-out areas away from others were required for patients to voluntarily go when experiencing distress	NR	Nursing staff initially assessed patients displaying agitated or aggressive behavior using the Fremantle	Reassessments and variation in management occurred every 15 to 30 minutes	De-briefings occurred 24-48 hours after the MAAP event	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
	the six month implementation to provide training and ongoing support and monitoring; Senior clinicians would perform informal check-ins with shift leaders and staff about MAAP initiation					Arousal Scale ³⁵ ; All assessments and interventions were recorded on specially designed forms.			
<i>Comprehensive/Mixed</i>									
Bowers 2015 26166187	Large number of research staff operated across multiple sites; completion was dependent on the support of nursing staff to engage with the trial and undertake new and additional activities	NR	NR	NR	Crate of distraction and sensory modulation tools including stress toys, mp3 players with soothing music, light displays, textured blankets, etc	NR	NR	NR	NR
Välimäki 2022 36040740	NR	NR	NR	NR	NR	NR	Physician review frequency increased to every 2 h from every 4 h for patients over the age of 18	NR	NR
Boumans 2014 23890418	Active involvement of staff for program preparation	NR	NR	NR	NR	Decisions documented in a care plan and goals regularly evaluated by a coordinating nurse	NR	NR	NR

³⁵ Castle DJ, and Alderton D. (2003) Management of acute arousal in psychosis. In: Castle DJ, Copolov DL, Wykes T. (eds). Pharmacological and Psychosocial Treatment in Schizophrenia. London: Martin Dunitz, pp. 89102.



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
Noorthoorn 2014 No PMID	NR	NR	NR	NR	NR	During a first admission, information was gathered to compile specified signaling plans (<i>ie</i> , plans aimed at early detection of behavior preceding aggression)	NR	NR	NR
Blair 2015 25751828	Managers offer themselves as resources to staff; staff expected to take initiative in creating early self-management plans; 1 staff member may remain with a more challenging patient, engaging with him or her on a consistent basis until he or she begins to stabilize; management team performed a root cause analysis on all incidents of S/R; increased staff presence on ward.	Staff eat family-style meals with patients; An increased staff presence in the milieu can take the form of sitting and chatting with patients over a cup of coffee, playing a game of cards with patients, or reading a newspaper or magazine in the day area during a downtime.	2x daily community meetings reinforce community structure, provides stability, emphasizes safety, invites openness, enhances cohesiveness and enables patients to be heard; A special community meeting can be held, to address problems or debrief an incident; Special groups focused on active practice of relaxation or distraction techniques .	Two small side rooms are used as patient viewing areas, so that the main day area promotes conversation and personal interactions; Rooms may be made available where patients can go for a quieter atmosphere.	Music/headphones, authorized use of computers, supervised use of guitar or karaoke equipment	Admission screening tools provide information about individual patient trauma history, triggers, history of assault or aggression, and strategies the patient finds helpful for self-calming.	NR	NR	NR
Dickens 2020 32691495	NR	NR	NR	NR	Sensory boxes funded from project resources, sourced and constructed by the project officer	NR	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
Hellerstein 2007 17890979	Two staff members available to escort an individual patient off-unit to assist in de-escalation; Staff assigned to escort small groups to the hospital's enclosed garden	NR	NR	NR	NR	The Coping Agreement Questionnaire to determine what upset or agitated patients, how they responded when upset and how they preferred to be treated while on the unit; family were asked for input on effective coping methods	The time that a patient could remain in restraint or seclusion before an additional physician order was required decreased from 4 h to 2 h.	NR	NR
Khadivi 2004 15534024	NR explicitly; assumed additional staff time required for a) post episode debriefing of the staff and the patient; b) review of each episode by the senior nurse and a physician; and c) continuous nursing monitoring to minimize the duration of episodes of seclusion and restraint	NR	NR	NR	NR	NR explicitly; assumed additional documentation associated with a) new history of inpatient violence to admission form; b) continuous nursing monitoring c) post episode debriefing of the staff and the patient; d) review of each episode by the senior nurse and a physician	NR explicitly; assumed additional time associated with continuous nursing monitoring	NR explicitly; assumed additional time for documentation associated with a) new history of inpatient violence to admission form; b) continuous nursing monitoring c) post episode debriefing of the staff and the patient; d) review of each episode by the senior nurse and a physician	NR
Lewis 2009 19291492	An "on call witness" and "on call clinician" facilitated the multistep debriefing process	A Family Style Meals program permitted patients and staff to sit and eat together; patient and staff art gallery; framed pictures of staff's pets on the unit	NR	Patient moved to their room, activity room or empty alcove for use of Comfort Cart	Comfort cart included stress balls, CD players with headphones, aromatherapy, art supplies, musical instruments, karaoke, games, and journal writing supplies.	The Phipps Aggression Screening Tool for identification of patients at risk for violent behavior; The Personal Safety Plan to identify interventions to prevent violence; The Patient Support Sheet to inform the observer of patients under observation on target	NR	Stage 1 of witnessing program for S/R debriefing occurred immediately after S/R episode, Stage 2 occurred within 24 hours of event.	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
McDonagh 2019 No PMID	Hired 6 Therapeutic Assistants/ Peer support specialists to put on 4-6 hours of programming a day; involved representatives from other service lines to run group programming including police, human resources, chaplain, nutrition, and voluntary services.	NR	4-6 hours of programming per day included: Recovery groups (anger, relaxation, etc); SUD/PTSD/ Depression groups; Illness Management and Recovery Training; Social Skills Training; Recreation Therapy; Nutrition group; Safety outside the hospital; Occupational/ CV building; Oral Hygiene; Non-secular groups; Various entertainment activities; VA Benefits; Discharge planning; Individual/family meetings	NR	NR	symptoms, effective interventions, and reportable events; Witnessing program for S/R debriefing which included immediate post event debriefing to gather data on triggers and contributing factors, interventions, and barriers to success. Second stage of program involved a chart review, patient interview and case conference with nursing staff for root cause analysis.	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
Pollard 2007 17102932	NR	NR	NR	NR	NR	NR	NR	NR	NR
Richmond 1996 8936879	NR	NR	NR	NR	NR	Data collection form to identify which least restrictive alternative(s) were used and the outcome at the time of intervention with a disruptive patient	NR	NR	NR
Stoll 2022 35650555	NR	NR	NR	NR	NR	NR	NR	NR	NR
Taxis 2002 11901660	Core training content delivered by charge nurse to the non-licensed staff in the form of staff meetings and 1:1 sessions; Professional nurse became the coach for non-licensed personnel	NR	Specific programmatic changes made to address the needs of patients with Axis 2 diagnoses with a tendency to engage in self-harming incidents, manipulative, and attention-seeking behaviors	NR	NR	Each event of restraint or seclusion was evaluated by the nurse project manager to determine: (1) appropriateness of the restraint or seclusion, (2) any attempt to use an appropriate, less restrictive alternative prior, (3) care during the incident, and (4) care immediately after the incident; Quarterly report compiled to track incidents and trends by shift, unit, and patient; 23-item audit tool was created that addressed justification of the use of seclusion or restraint, assessment, care during the procedure, care immediately after the procedure and documentation.	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
Whitecross 2020 32391731	A multidisciplinary team available on call to manage behavioral deterioration (medical, nursing, psychology, social work, occupational therapy, art and music therapy, and consumer and carer peer support professionals)	NR	NR	NR	NR	NR	NR	NR	NR
Zuehlke 2016 27845534	27 interdisciplinary team members consisting of psychiatry, nursing, psychology, social work, peer support, and occupational/recreational therapy; certified peer specialist added to the inpatient unit to meet with patients individually for recovery goal development, resource access and support group facilitation.	NR	Group programming included psychoeducational, recreational, peer-support, and process therapy groups which were increased during the weekdays and added during weekends.	NR	NR	Patients provided a worksheet on goals, objectives, strengths, and preferences which was incorporated into the treatment plan.	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
APNA Statement, 2018 ^a	Healthcare organizations and their nursing leadership groups must make commitments of adequate professional staffing levels, staff time and resources to assure that staff are adequately trained and currently competent to perform treatment processes, milieu management, de-escalation techniques and seclusion or restraint.	NR	NR	NR	NR	Oversight of seclusion and restraint must be part of an organization's performance improvement effort and these data must be open for inspection by regulatory agencies. Reporting requirements must be based on a common definition of seclusion and restraint and include specific data requirements.	NR	NR	NR
Ashcraft 2012 ^a	Over 50% of RI staff members are peer support specialists, who through their own experience understand the trauma caused by the use of force and coercion.	Establishment of a noninstitutional environment. In the crisis centers, patients have their own key and home-cooked food; liberal property management processes are employed. Individuals keep their own phones,	Morning recovery activity designed to create an atmosphere of community by having people share and connect with one another through acceptance rituals. Design and implement, with service recipient input, self-directed programming,	NR	Computer stations provide access to e-mail.	Development of "electronic recovery record" for patients and staff to create electronic recovery and personal wellness plans and jointly document progress in an electronic "wellness journal."	NR	NR	In outpatient services, case management has been enhanced or replaced by peer recovery coaching.



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
		and families and friends are welcome to visit.	including education and self-advocacy to reduce reliance on “compliance oriented” services.						
Clement, 2021 ^a	Physicians, resident physicians, clinical psychologists, registered nurses and advanced practice registered nurses are required to actively participate in plans of care and multidisciplinary teams. The Restraint and Seclusion committee was created to review S/R data for usage and trends.	NR	Provide opportunity for physical activity, distraction, or diversional activities	NR	Play calming music or TV CARE Channel, provide aromatherapy	All orders for restraints and seclusion are entered in the electronic health record using approved hospital order sets. Documentation of restraint and seclusion included a description of circumstances leading to S/R, attempted alternatives with patient's response, revisions to the plan of care, patient injuries and death related to restraint use.	Assessment and reassessment of the patient regarding the need for restraint or seclusion was required with nurses conferring with providers for continued S/R use before the order expires. For behavioral cases, assessment of physical/psychological status occurred once every 4 hours and every 30 minutes for violent cases.	If an RN initiates/discontinues a seclusion or restraint episode, a licensed independent practitioner must be notified as soon as possible but no later than 1 hour afterward, and an order must be entered in the electronic health record within 6 hours.	NR
Iwamasa, 2017 ^a	Facilities identify a peer support specialist as a seclusion/restraint reduction	Home-like non-institutional, and patient-centered environments	Provide patients with meaningful activities through interdisciplinary	Comfort rooms for meditation, music relaxation and	Equipment for sensory modulation and comfort rooms.	Data relating to S/R episodes must be inputted into the electronic health record. Toolkit provides de-briefing	NR	Debriefing must take place within 24-48 hours after the actual event.	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
	<p>champion for every unit. Facility leadership ensures adequate inpatient mental health staffing. Inpatient staff should collaborate with quality management staff to access data and run reports used to assess process improvement efforts. Facilities should establish an interdisciplinary data review workgroup.</p>	<p>that imbue healing, familiarity, and a sense of being valued. Environmental design provides opportunities for Veteran relaxation and promotes space for therapeutic staff and Veteran interactions.</p>	<p>collaborations including daily treatment planning, motivating patients to educational, therapeutic, and recreational activities. Incorporation of sensory modulation.</p>	<p>sensory modulation.</p>		<p>form that can be adopted by staff. Development of a national standardized restraint note. Facilities should consider use of standardized note titles as a process for collecting data while national templates are being developed.</p>			
VA Northern California HCS ^a	<p>Charge RN and/or an attending psychiatrist act as clinical consultants when staff are concerned about a patient's behavior or potential for a behavioral emergency. The Code Green team leader has the most knowledge of the</p>	NR	NR	<p>Use of a quiet room, which is a safe area for enhanced monitoring of patients with escalating anxiety or aggression.</p>	NR	<p>A "Code Green Response Report" is completed in the electronic health record within 48 hours of the incident. The template includes all pertinent information related to the behavioral emergency response.</p>	NR	NR	NR



Author, Year, PMID	Staffing Needs and Mix	Environment	Programming	Space Requirements	Equipment Needs	Documentation Needs	Time to Perform Checks on Patients	Time to Perform Documentation	Changes in Service Provision
	patient/situation and/or has the most training. If a therapeutic containment is to occur, at least 3 team members are required.								
Wale 2011 ^a	New job title of Behavioral Health Associate who receives extensive crisis prevention and de-escalation training and performs some duties that had been assumed by hospital police.	NR	NR	NR	Purchase of sensory modulation equipment for each inpatient psychiatric unit which included rockers, weighted blankets and vests, and a rolling cabinet in which to store them.	Psychiatric emergency assessment form to be used in all the Psychiatric Emergency Services. This includes a trauma assessment, patient preferences regarding effective calming measures, triggers for agitation, and preferences regarding S/R use. Monthly data submissions to the corporate office are required.	NR	NR	NR

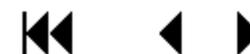
Notes. ^a Protocol without evaluation study results.



APPENDIX J. RESULTS

Results Summary: Seclusion

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
<i>Hospital/Unit Restructuring</i>				
Hochstrasser, 2018, Switzerland, Pre-post	Open-door policy with recovery-oriented care 14,435 patients (may include some admissions before policy which was implemented in Aug 2011) 2,803 patients in 2015	Pre-intervention (practice as usual) 2,924 patients in 2010	Seclusion OR (95% CI) open door policy: 0.88 (0.83 to 0.92) Cases with at least 1 seclusion Last year of post intervention follow-up (2015): 3.5% (97/2803) Baseline year (2010): 8.2% (239/2924) Mean (SD) number of seclusion Last year of post intervention follow-up (2015): 2.9 (3.4) Baseline year (2010): 5.1 (8.7)	Mean (SD) hours of seclusion Last year of post intervention follow up (2015): 18.2 (6.5) Baseline year (2010): 27.1 (16.4) One-way ANOVA p <0.001
Hunter, 1993, United States, Pre-post	After hospital restructuring 78 patients	Before hospital restructuring 66 patients	No. seclusion events post (10 months) vs pre (10 months) Post period no. events: 32 Pre period no. events: 31 Difference: p = NS	Hours of seclusion episode Post period mean (SD): 2.3 (2.8) Pre period mean (SD): 5.0 (8.4) Difference: p = 0.02
Jenkins, 2014, United Kingdom, Pre-post	Purpose built psychiatric intensive care unit 18 patients	Old unit 18 patients	No. seclusion incidents post (3-6 months) vs pre (3-6 months) Post period no. events: 3 Pre period no. events: 14 Difference: p = 0.001	Total duration seclusion (minutes) Post period: 531 Pre period: 2117 Difference: p = 0.001 Mean (SD) duration of seclusion (minutes) Post period: 190 (122) Pre period: 153 (98) Difference: p = 0.288
Rohe, 2017, Germany, Pre-post	Architecturally positive redesign	Pre-intervention (practice as usual)	NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
<i>Staff Education/Training</i>				
Bowers, 2008, United Kingdom, Concurrent and pre-post	City Nurse Intervention - Escalation Training 3 wards	Pre-intervention (practice as usual) and concurrent control (practice as usual) 5 wards	Seclusion per shift (pre-post analysis only) Post period mean (SD): 0.007 (0.098) Pre period mean (SD): 0.016 (0.125) Difference (among only intervention ward): p = 0.019	
Forster, 1999, United States, Pre-post	Staff training	Pre-intervention (practice as usual)	NR	NR
Haefner, 2021, United States, Pre-post	De-escalation training (TeamSTEPPS)	Pre-intervention (practice as usual)	Seclusion events post (2 months) vs pre (2 months) Post period no. events and rate: 15 (4.4%) Pre period no. events and rate: 23 (5.9%) Difference: p = 0.349	
<i>Sensory Modulation</i>				
Lloyd, 2013, Australia, Concurrent	Sensory modulation room NR	Concurrent control (practice as usual) NR	Seclusion episodes pre (6 months) and post (6 months) <u>Intervention ward</u> No. events (post): 53 No. events (pre): 157 <u>Comparator ward</u> No. events (post): 81 No. events (pre): 46 Significant decrease in rate of seclusion for intervention vs comparison ward (p <0.001)	Duration of seclusion "No evidence that the duration of seclusion episodes changed."
Cummings, 2010, United States, Concurrent	Comfort room	Concurrent control (practice as usual) Pre-intervention (practice as usual)	NR	NR
Azuela, 2018, New Zealand, Pre-post	Sensory modulation room N NR	Pre-intervention (practice as usual) N NR	Seclusion episodes post (1 year) vs pre (1 year)	Seclusion duration post (1 year) vs pre (1 year) Unit A Median (SD) hours (post): 68.75 (77.512)



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
			<p><i>Comfort room was implemented in both Unit A and B; results were analyzed separately as pre-post</i></p> <p>Unit A total events (post): 81 Unit A total events (pre): 91 Unit A Median (SD) (post): 6.5 (3.4) Unit A Median (SD) (pre): 8.5 (3.9) p>0.05</p> <p>Unit B total events (post): 115 Unit B total events (pre): 162 Unit B Median (post): 7.5 (6.2) Unit B Median (pre): 14.5 (3.6) p = 0.04</p>	<p>Unit A Median (SD) hours (pre): 126.80 (133.97) p>0.05</p> <p>Unit B Median (SD) hours (post): 145.30 (196.8) Unit B Median (SD) hours baseline (pre): 360.30 (220.12) p = 0.02</p>
Novak, 2012, Australia, Pre-post	Sensory room 75 patients ³⁶	Pre-intervention (practice as usual) 75 patients	<p>Seclusion episodes post (12 months) and pre (12 months)</p> <p>Post period mean (SD): 18.2 (7.7) Pre period mean (SD): 17.2 (6.0) Difference: p = NS</p>	NR
Sivak, 2012, United States, Pre-post	Comfort room NR	Pre-intervention (practice as usual) NR	<p>Seclusion episodes post (4 months) vs pre (4 months)</p> <p>Pre intervention mean rate of seclusion/1000 days of client care before intervention (July through Oct 2010): 0</p> <p>“Since the initiation of the comfort rooms, there has been no use of seclusion or restraint”</p>	
Smith, 2013, United Kingdom, Pre-post	Sensory room NR	Pre-intervention (practice as usual) NR	<p>No. seclusion events post (3 months) vs pre (3 months)</p> <p>Post period no. events: 37 (25 were repeat events by 6 patients) Pre period no. events: 27 (12 were repeat events by 4 patients) Difference: NS; Authors notes "If the repeater seclusion were extracted as</p>	<p>Seclusion duration post (3 months) vs pre (3 months)</p> <p>Post range: 45 minutes to 16 hours 30 minutes Pre range: 40 minutes to 3 days Difference: NR</p>

³⁶ Independent sample size is unclear. Study reports sample to experience seclusion events, which may have included the same individual multiple times.



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
			anomalies, the rates of seclusion would be seen to have been reduced."	<p>Mean (SD) duration of seclusion (minutes) post (3 months) vs pre (3 months)</p> <p>Post period: 3 hours 59 minutes (3 hours 40 minutes)</p> <p>Pre period: 7 hours 30 minutes (17 hours 25 minutes)</p> <p>Difference: NR</p> <p>"This may look as if the mean duration of time in seclusion decreased considerably after the sensory room had been introduced. However these results are skewed by some extreme values of very long seclusion time periods, with two long seclusion episodes in [the pre period] of 2 days, 6 hours and 3 days, and in [the post period], there was one seclusion episode of 16 hours 30 minutes. With these three outliers removed from the data set, the mean duration in [the pre period] (n = 25) was 2 hours 46 minutes (SD = 2 hours 50 minutes) and in [the post period] (n = 36) it was 3 hours 37 minutes (SD = 3 hours 7 minutes). Therefore the average length of time in seclusion had actually increased, not decreased following the introduction of the sensory room."</p>
Zimmermann, 2020, United States, Pre-post	Serenity room	Pre-intervention (practice as usual)	NR	NR
<i>Risk Assessment</i>				
Abderhalden, 2008, Switzerland, RCT	Structured risk assessment (BVC)	Control (practice as usual)	NR	NR
van de Sande, 2011, Netherlands, RCT	Structured risk assessment (BVC)	Control (practice as usual)	<p>Seclusion incidents</p> <p>30-week intervention RR (95% CI): 1.01 (0.74 to 1.88)</p> <p>10-week baseline RR (95% CI): 1.19 (0.76 to 1.88)</p>	<p>Hours in seclusion</p> <p>30-week intervention RR (95% CI): 0.62 (0.58 to 0.88)</p> <p>10-week baseline RR (95% CI): 1.12 (1.01 to 1.19)</p> <p>% change in risk ratio in baseline to intervention period: -45% (p <0.05)</p>

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
			% change in baseline risk ratio to intervention period risk ratio: -15% (p = NS)	
			No. secluded patients 30 week intervention RR (95% CI): 1.71 (1.12 to 2.67) 10 week baseline RR (95% CI): 1.42 (0.83 to 2.48) % change in risk ratio of no. of patients exposed to seclusion to risk ratio in intervention period: 8% (p = NS)	
Blair, 2017, United States, Pre-pos	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	Seclusion episodes post (12 months) vs pre (12 months) Proportion of patients secluded (post): 4.4% (213/8,029 admission) Proportion of patients secluded (pre): 9.2% (358/3884 admission). Difference (12 months post intervention): -52% (p <0.001)	Duration of seclusion per admission post (12 months) vs pre (12 months) Difference (12 months post intervention): -27% (p = NR) Duration of seclusion per admission in 12 months before intervention: NR Minutes in seclusion post (12 months) vs pre (12 months) Mean (SD) (post): 516.2 Mean (SD) (pre): 337.7 (NR) Difference: p <0.01
	8,029 admissions	3,884 admissions		
Clarke, 2010, Canada, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	Episodes of seclusion 2 months after intervention: 22 episodes/month 3 months intervention phase: 12 episodes/month 2 months before intervention: 30 episodes/month p = NR	
	N NR	N NR		
Harrington, 2019, Australia, Pre-post	Risk assessment (Clinical Risk Management Initiative)	Pre-intervention (practice as usual)	Seclusion per 1,000 occupied bed days post (18 months) vs pre (24 months) Difference in rates (95% CI): -12.8 (-17.2 to -8.43)	



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
	965 admissions post-implementation	1,090 admissions in pre period	Pre-Intervention rate (95% CI): 43.7 40.6 to 46.9) RR (95% CI): 0.71 (0.63 to 0.80; p < 0.001)	
Manning, 2022, United States, Pre-post	Risk assessment (modified Agitation Severity Scale) 389 patients	Pre-intervention (practice as usual) 353 patients	Seclusion incidents post (18 months) vs pre (18 months) Post: 28 Pre: 22 Difference: p = NS	Mean (SD) minutes in seclusion post (18 months) vs pre (18 months) Post: 137 (97) Pre: 132 (141) Difference: p = NS
Trauer, 2010, Australia, Pre-post	The Management of Acute Arousal Program 188 admissions	Pre-intervention (practice as usual) 164 admission	No. seclusion events post (6 months) vs pre (6 months) Post period no. events: 67 Pre period no. events: 64 Difference: 0.51	Mean (median) duration of seclusion (minutes) post (6 months) vs pre (6 months) Post period: 312 (235) Pre period: 299 (230) Difference: 0.19
<i>Comprehensive/Mixed</i>				
Bowers, 2015, United Kingdom, RCT	Safewards	Control wards (physical health program)	NR	NR
Välimäki, 2022, Finland, RCT	Intervention wards 8 wards, 13 units, 335 nurses, 238 hospital beds, 4,163 patients	Control wards (practice as usual) 7 wards, 15 units, 313 nurses, 235 hospital beds, 4,186 patients	No. seclusion events at ward level/total patients intervention vs control Baseline n (proportion) intervention: 629/4163 (15.1) Baseline n (proportion) control: 580/4186 (13.9) RR (95% CI) after intervention 0.72 (0.32 to 1.63; p = 0.42) p-value for group * time: 0.003 No. secluded patients at ward level/total patients intervention vs control Baseline n (proportion) intervention: 342/4163 (8.2) Baseline n (proportion) control: 354/4186 (8.5)	Length per seclusion event on ward level, geometric mean, min intervention vs control Log-transformed mean difference (95% CI) 0.16 (-0.39 to 0.71; p = 0.56) Baseline geometric mean intervention: 1,378 Baseline geometric mean control: 1,614 p-value for group*time: 0.21



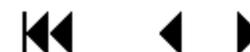
Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
			RR after intervention (95% CI) 0.76 (0.40 to 1.46; p = 0.41) P-value for group * time: 0.37	
Boumans, 2014, Netherlands, Concurrent	Methodological work approach 134 patients	Control (practice as usual) 544 patients	Seclusion episodes per 1,000 patient days <u>Change over time in incident of seclusion comparison ward time series</u> Coefficient (SE): -0.22 (0.36, p = NS) <u>Difference experimental vs comparison ward</u> Coefficient (SE): -0.55 (0.20, p <0.01)	Hours in seclusion per 1,000 patient days <u>Change over time in incident of seclusion comparison ward time series</u> Coefficient (SE): 0.84 (28.85, p = NS) <u>Difference experimental vs comparison ward</u> Coefficient (SE): -63.46 (17.25, p <0.01)
Noorthoorn, 2014, Netherlands, Concurrent control	Intervention 45-bed ward; 768 patients (1,392 admissions)	Control (practice as usual) 38-bed ward; 702 patients (1,138 admissions)	Seclusion episodes <u>Intervention Ward</u> No. episode over study period: 39 episodes (30 patients) Seclusion per 1,000 admissions (1st year): 6.7 Seclusion per 1,000 admissions (2nd year): 4.6 Seclusion per 1,000 admissions (3rd half year): 0.7 <u>Comparison Ward</u> No. episode over study period: 130 episodes (79 patients) Seclusion per 1,000 admissions (1st year): 14.7 Seclusion per 1,000 admissions (2nd year): 21.4 Seclusion per 1,000 admissions (3rd half year): 26.1 Seclusion occurred more in comparison wards: p = 0.001 Hazard ratio for being secluded (comparison ward vs intervention)	Seclusion days <u>Intervention Ward</u> Seclusion days per 1,000 patient days (2003): 8 days Number of seclusion days per 1,000 patient days (2004): 3 days <u>Comparison Ward</u> Number of seclusion days per 1,000 patient days (2003): 17 days Number of seclusion days per 1,000 patient days (2004): 19 days "Duration of seclusions did not differ between wards"



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
			ward): year 1: 2.8 (p = NR), year 2: 5.6 (p = NR)	
Blair, 2015, United States, Pre-post	Engagement model NR	Pre-intervention (practice as usual) NR	Annual no. seclusion events post (2002-2013) vs pre (2000) Post no events (2001-2013): 2013: 13 2012: 30 2011: 7 2010: 3 2009: 19 2008: 2 2007: 0 2006: 0 2005: 0 2004: 1 2003: 3 2002: 10 2001: 53 Pre no events (2000): 101 Difference: NR	NR
Dickens, 2020, Australia, Pre-post	Safewards	Pre-intervention (practice as usual)	NR	NR
Hellerstein, 2007, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	No. patients secluded month post (67 months) vs pre (20 months) Pre period mean (SD): 3.1 (1.4) Post period mean (SD): 1.0 (1.1) P-value for difference: <0.0001	Total hours patients secluded month Pre period mean (SD): 41.6 (52) Post period mean (SD): 2.7 (4.5) P-value for difference: 0.003 % of total patients hours in seclusion Pre period mean (SD): 0.11 (0.14) Post period mean (SD): 0.007 (0.01) P-value for difference: 0.03
Khadivi, 2004, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Lewis, 2009, United States, Pre-post	Crisis Prevention Management program	Pre-intervention (practice as usual)	Episodes of seclusion	



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
	NR	NR	“Three of the 4 units had a decrease in the use of seclusion ranging from 30–63%.”	
McDonagh (PowerPoint), 2019, United States, Pre-post	Recovery-oriented programming NR	Pre-intervention (practice as usual) NR	No. episode of seclusion Post period (3 years): 31 Pre period (3 years): 71 56.3% decrease (p = NR)	Total hours in seclusion Post period (3 years): 142 Pre period (3 years): 1205 88%.3% decrease (p = NR)
Pollard, 2017, United States, Pre-post, Medium	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Richmond, 1996, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	NR	Hours in Seclusion Post (12 months) vs Pre (12 months) Pre period: 395.55 total seclusion hours Post period: 788.2 total seclusion hours 50% increase in seclusion hours
Stoll, 2022, Switzerland, Pre-post	Moral Case Deliberation NR	Pre-intervention (practice as usual) NR	Proportion of patients secluded Post period: 9.6% (N = NR) Pre period: 16.7% (N = NR) Difference: p = 0.034 Frequency seclusion episodes among those in seclusion Post period mean (SD): 3.4 (6.6) Pre period mean (SD): 2.2 (2.5) Difference: p = 0.42	Time in seclusion Post period mean (SD): 39.8 (95.2) Pre period mean (SD): 156.2 (268.8) Difference: p = 0.115 Hours seclusion per episode Post period mean (SD): 10.0 (12.6) Pre period mean (SD): 73.9 (102.3) Difference: p = 0.05
Taxis, 2002, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Whitecross, 2020, Australia, Pre-post	Psychiatric behavior of concern team 1356 episodes of care	Pre-intervention (practice as usual)	Seclusion episodes per 1,000 occupied bed day post (6 months) vs pre (6 months) Mean 6 months before intervention: 19.2 Difference (6 months post): -65.3% (p = NR)	Seclusion hours per 1,000 occupied bed days post (6 months) vs pre (6 months) Mean 6 months after intervention: 76.0 Mean 6 months before intervention: 270.4 Difference (6 months post): -71.9%



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Seclusion	Time in Seclusion
			<p>Proportion of admitted patients secluded post (6 months) vs pre (6 months)</p> <p>Mean 6 months before intervention: 14.7%</p> <p>Difference (6 months post): -55.7% (p = NR)</p>	
Zuehlke, 2016, United States, High, Pre-post	Recovery-oriented program of care	Pre-intervention (practice as usual)	NR	NR

Abbreviations. ANOVA=analysis of variance; no.=number; NR=not reported; NS=not significant; OR=odds ratio; RoB=risk of bias; SD=standard deviation; VA=Veteran Affairs.

Results Summary: Restraint

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
<i>Hospital/Unit Restructuring</i>				
Hochstrasser, 2018, Switzerland, Pre-post	Open-door policy with recovery-oriented care	Pre-intervention (practice as usual)	NR	NR
Hunter, 1993, United States, Pre-post	After hospital restructuring 78 patients	Before hospital restructuring 66 patients	No. restraint events post (10 months) vs pre (10 months) Post period no. events: 190 Pre period no. events: 114 Difference: p = NR	Hours of restraint episode Pre period mean (SD): 11.1 (25.9) Post period mean (SD): 9.2 (9.3) Difference: p = NR
Jenkins, 2014, United Kingdom, Pre-post	Purpose-built psychiatric intensive care unit	Old unit	NR	NR
Rohe, 2017, Germany, Pre-post	Architecturally positive redesign NR	Pre-intervention (practice as usual) NR	Patients restrained per month and per occupied bed Post period mean (SE): 0.035 (0.003) Pre period mean (SE): 0.069 (0.004) 50.1% decrease (p <0.001) Days with fixations per month and per occupied bed Post period mean (SE): 0.081 (0.011) Pre period mean (SE): 0.222 (0.019) 63.3% decrease (p <0.001) Caring restraints per month and per occupied bed Post period mean (SE): 0.012 (0.002) Pre period mean (SE): 0.024 (0.002) 48.4% decrease (p = 0.001)	Duration (unit NR) of with fixations per month and per occupied bed Post period mean (SE): 0.962 (0.157) Pre period mean (SE): 2.015 (0.240) 48.4% decrease (p = 0.003)
<i>Staff Education/Training</i>				
Bowers, 2008, United Kingdom, Concurrent and pre-post	City Nurse Intervention - Escalation Training	Pre-intervention (practice as usual) and concurrent	Restraint per shift (pre-post analysis only) Post period mean (SD): 0.031 (0.180) Pre period mean (SD): 0.057 (0.257)	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
	3 wards	control (practice as usual) 5 wards	Difference (among intervention wards only) p = 0.0172	
Forster, 1999, United States, Pre-post	Staff training 3,010 admissions	Pre-intervention (practice as usual) 2,560 admissions	Rates of restraint post (12 months) vs pre (12 months) Post period: 2,380 episodes per 3,010 admissions Pre period: 2,379 episodes per 2,560 admissions 13% decrease (p = NR)	
Haefner, 2021, United States, Pre-post	De-escalation training (TeamSTEPPS)	Pre-intervention (practice as usual)	NR	NR
Sensory Modulation				
Lloyd, 2013, Australia, Concurrent	Sensory modulation room	Concurrent control (practice as usual)	NR	NR
Cummings, 2010, United States, Concurrent	Comfort room	Concurrent control (practice as usual) Pre-intervention (practice as usual)	NR	NR
Azuela, 2018, New Zealand, Pre-post	Sensory modulation room	Pre-intervention (practice as usual)	NR	NR
Novak, 2012, Australia, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR
Sivak, 2012, United States, Pre-post	Comfort room NR	Pre-intervention (practice as usual) NR	Mean Restraint Episodes Post (4 months) vs Pre (4 months) Post intervention per 1000 days of client care (Dec 2010 to Mar 2011): 0 Pre intervention per 1000 days of client care (July through Oct 2010): 0.37 per 1000 days of client care in July and 0 events in Aug, Sep, and Oct. p = NR	NR

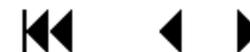
Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
Smith, 2013, United Kingdom, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR
Zimmermann, 2020, United States, Pre-post	Serenity room	Pre-intervention (practice as usual)	NR	NR
Risk Assessment				
Abderhalden, 2008, Switzerland, RCT	Structured risk assessment (BVC)	Control (practice as usual)	NR	NR
van de Sande, 2011, Netherlands RCT	Structured risk assessment (BVC)	Control (practice as usual)	NR	NR
Blair, 2017, United States, Pre-post	Structured risk assessment (BVC) 8,029 admissions	Pre-intervention (practice as usual) 3,884 admissions	Restraint events post (12 months) vs pre (12 months) Proportion of patients secluded 12 months after intervention: 5.1% (412/8029 admission) Proportion of patients secluded 12 months before intervention: 5.4% (213/3884 admission) Difference (12 months post intervention): -6% (p = 0.44)	Duration of restraint per admission post (12 months) vs pre (12 months) Duration of restraint per admission in 12 months before intervention: NR Difference (12 months post intervention): -52% (p = NR) Minutes in restraint post (12 months) vs pre (12 months) Mean (SD) 12 months after intervention: 445.0 (NR) Mean (SD) 12 months before intervention: 286.7 (NR) Difference p <0.01
Clarke, 2010, Canada, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR
Harrington, 2019, Australia, Pre-post	Risk assessment (Clinical Risk Management Initiative)	Pre-intervention (practice as usual)	NR	NR
Manning, 2022, United States, Pre-post	Risk assessment (modified Agitation Severity Scale) 389 patients	Pre-intervention (practice as usual) 353 patients	Restraint episodes 18 months before intervention: 68 incidents 18 months after intervention: 38 incidents Difference: -44% (p = NS)	Minutes in restraint per episode Mean (SD) minutes 18 months before intervention: 18 (22) Mean (SD) minutes 18 months after intervention: 10 (22)

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
				Difference: -44.4% (p = 0.047)
Trauer, 2010, Australia, Pre-post	The Management of Acute Arousal Program	Pre-intervention (practice as usual)	NR	NR
<i>Comprehensive/Mixed</i>				
Bowers, 2015, United Kingdom, RCT	Safewards	Control wards (physical health program)	NR	NR
Välimäki, 2022, Finland, RCT	Intervention wards 8 wards, 13 units, 335 nurses, 238 hospital beds, 4,163 patients	Control wards (practice as usual) 7 wards, 15 units, 313 nurses, 235 hospital beds, 4,186 patients	<p>No. limb restraint events/total patients Intervention vs control</p> <p>Follow-up n (proportion) intervention: 353/4089 (8.6) Follow-up n (proportion) control: 300/4092 (7.3)</p> <p>Baseline n (proportion) intervention: 360/4163 (8.6) Baseline n (proportion) control: 226/4186 (5.4) RR (95% CI) baseline 1.51 (0.45 to 5.14)</p> <p>RR (95% CI) after intervention 1.39 (0.49 to 3.98; p = 0.53)</p> <p>P-value for group*time: <0.001</p> <p>No. patients on whom limb restraints used/total patients</p> <p>Baseline n (proportion) intervention: 172/4163 (4.1) Baseline n (proportion) control: 126/4186 (3.0)</p> <p>RR (95% CI) 1.59 (0.57 to 4.41; p = 0.36) P-value for group time: 0.06</p> <p>No. patient physical restraint events/total patients</p> <p>Baseline n (proportion) intervention: 38/4163 (0.9) Baseline n (proportion) control: 27/4186 (0.7)</p>	<p>Length per limb restraint event, geometric mean, min</p> <p>Baseline geometric mean min. Intervention: 1345 Baseline geometric mean min control: 851</p> <p>Log-transformed mean difference (95% CI) 0.42 (-0.62 to 1.46; p = 0.42)</p> <p>P-value for group * time: 0.26</p> <p>Length per physical restraint event, geometric mean, min</p> <p>Baseline geometric mean Intervention: 28 Baseline geometric mean control: 25</p> <p>Log-transformed mean difference (95% CI) -1.33 (-3.52 to 0.86; p = 0.21)</p> <p>p-value for group * time: 0.16</p>



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
			RR (95% CI) 5.04 (0.94 to 26.96; p = 0.06)	
			p-value for group * time: 0.05	
			No. of patients physically restrained/total patients	
			Baseline n (proportion) intervention: 23/4163 (0.6)	
			Baseline n (proportion) control: 11/4186 (0.3)	
			RR (95% CI) 4.74 (1.14 to 19.78; p = 0.03)	
			p-value for group * time: 0.25	
Boumans, 2014, Netherlands, Concurrent	Methodological work approach	Control (practice as usual)	NR	NR
Noorthoorn, 2014, Netherlands, Concurrent control	Intervention	Control (practice as usual)	NR	NR
Blair, 2015, United States, Pre-post	Engagement model	Pre-intervention (practice as usual)	Annual No. restraint events post (2002-2013) vs pre (2000) Post no mechanical (manual where reported) events (2001-2013): 2013: 0 (40) 2012: 0 (13) 2011: 0 2010: 1 2009: 4 2008: 0 2007: 0 2006: 0 2005: 0 2004: 0 2003: 0 2002: 5 2001: 7 Pre no events (2000): 28 Difference: NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
Dickens, 2020, Australia, Pre-post	Safewards	Pre-intervention (practice as usual)	NR	NR
Hellerstein, 2007, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	No. patients restrained month post (67 months) vs pre (20 months) Post period mean (SD): 0.32 (0.5) Pre period mean (SD): 0.35 (0.6) Difference: p = NS	Total hours patients restrained month Pre period mean (SD): 1.7 (5.2) Post period mean (SD): 1.0 (1.1) P-value for difference: NS % of total patients hours in restraint Pre period mean (SD): 0.005 (0.014) Post period mean (SD): 0.003 (0.007) Difference: p = NS
Khadivi, 2004, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	NR	NR
Lewis, 2009, United States, Pre-post	Crisis Prevention Management program NR	Pre-intervention (practice as usual) NR	Episodes of restraint “Each unit experienced a decrease in the use of restraint ranging from 20–97%.”	NR
McDonagh (report), 2019, United States, Pre-post	Recovery Programming NR	Pre-intervention (practice as usual) NR	No. episode of restraint Post period (3 years): 11 Pre period (3 years): 10 10% increase (p = NR)	Total hours in restraint Post period: 102.5 Pre period: 111.3 8% decrease over time Decreasing trend line (p = NR)
Pollard, 2017, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Richmond, 1996, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	NR	Hours in restraint post (12 months) vs pre (12 months) Post period: 1812.31 total restraint hours Pre period: 3387.87 total restraint hours 47% decrease in restraint hours



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Restraint	Time in Restraint
Stoll, 2022, Switzerland, Pre-post	Moral Case Deliberation	Pre-intervention (practice as usual)	Proportion of patients restrained Post period: 1.8% (n = NR) Pre period: 3.2% (n = NR) Difference: p = NS	Hours in restraint among patients restrained Post period mean (SD): 14.5 (12.1) Pre period mean (SD): 86.8 (45.3) Difference: p = 0.02
	NR	NR	Frequency restraint episodes among those in restraint Post period mean (SD): 1.5 (0.6) Pre period mean (SD): 1.7 (0.08) Difference: p = 0.91	Hours restraint per episode Post period mean (SD): 10.1 (9.9) Pre period mean (SD): 55.2 (24.7) Difference: p = 0.01
Taxis, 2002, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Whitecross, 2020, Australia, Pre-post	Psychiatric behavior of concern team	Pre-intervention (practice as usual)	NR	NR
Zuehlke, 2016, United States, High	NR	NR	NR	NR

Abbreviations. No.=number; NR=not reported; NS=not significant; OR=odds ratio; RoB=risk of bias; SE=standard error; SD=standard deviation; VA=Veteran Affairs.



Results Summary: Composite Measures

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Composite Measure	Time in Composite Measure
<i>Hospital/Unit Restructuring</i>				
Hochstrasser, 2018, Switzerland, Pre-post	Open-door policy with recovery-oriented care	Pre-intervention (practice as usual)	NR	NR
Hunter, 1993, United States, Pre-post	After hospital restructuring	Before hospital restructuring	NR	NR
Jenkins, 2014, United Kingdom, Pre-post	Purpose built psychiatric intensive care unit	Old unit	NR	NR
Rohe, 2017, Germany, Pre-post	Architecturally positive redesign	Pre-intervention (practice as usual)	NR	NR
<i>Staff Education/Training</i>				
Bowers, 2008, United Kingdom, Concurrent and pre-post	City Nurse intervention - escalation training 3 wards (pre-post analysis) 2 wards (concurrent analysis) ³⁷	Pre-intervention (practice as usual) and concurrent control (practice as usual) 5 wards	Total Containment³⁸ (pre-post analysis only) Post period mean (SD): 3.740 (2.337) Pre period mean (SD): 4.560 (2.264) Difference (among intervention wards only): p < 0.001 Concurrent control analysis: Intervention compared to concurrent control: “no significant change”	NR
Forster, 1999, United States, Pre-post	Staff training 3,010 admissions	Pre-intervention (practice as usual) 2,560 admissions	NR	Duration of seclusion or restraint per episode Post period (1996): 6.3 hours/episode Pre period (1995): 13.9 hours/episode 54.6% decrease (p = NR)
Haefner, 2021, United States, Pre-post	De-escalation training(TeamSTEPPS)	Pre-intervention (practice as usual)	NR	NR

³⁷ One of the 3 intervention wards (“Ward 5”) was excluded from analysis as it was at the same hospital as “Ward 3” and had a short intervention period.

³⁸ Containment defined as a composite of means by which ward staff “keep patients safe, including extra medication given at nurses discretion, special observation, and manual restraint.”



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Composite Measure	Time in Composite Measure
<i>Sensory Modulation</i>				
Lloyd, 2013, Australia, Concurrent	Sensory modulation room NR	Concurrent control (practice as usual) N NR	NR	NR
Cummings, 2010, United States, Concurrent	Comfort room NR	Concurrent control (practice as usual) NR Pre-intervention (practice as usual)	Seclusion and restraint episodes during 9-month period “The ANOVA showed no significant changes in seclusion and restraint use with the addition of a comfort room.”	NR
Azuela, 2018, New Zealand, Pre-post	Sensory modulation room	Pre-intervention (practice as usual)		NR
Novak, 2012, Australia, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR
Sivak, 2012, United States, Pre-post, High	Comfort room	Pre-intervention (practice as usual)	NR	NR
Smith, 2013, United Kingdom, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR
Zimmermann, 2020, United States, Pre-post	Serenity room 172 patients	Pre-intervention (practice as usual) 149 patients	Percent of days sedation, seclusion, or restraint Post period (61 days) 1/61 days (1.6%) Pre period (60 days): 8/60 days (13.3%) Difference: p = 0.014	NR
<i>Risk Assessment</i>				
Aberhalden, 2008, Switzerland, RCT	Structured risk assessment (BVC) 4 wards	Control (practice as usual) 5 wards	Composite of psychotropic medication, seclusion, and restraint Rates of change intervention (3-months) vs control (3-months): -27% vs 10% (p < 0.001)	NR
van de Sande, 2011, Netherlands, RCT	Structured risk assessment (BVC)	Control (practice as usual)	NR	NR
Blair, 2017, United States, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Composite Measure	Time in Composite Measure
Clarke, 2010, Canada, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR
Harrington, 2019, Australia, Pre-post	Risk assessment (Clinical Risk Management Initiative)	Pre-intervention (practice as usual)	NR	NR
Manning, 2022, United States, Pre-post	Risk assessment (modified Agitation Severity Scale)	Pre-intervention (practice as usual)	NR	NR
Trauer, 2010, Australia, Pre-post	The Management of Acute Arousal Program	Pre-intervention (practice as usual)	NR	NR
<i>Comprehensive/Mixed</i>				
Bowers, 2015, United Kingdom, RCT	Safewards 16 wards	Control wards (physical health program) 15 wards	Composite of 8 forms of containment³⁹ as reported on the patient-staff conflict checklist intervention vs control Baseline mean (SD) overall event rate intervention: 1.26 (1.93) Baseline mean (SD) overall event rate control: 1.39 (1.94) Ward count rate ratio (95% CI): 0.77 (0.66, 0.90; p = 0.004) Shifts with no containment event rate ratio (95% CI): 1.04 (0.83, 1.34; p = 0.71) Among wards experiencing containment events: 26.4% (9.9–34.3) reduction in events	NR
Välimäki, 2022, Finland, RCT	Intervention wards	Control wards (practice as usual)	NR	NR
Boumans, 2014, Netherlands, Concurrent	Methodological work approach	Control (practice as usual)	NR	NR
Noorthoorn, 2014, Netherlands, Concurrent	Intervention	Control (practice as usual)	NR	NR

³⁹ Defined as actions taken by staff to manage unsafe patients such as coerced medication, seclusion, restraint, special observation, etc.



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Composite Measure	Time in Composite Measure
Blair, 2015, United States, Pre-post	Engagement model	Pre-intervention (practice as usual)	NR	NR
Dickens, 2020, Australia, Pre-post	Safewards 8 wards 142 beds	Pre-intervention (practice as usual) 8 wards 142 beds	Containment (seclusion and restraint) 4-week post intervention adjusted rate ratio (95% CI): 0.88 (0.82 to 0.94) Baseline phase (4-week prior to intervention) mean (SD) rates of containment: 6.8 (5.8) Highly coercive containment (seclusion, restraint and forced medication) 4-week post intervention adjusted rate ratio (95% CI): 0.26 (0.14 to 0.47) Baseline phase (4-week prior to intervention) mean (SD) rates of containment: 6.8 (5.8) Containment-free days Pre vs Post period: 14.5% vs 4.9%	NR
Hellerstein, 2007, United States, High	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Khadivi, 2004, United States, Pre-post	Comprehensive intervention 1,602 admissions	Pre-intervention (practice as usual) 1,766 admissions	Composite of seclusion and restraint post (12 months) vs pre (12 months) 12 months post intervention number of episodes: 148 12 months pre intervention number of episodes: 310 % change in events in 12 months after intervention vs months before: -52% (p < 0.001)	NR
Lewis, 2009, United States, Pre-post	Crisis Prevention Management program	Pre-intervention (practice as usual)	NR	NR
McDonagh (report), 2019, United States, Pre-post	Recovery-oriented programming NR	Pre-intervention (practice as usual) NR	Episodes of seclusion and restraint Episodes in post period (3 years): 42 Episodes in pre period (3 years): 81 48% decrease	Total hours in seclusion and restraint Total hours in post period (3 years): 245 Total hours in pre period (3 years): 1,711 86% decrease

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Composite Measure	Time in Composite Measure
Pollard, 2017, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	NR	<p>Monthly seclusion and restraint hours post (18 months) vs pre (28 months) Post period mean (SD): 55.64 (44.57) Pre period mean (SD): 182.48 (114.22) Difference: p <0.001</p> <p>Hours of seclusion and restraint per patient post (18 months) vs pre (28 months) Post period mean (SD): 2.72 (2.18) Pre period mean (SD): 8.58 (6.07) Difference: p <0.001</p>
Richmond, 1996, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	NR	<p>Total hours in seclusion and restraint post (12 months) vs pre (12 months) Post period: 2600.51 total combined hours Pre period: 3783.42 total combined hours 31% decrease in combined hours</p>
Stoll, 2022, Switzerland, Pre-post	Moral Case Deliberation NR 405 total both periods	Pre-intervention (practice as usual) NR	<p>Proportion of patients subject to formal coercion (seclusion, restraint, and forced medication) Pre period: 17.2% (N = NR) Post period: 9.6% (N = NR) Difference: p = 0.024</p>	NR
Taxis, 2002, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	<p>Incidence of seclusion and restraint Baseline: NR "overall reduction in the incidence of restraint and seclusion was 94%" p = NR</p>	NR
Whitecross, 2020, Australia, Pre-post	Psychiatric behavior of concern team	Pre-intervention (practice as usual)	NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Episodes of Composite Measure	Time in Composite Measure
Zuehlke, 2016, United States, High	Recovery-oriented model of care	Pre-intervention (practice as usual)	Incidence of seclusion and restraint per month post (12 months) vs pre (12 months) Post period mean (SD) rate: 1.50 (1.17) Pre period mean (SD) rate: 3.17 (2.37) Difference; p = 0.03	NR
	NR	NR		
	352 total both periods			

Results Summary: Patient Outcomes

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
<i>Hospital/Unit Restructuring</i>						
Hochstrasser, 2018, Switzerland, Pre-post	Open-door policy with recovery-oriented care 14,435 patients (may include some admissions before policy which was implemented in Aug 2011) 2,803 patients in 2015	Pre-intervention (practice as usual) 2,924 patients in 2010	NR	NR	NR	<p>Forced medication aOR (95% CI) open door policy: 0.90 (0.83 to 0.98)</p> <p>Cases with at least 1 forced medication Last year of post intervention follow up (2015): 1.2% (35/2803) Baseline year (2010): 2.4% (70/2924) p <0.001</p> <p>Mean (SD) number of forced medication Last year of post intervention follow up (2015): 1.2 (0.5) Baseline year (2010): 2.3 (3.2) p = 0.003</p>
Hunter, 1993, United States, Pre-post	After hospital restructuring 78 patients	Before hospital restructuring 66 patients	<p>Number of patient-patient assaults Post N events: 6 Pre N events: 6</p> <p>Number of patient-staff assaults Post N events: 1 Pre N events: 1</p> <p>Death Post N events: 0 Pre N events: 1</p> <p>Suicide attempt Post N events: 0</p>	NR	NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
			Pre N events: 1			
			p = NR for all; only report "There were no differences in the number of patient-to-patient assaults or patient assaults on staff"			
Jenkins, 2014, United Kingdom, Pre-post,	Purpose built psychiatric intensive care unit 18 patients	Old unit 18 patients	NR	No. aggressive incidents post (3-6 months) vs pre (3-6 months) Post period no. events: 16 Pre period no. events: 36 Difference: p = 0.001 No. aggressive patients post (3-6 months) vs pre (3-6 months) Post period no. events: 12 Pre period no. events: 16 Difference: NR	NR	NR
Rohe, 2017, Germany, Pre-post	Architecturally positive redesign NR	Pre-intervention (practice as usual) NR	NR	NR	NR	Forced medication Post period mean (SE): 0.006 (0.001) Pre period mean (SE): 0.04 (0.004) 84.4% decrease (p <0.001)
<i>Staff Education/Training</i>						
Bowers, 2008, United Kingdom, Concurrent and pre-post	City Nurse Intervention - Escalation Training 3 wards (pre-post analysis)	Pre-intervention (practice as usual) and concurrent control (practice as usual) 5 wards	NR	Conflict total per shift (pre-post analysis only) Post period mean (SD): 3.828 (3.636) Pre period mean (SD): 4.799 (3.933) Difference: p < 0.001	NR	Given PRN medication (pre-post analysis only) Post period mean (SD): 0.76 (0.95) Pre period mean (SD): 0.97 (1.15) Difference: p = 0.001



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
	2 wards (concurrent analysis) ⁴⁰			<p>Verbal aggression (pre-post analysis only) Post period mean (SD):0.443 (0.766) Pre period mean (SD): 0.561 (0.912) Difference: p = 0.001</p> <p>Physical aggression against objects Post period mean (SD):0.089 (0.323) Pre period mean (SD): 0.135 (0.405) Difference: p = 0.002</p> <p>Aggression against others Post period mean (SD): 0.061 (0.288) Pre period mean (SD): 0.104 (0.366) Difference: p = 0.001</p> <p>Aggression against self Post period mean (SD): 0.084 (0.414) Pre period mean (SD): 0.075 (0.313) Difference: p = 0.232</p>		<p>Concurrent control analysis: significantly fewer PRN (p <0.001)</p> <p>Given intramuscular medication (enforced) Post period mean (SD): 0.04 (0.22) Pre period mean (SD): 0.07 (0.27) Difference: p = 0.003</p>

⁴⁰ One of the 3 intervention wards (“Ward 5”) was excluded from analysis as it was at the same hospital as “Ward 3” and had a short intervention period.



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
				total containment, no significant change occurred on the experimental or control wards. The majority of conflict and containment items were also unchanged"		
Forster, 1999, United States, Pre-post	NR	NR	NR	NR	NR	NR
Haefner, 2021, United States, Pre-post	De-escalation training (TeamSTEPPS)	Pre-intervention (practice as usual)		Aggressive incidents obtained via chart review Post period events (39 charts reviewed): 11.4% Pre period events (67 charts reviewed): 17.3% Difference: p = 0.024		
<i>Sensory Modulation</i>						
Lloyd, 2013, Australia, Concurrent	Sensory modulation room	Concurrent control (practice as usual)	NR	NR	NR	NR
	NR	NR				
Cummings, 2010, United States, Concurrent	Comfort room	Usual care without comfort room	NR	NR	NR	NR
	NR	NR				
Azuela, 2018, New Zealand, Pre-post	Sensory modulation room	Pre-intervention (practice as usual)	NR		The Essen Climate Evaluation Schema (EssenCES) was used to determine staff's and service users'	
	NR	NR				

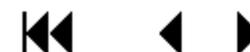


Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
					perceptions of their inpatient unit's climate. Unit A <u>Patient's Cohesion:</u> Post: mean (SD) 3.21(.75) Pre: mean (SD) 3.00(.78) p = 0.17 Unit B <u>Patient's Cohesion:</u> Post: mean (SD) 3.20(.75) Pre: mean (SD) 3.07(0.64) p = 0.33	
Novak, 2012, Australia, Pre-post	Sensory room 75 ⁴¹	Pre-intervention (practice as usual) 75	NR	Aggressive episodes post (12 months) and pre (12 months) Post period mean (SD): 13.9 (7.8) Pre period mean (SD): 19.6 (13.1) Difference: p = NS	NR	NR
Sivak, 2012, United States, Pre-post	Comfort room NR	Pre-intervention (practice as usual) NR	Self-injurious behavior post (4 months) vs pre (4 months) Post intervention: 12.1% increase Pre intervention 4-month average rate 2.32 /1,000 days of client care	Client to client assaults post (4 months) vs pre (4 months) Post intervention: 23.4% decrease Pre intervention 4-month average rate 3.98 /1,000 days of client care	NR	NR

⁴¹ Independent sample size is unclear. Study reports sample to experience seclusion events, which may have included the same individual multiple times.



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
Smith, 2013, United Kingdom, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR	NR	NR
Zimmermann, 2020, United States, Pre-post	Serenity room 172 patients	Pre-intervention (practice as usual) 149 patients	NR	NR	NR	<p>No. benzodiazepines per day Post period median (IQR): 1 (0 to 2) Pre period median (IQR): 2.5 (1 to 4) Difference: p < 0.001</p> <p>Total amount of benzodiazepines per day. Post period median (IQR): 1mg (0 to 3) Pre period median (IQR): 4mg (2 to 6) P-value for Difference: p 0.001</p> <p>No. patients medicated per day Post period median (IQR): 1 (0 to 1) Pre period median (IQR): 2 (1 to 3) Difference: p <0.001</p> <p>Benzodiazepines dose per day when distributed. Post period median (IQR): 2 (1.5 to 3) Pre period median (IQR): 2 (1.5 to 2) Difference: p = 0.393</p>



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
<i>Risk Assessment</i>						
Aberhalden, 2008, Switzerland, RCT	Structured risk assessment (BVC) 4 wards	Control (practice as usual) 5 wards	NR	<p>Severe (SOARS-R score ≥9) aggressive events Intervention group change over 3-months RR (95% CI): 0.59 (0.41 to 0.83) Control group change over 3-months RR (95% CI): 0.85 (0.64 to 1.13) Difference: p < 0.001</p> <p>Physical attacks Rates of change in intervention (3-months) vs control (3-months): -41% vs -7% (p < 0.001)</p>	NR	NR
van de Sande, 2011, Netherlands, RCT	Structured risk assessment (BVC) 20 beds and 207 patients during intervention period	Control (practice as usual) 16 beds in control wards and 251 patients during intervention period	NR	<p>Aggression incidents 10 week baseline RR (95% CI): 1.12 (0.72 to 1.76) 30 week intervention RR (95% CI): 0.36 (0.26 to 0.50) % change in risk ratio in baseline to intervention period: -68% (p < 0.05)</p> <p>Aggressive patients, n 10 week baseline RR (95% CI): 1.13 (0.57 to 3.10) 30 week intervention RR (95% CI): 0.62 (0.40 to 0.99) % change in risk ratio of no. of aggressive patients</p>	NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
				to risk ratio in intervention period: -50% (p < 0.10)		
Blair, 2017, United States, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR	NR	NR
Clarke, 2010, Canada, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR	NR	NR
Harrington, 2019, Australia, Pre-post	Risk assessment (Clinical Risk Management Initiative) 965 admissions post-implementation	Pre-intervention (practice as usual) 1090 admissions in pre period	Self-harm/suicide attempt per 1,000 occupied bed days post (18 months) vs pre (24 months) Pre intervention rate (95% CI): 0.81 (0.44 to 1.36) Difference in rates (95% CI): -0.25 (-0.84 to 0.34) RR (95% CI): 0.69 (0.26 to 1.69; p = 0.42)	Aggression per 1,000 occupied bed days post (18 months) vs pre (24 months) Pre intervention rate (95% CI): 2.54 (1.85 to 3.41) Difference in rates (95% CI): -0.55 (-1.64 to 0.53) RR (95% CI): 0.78 (0.47 to 1.27; p = 0.33)		
Manning, 2022, United States, Pre-post	Risk assessment (modified Agitation Severity Scale) 389 patients	Pre-intervention (practice as usual) 353 patients	NR	NR	Patient safety survey post (18 months) vs pre (18 months) Mean (SD) overall baseline score: 12.2 (6.38) Mean (SD) overall post score: 13.3 (8.43) Difference: p = NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
Trauer, 2010, Australia, Pre-post	The Management of Acute Arousal Program	Pre-intervention (practice as usual)	NR	NR	NR	NR
<i>Comprehensive/Mixed</i>						
Bowers, 2015, United Kingdom, RCT	Safewards 16 wards	Staff Attention Control 15 wards	Self-Harm Antipathy Scale Intervention vs Control β (95% CI) 0.23 (-3.38 to 3.83; p = 0.90) Baseline mean (SD) overall event rate intervention: 78.79 (18.85) Baseline mean (SD) overall event rate control: 80/16 (21.1)	Conflict composite of 22 events reported on the patient-staff conflict checklist intervention vs control Ward count rate ratio (95% CI): 0.85 (0.76, 0.94; p = 0.001) Ward hurdle rate ratio ^a (95% CI): 1.14 (0.92, 1.43; p = 0.23) Baseline mean (SD) overall event rate control: 4.69 (4.60) Baseline mean (SD) overall event rate intervention: 5.22 (6.32)	NR	NR
Välimäki, 2022, Finland, RCT	Intervention wards 8 wards, 13 units, 335 nurses, 238 hospital beds, 4,163 patients	Control wards (practice as usual) 7 wards, 15 units, 313 nurses, 235 hospital beds, 4,186 patients	Deaths Intervention vs Control Baseline events control: 1 Baseline events intervention: 5 OR (95% CI) 4.59 (0.37 to 56.69; p = 0.23) p-value for group*time: 0.34	NR	Treatment satisfaction Client Satisfaction Questionnaire (CSQ-8) No difference	No. of forced medication events/total patients intervention vs control Follow-up n (proportion) intervention: 486/4089 (11.9%) Follow-up n (proportion) control: 481/4,092 (11.8%) Baseline n (proportion) intervention: 317/4163 (7.6) Baseline n (proportion) control: 414/4186 (9.9)

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
						RR (95% CI) 0.87 (0.41 to 1.83; p = 0.71) p-value for group * time: 0.56 No. of patients injected/ total patients Follow-up n (proportion) intervention: 292/4,089 (7.1) Follow-up n (proportion) control: 289/4,092 (7.1) Baseline n (proportion) intervention: 150/4163 (3.6) Baseline n (proportion) control: 295/4186 (7.1) RR (95% CI) 1.12 (0.53 to 2.36; p = 0.76) p-value for group * time: <0.001
Boumans, 2014, Netherlands, Concurrent	Methodological work approach	Control (practice as usual)	NR	NR	NR	NR
Noorthoorn, 2014, Netherlands, Concurrent control	Intervention	Control (practice as usual)	NR	NR	NR	NR
Blair, 2015, United States, Pre-post	Engagement model	Pre-intervention (practice as usual)	NR	NR	NR	NR
Dickens, 2020, Australia, Pre-post	Safewards	Pre-intervention (practice as usual)	NR	Conflict 4-week post intervention adjusted rate ratio (95% CI): 0.77 (0.66 to 0.89)	NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
	8 wards 142 beds	8 wards 142 beds		<p>Baseline phase (4-week prior to intervention) mean (SD) rates: 4.0 (6.2)</p> <p>Physical aggression 4-week post intervention adjusted rate ratio (95% CI): 0.65 (0.59 to 0.72) Baseline phase (4-week prior to intervention) mean (SD): 4.0 (6.2)</p>		
Hellerstein, 2007, United States, Pre-post	Staff education, limits on seclusion time per order, coping questionnaire, off-unit privileges	Pre-intervention (practice as usual) NR	NR	<p>No. patients involved in fights post (67 months) vs pre (20 months) Post period mean (SD): 0.3 (0.2) Pre period mean (SD): 0.5 (0.2) Difference: p = NS</p>	NR	NR
	NR					
Khadivi, 2004, United States, Pre-post	Risk assessment 1602 admissions	Pre-intervention (practice as usual) 1766 admissions	<p>Self-destructive behavior post (12 months) vs pre (12 months) 12 months pre intervention number of episodes: 27 12 months pre intervention number of episodes: 24</p> <p>% change in events in 12 months after intervention vs 12 months before: -11% (NS)</p>	<p>Assaults on patients post (12 months) vs pre (12 months) 12 months pre intervention number of episodes: 67 12 months pre intervention number of episodes: 85</p> <p>% change in events in 12 months after intervention vs 12 months before: increase 26.8% (p <0.05)</p>	NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
Lewis, 2009, United States, Pre-post	Crisis Prevention Management program	Pre-intervention (practice as usual)	NR	NR	NR	NR
McDonagh (report), 2019, United States, Pre-post	Recovery Programming NR	Pre-intervention (practice as usual) NR	<p>Patient assault no injury Pre period (3 years): 1 Post period (3 years): 0 Difference NR</p> <p>Patient injury Pre period (3 years): 3 Post period (3 years): 0 Difference NR</p>	NR	NR	NR
Pollard, 2017, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	NR	Self-destructive events per 24-hour period pre vs post policy intervention: Pre mean (SD): 1.07 (0.41) Post mean (SD): 0.72 (0.32) Difference: p = 0.004	NR	NR
Richmond, 1996, United States, Pre-post	NR	NR	NR	NR	NR	NR
Stoll, 2022, Switzerland, Pre-post	Moral Case Deliberation NR	Pre-intervention (practice as usual) NR	NR	NR	NR	<p>Proportion of patients coerced medication Pre period: 4.8% (n = NR) Post period: 4.1% (n = NR) Difference: p = 0.93</p>
Taxis, 2002, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR	NR	NR
Whitecross, 2020,	Multidisciplinary team approach	Pre-intervention (practice as usual)	Self-harm post (6 months) vs pre (6 months)	Physical aggression post (6 months) vs pre (6 months)	NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Patient Injuries	Aggressive Incidents	Patient Satisfaction	Forced Medication
Australia, Pre-post	1356 episodes of care total		No. 6 months before intervention: 20 Difference (6 months post): -25% (p = NR)	No. 6 months before intervention: 163 Difference (6 months post): -25.2% (p = NR) Verbal aggression post (6 months) vs pre (6 months) No. 6 months before intervention: 188 Difference (6 months post): -23.4% (p = NR)		
Zuehlke, 2016, United States, Pre-post	Recovery-oriented model of care	Pre-intervention (practice as usual)	NR	NR	NR	NR

Notes. ^a Test for difference (intervention vs control) in number of shifts with 0 events.

Abbreviations. aOR=adjusted odds ratio; no.=number; NA=not applicable; NR=not reported; NS=not significant; OR=odds ratio; RoB=risk of bias; SE=standard error; SD=standard deviation; VA=Veteran Affairs.

Results Summary: Staff Outcomes

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
<i>Hospital/Unit Restructuring</i>				
Hochstrasser, 2018, Switzerland, Pre-post	Open-door policy with recovery-oriented care	Pre-intervention (practice as usual)	NR	NR
Hunter, 1993, United States, Pre-post	After hospital restructuring 78 patients	Before hospital restructuring 66 patients	Patient-to-staff assaults Pre no. events: 1 Post no. events: 1	NR
Jenkins, 2014, United Kingdom, Pre-post	Purpose built psychiatric intensive care unit	Old unit	NR	NR
Rohe, 2017, Germany, Pre-post	Architecturally positive redesign	Pre-intervention (practice as usual)	NR	NR
<i>Staff Education/Training</i>				
Bowers, 2008, United Kingdom, Concurrent and pre-post	City Nurses intervention – escalation training	Concurrent control (practice as usual)	NR	NR
Forster, 1999, United States, Pre-post	Intensive staff training 3,010 admissions	Pre-intervention (practice as usual) 2,560 admissions	Staff injuries post (12 months) vs pre (12 months) Post period: 39 incidents Pre period: 48 incidents 18.8% decrease (p = NR)	NR
Haefner, 2021, United States, Pre-post	De-escalation training (TeamSTEPPS)	Pre-intervention (practice as usual)	NR	NR
<i>Sensory Modulation</i>				
Lloyd, 2013, Australia, Concurrent	Sensory modulation room N NR	Concurrent control (practice as usual) N NR	NR	NR
Cummings, 2010, United States, Concurrent	Comfort room	Concurrent control (practice as usual)	NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
Azuela, 2018, New Zealand, Pre-post	Sensory modulation room	Pre-intervention (practice as usual)	NR	The Essen Climate Evaluation Schema (EssenCES) was used to determine staff's and service users' perceptions of their inpatient unit's climate.
	N NR	Pre-intervention (practice as usual)		
<p>Unit A</p> <p><u>Experienced Safety:</u> Post: mean (SD) 2.94(0.67) Pre: mean (SD) 3.40 (0.84) P = 0.11</p> <p><u>Therapeutic Hold:</u> Post: mean (SD) 3.29 (0.65) Pre: M (SD) 3.33 (0.83) p = .59</p> <p><u>Overall Climate:</u> Post: mean (SD) 3.18 (0.60) Pre: mean (SD) 3.31 (0.76) p = .27</p> <p><u>Overall Attitudes (measured Professional Attitudes Towards Seclusion Questionnaire (PATS-Q):</u> Median (post): 2.87 (0.36) Median (pre): 2.89 (0.61) p = .47</p> <p>Unit B</p> <p><u>Experienced Safety:</u> Post: mean (SD) 3.31 (0.69) Pre: mean (SD) 3.33 (0.49) p = 1.00</p> <p><u>Therapeutic Hold:</u> Post: mean (SD) 3.73 (0.73) Pre: mean (SD) 3.41 (0.61) p = .02</p> <p><u>Overall Climate:</u> Post: mean (SD) 2.63 (0.90) Pre: mean (SD) 2.80 (0.71) p = .10</p> <p><u>Overall Attitudes (measured PATS-Q):</u> Median (post): 2.8857 (0.56)</p>				



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
				Median (pre): 2.75 (0.39) p = 0.70
Novak, 2012, Australia, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR
Sivak, 2012, United States, Pre-post	Comfort room NR	Pre-intervention (practice as usual) NR	Client to staff assaults post (4 months) vs pre (4 months) Post intervention: 48.1% decrease Pre intervention 4-month average rate 2.31 /1,000 days of client care	
Smith, 2013, United Kingdom, Pre-post	Sensory room	Pre-intervention (practice as usual)	NR	NR
Zimmermann, 2020, United States, Pre-post	Serenity room	Pre-intervention (practice as usual)	NR	NR
Risk Assessment				
Abderhalden, 2008, Switzerland, RCT	Structured risk assessment (BVC)	Control (practice as usual)	NR	NR
van de Sande, 2011, Netherlands, RCT	Structured risk assessment (BVC)	Control (practice as usual)	NR	NR
Blair, 2017, United States, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR
Clarke, 2010, Canada, Pre-post	Structured risk assessment (BVC)	Pre-intervention (practice as usual)	NR	NR
Harrington, 2019, Australia, Pre-post	Risk assessment (Clinical Risk Management Initiative) 965 admissions post-implementation	Pre-intervention (practice as usual) 1,090 admissions in pre period		Staff survey post (18 months) vs pre (24 months) <u>Visual observations contribute to safe practice at [this psychiatric unit].</u> P-value for difference = 0.17 <u>Visual observations create a safe environment for patients.</u> P-value for difference = 0.17 <u>I am personally satisfied with the practice of visual observations in the</u>



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
				<p><u>management of patients who have been identified as being 'at risk':</u></p> <p>Improve post intervention. P-value for difference = 0.01</p> <p><u>The current way in which we do visual observations prevents adverse outcomes for staff.</u></p> <p>P-value for difference = 0.33</p> <p><u>The current way in which we do visual observations prevents adverse outcomes for patients.</u></p> <p>P-value for difference = 0.12</p> <p><u>Visual observations provide optimum care for the patients at [this psychiatric unit].</u></p> <p>Improve post intervention. P-value for difference <0.001</p>
Manning, 2022, United States, Pre-post	Risk assessment (modified Agitation Severity Scale) 389 patients	Pre-intervention (practice as usual) 353 patients	NR	<p>Nurse survey post (18 months) vs pre (18 months) "No significant difference between study phases"</p> <p>Oldenburg burnout scale post (18 months) vs pre (18 months) Mean (SD) baseline: 36.17 (6.74) Mean (SD) post: 36.11 (8.29) Difference in overall score: p = 0.98</p>
Trauer, 2010, Australia, Pre-post	The Management of Acute Arousal Program	Pre-intervention (practice as usual)	NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
<i>Comprehensive/Mixed</i>				
Bowers, 2015, United Kingdom, High	Safewards 16 wards	Control wards (physical health program) 15 wards	NR	<p>Ward atmosphere scale intervention vs control (positive values represent improvements for intervention)</p> <p><u>Order and organization</u> β (95% CI) -0.32 (-0.79 to 0.16; p = 0.20) Baseline mean (SD) overall event rate control: 6.43 (2.53) Baseline mean (SD) overall event rate intervention: 7.19 (2.27)</p> <p><u>Programme clarity</u> β (95% CI) 0.27 (-0.22 to 0.75; p = 0.28) Baseline mean (SD) overall event rate control: 7.18 (2.06) Baseline mean (SD) overall event rate intervention: 7.4 (2.04)</p> <p><u>Staff control</u> β (95% CI) -0.19 (-0.57 to 0.18; p = 0.30) Baseline mean (SD) overall event rate control: 1.8 (1.40) Baseline mean (SD) overall event rate intervention: 1.83 (1.55)</p>
Välimäki, 2022, Finland, RCT	Intervention wards 8 wards, 13 units, 335 nurses, 238 hospital beds, 4,163 patients	Control wards (practice as usual) 7 wards, 15 units, 313 nurses, 235 hospital beds, 4,186 patients	NR	<p>Nurse turnover rates</p> <p>No difference</p> <p>Team climate inventory</p> <p>No difference</p>
Boumans, 2014, Netherlands, Concurrent	Methodological work approach	Control (practice as usual)	NR	NR
Noorthoorn, 2014, No PMID, Netherlands, Concurrent	Intervention	Control (practice as usual)	NR	NR

Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
Blair, 2015, United States, Pre-post	Engagement model	Pre-intervention (practice as usual)	NR	NR
Dickens, 2020, Australia, Pre-post	Safewards 8 wards 142 beds	Pre-intervention (practice as usual) 8 wards 142 beds	NR	Violence Prevention Climate Scale (VPC-14) Staff and patient perceptions regarding violence prevention: "Did not change"
Hellerstein, 2007, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR	No. patient related staff injuries post (67 months) vs pre (20 months) Pre period mean (SD): 0.7 (1.0) Post period mean (SD): 0.18 (0.42) Difference: p = 0.003	NR
Khadivi, 2004, United States, Pre-post	Comprehensive intervention 1,602 admissions	Pre-intervention (practice as usual) 1,766 admissions	Assault on staff post (12 months) vs pre (12 months) 12 months pre intervention number of episodes: 31 12 months post intervention number of episodes: 83 % change in events in 12 months after intervention vs 12 months before: 167% (p <0.01)	NR
Lewis, 2009, United States, Pre-post	Crisis Prevention Management program	Pre-intervention (practice as usual)	NR	NR
McDonagh (report), 2019, United States, Pre-post	Recovery-oriented programming NR	Pre-intervention (practice as usual) NR	Staff injury Pre period (3 years): 3 Post period (3 years): 0 Difference NR Staff assault no injury Pre period (3 years): 0 Post period (3 years): 2 Difference NR	NR



Author, Year, Country, Design	Intervention Label, Sample Size	Comparator Label, Sample Size	Staff Injuries	Satisfaction with Policy
Pollard, 2017, United States, Pre-post	Comprehensive intervention NR	Pre-intervention (practice as usual) NR		Critical incidents (potential or actual assaultive or self-destructive events occurring on the unit in 24-h period) post (18 months) vs pre (28 months) Pre period mean (SD): 1.07 (0.41) Post period mean (SD): 0.72 (0.32) P-value for difference = 0.004
Richmond, 1996, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Stoll, 2022, Switzerland, Pre-post	Moral Case Deliberation	Pre-intervention (practice as usual)	NR	NR
Taxis, 2002, United States, Pre-post	Comprehensive intervention	Pre-intervention (practice as usual)	NR	NR
Whitecross, 2020, Australia, Pre-post	Psychiatric behavior of concern team	Pre-intervention (practice as usual)	NR	NR
Zuehlke, 2016, United States, Pre-post	Recovery-oriented model of care 352 total both periods	Pre-intervention (practice as usual) 352 total both periods	NR	Staff satisfaction Pre period: NR Overall stratification higher in post vs pre period (p = 0.04) Increases in staff satisfaction for daily programming (p = 0.001), satisfaction with staff collaboration (p = 0.003), ability to handle acute situations without using restraints (p = 0.008), ability to provide group programming (p = 0.09, and belief that patients should have input into their mental health treatment (p = 0.005).



APPENDIX K. PEER REVIEW DISPOSITION

Comment #	Reviewer #	Comment	Author Response
<i>Are the objectives, scope, and methods for this review clearly described?</i>			
1	1	Yes	Thank you.
2	2	Yes	Thank you.
3	3	Yes	Thank you.
4	4	Yes	Thank you.
5	5	Yes	Thank you.
6	7	Yes	Thank you.
<i>Is there any indication of bias in our synthesis of the evidence?</i>			
7	1	No	Thank you.
8	2	No	Thank you.
9	3	No	Thank you.
10	4	No	Thank you.
11	5	No	Thank you.
12	7	Yes - Themes of self-report data as biased and RCTs as the only way to conduct research on IMH units is not realistic. It seems the authors do not have a clear understanding of the context of VHA IMH services.	<p>Thank you for this comment although we disagree with the assertion that the synthesis is biased. Our careful attention to the methods of included studies and contextualizing findings based of these methods, represents the absence (rather than presence) of bias in the synthesis.</p> <p>We appreciate the challenges of conducting a randomized trial in inpatient mental health units, but note several included studies used this method. The results and discussion sections raise attention of readers to potential for deviations from what may be the causal relationship between the interventions and outcomes based on established epidemiological methods.</p> <p>While self-report data can be informative, they also hold the potential for bias due to lack of control and potential for self-observers to collect incorrect or biased assessments (especially if they are aware of the hypothesis of the study</p>

Comment #	Reviewer #	Comment	Author Response
			and ideal outcomes to be obtained), and therefore it is important to interpret self-report data with caution. Self-report data could provide useful information that can be integrated into development of new programs or for more rigorous controlled trials.
<i>Are there any published or unpublished studies that we may have overlooked?</i>			
13	1	No	Thank you.
14	2	No	Thank you.
15	3	No	Thank you.
16	4	No	Thank you.
17	5	No	Thank you.
18	7	Yes - VHA uses PMDB as its primary intervention to prevent disruptive behavior. Nurse/staffing training related to therapeutic communication are also important in preventing disruptive behaviors. Those topics were not examined in this review.	The reviewer comment suggests we missed a program and not a study meeting the review eligibility criteria, specifically. The PMDB is required training at the VA but it is not inpatient specific. Additionally, we searched for studies of this program and have found only one (https://cdn.mdedge.com/files/s3fs-public/Document/September-2017/022080016.pdf). This study does not mention seclusion as a goal for the program (thus not meeting our definition of an eligible intervention) or report seclusion as an outcome. We therefore do not believe we have missed a study of the PMDB program.
<i>Additional suggestions or comments can be provided below.</i>			
19	1	None	Thank you.
20	2	Page 17, line 20: statement of "there are limited data on the benefits on seclusion." The focus of the report is on the effective strategies of reducing seclusion events and not examining the benefits of seclusion itself which would be a different focus of the report.	This was an error as it was meant to say there are limited data on the benefit of protocols to reduce seclusion. We have corrected it to read as follows: "Despite great interest from policymakers, providers and patients for effective alternatives to seclusion, there are limited data on the benefits of protocols designed to reduce seclusion in adult inpatient mental health wards"
21	3	When reading this overview - I have questions regarding patient population types in the reviewed publications. We are looking at effective ways to reduce seclusion in practice - but there is no layering if there were more	We appreciate the reviewer's comment that layering of factors that could reasonably impact/change results is important to consider and would be helpful in guiding policy and recommendations. Unfortunately, a major limitation of the studies included in this review (called out in our report)



Comment #	Reviewer #	Comment	Author Response
		<p>effective approaches with certain age groups, sexes, or admitting diagnoses. Is there any information/data on when event occurred in relation to time after admission. We would need to consider the acuteness of the psychiatric situation with the patient and the correlation to restraint/seclusion in relation to that. Do certain admitting diagnoses result in higher occurrences of these events? That would help drive possible interventions based upon that unique factor. Interventions to reduce the number or length of seclusion events is great information - but in what context and relation to the majority percentage of patient situations. The information is great and demonstrates the need for more in depth research with set parameters for evaluation - but it led to many more questions about demographics, diagnoses, and acuity. Another factor is the type of inpatient setting - is it a mixed milieu? How can we bucket results based upon similar settings?</p>	<p>is the lack of reporting of patient data and specific analyses taking patient data into consideration. Diagnosis were reported in only 9 studies, and no study reported subgroup analyses by patient demographics or acuity. The interventions were complex and involved tailoring strategies based on individual patient context, but results were reported at aggregate for all patients. The Discussion notes that future studies should make greater efforts to study effect modification based on demographics, diagnoses, or acuity.</p>
22	4	<p>pg. 13 line 10:"...studies excluded, incarcerated, while incarcerated is excluded, many patients on inpatient have criminal records e.g., assault</p>	<p>Thank you for this comment. We agree that some patients in included studies may have criminal records. In consultation with experts during the scoping process we exclude studies with incarcerated populations because the management of patients in a forensic unit may be different than a non-forensic inpatient mental health unit. We have added text to the Methods section to clarify the inclusion criteria: "For both KQ 1 and KQ 2, studies were excluded if they included incarcerated or institutionalized populations as these settings were deemed to be outside the scope of interest to our stakeholders."</p>
23	4	<p>pg. 17 line 17: "...other coercive measures" again consider removing this staff stigmatizing language</p>	<p>In the Introduction we have added a clarification about the term coercion. The footnote reads: "A note on the use of the term 'coercion' this report. We use the term coercion without judgement or intention of implying clinician stigma. Rather, we use this term to be consistent with our observations of how the literature describes a group of measures that may be applied "against the patient's will or in spite of his or her</p>



Comment #	Reviewer #	Comment	Author Response
24	4	pg. 18 line 9: restructure units to include open wards and sensory/comfort wards" VA does not use "open wards" patients may be on a voluntary or involuntary commitment-the latter typically associated with lack of insight into illness and need for tx.	opposition" (such as seclusion, restraint and forced medication) to manage patient care.(Chieze, 2021) If a study reported coercion as a composite outcome in their results (i.e., a combined outcome of seclusion and other coercive measures) we report the study definition of coercion, where possible." Per our protocol (based on expert input) we included studies or interventions conducted in high income countries that evaluated environmental restructuring. Some environmental restructuring studies evaluated open door policies. We revised the text in this section to note that open doors were only considered in some of the hospital restructuring studies, among other architecturally positive or service reorganization elements. The decision to make a ward open depends on type of patient population. We also note that open door policies may not be relevant to the VA.
25	4	pg. 19 line 17:"coersive practices", this terminology is very controversial and may denote a negative connotation despite staff doing everything to prevent seclusion, staff are doing something unethical-suggest not using this term throughout this report.	Please see our reply to comment 23.
26	4	pg. 19, line 42: seclusion definition-use TJC and code of fed regs definition.	In the Introduction (pg. 19 line 42) we describe seclusion following the approach used in the literature.
27	4	pg. 19 line 47: "...seclusion may/may not be monitored"-this is not accurate, TJC requires all patients in seclusion to be monitored.	In the Introduction we note that how seclusion is implemented in practice varies. We revised the statement to no longer emphasize as an example that in practice patients in seclusion may or may not be monitored. with
28	4	pg. 21 line 9: "we worked with representatives from OMHSP...please add ONS (Office of Nursing Services) which I fall under.	We revised the text to acknowledge the affiliation of the Operations Partners and TEP. The Preface also lists all TEP members, their titles, and affiliations.
29	4	pg. 23, line 8: inclusion criteria: population consists of state statues of voluntary/involuntary commitments	We revised the inclusion criteria to note the patient population consists of Adults with psychiatric conditions admitted (voluntary / involuntary) and being treated in hospital inpatient units.
30	4	pg 24, line 30: "staffing" there is no mention of staffing ratios and staffing mix (particularly) RNs	Thank you. The word 'mix' was missed from KQ 2 and has been added.

Comment #	Reviewer #	Comment	Author Response
		and impact on seclusion (ANA position statement: Reduction of Patient R&S in Healthcare Settings.	
31	4	pg. 36 line 55: "light and noise levels" no mention of the temperature in the unit.	Light and noise was mentioned as it was a specific example of environmental restructuring in one of the protocols listed. While unit temperature could feasibly be considered (as part of the environment or sensory modulation rooms), it was not mentioned explicitly and is not reported here.
32	4	pg. 63 line 23: "bright light" could be overstimulating-would consider "natural lighting" per the Design Guide.	We have changed bright light to natural light.
33	4	pg. 69 line 16: " restructure units to include open unit" again this is not the policy or practice in VA an not a reasonable consideration. Would also offer that other patient care needs are considered and addressed (trauma informed care; pain; withdrawal; hunger, thirst; disturbing hallucinations; intrusive thoughts) as well as unit management philosophy /attitudes of staff (recovery care vs. custodial care). in addition to staff education levels (RNs-ADN, BSN, MSN, certifications etc) and staff ratio and mix (e.g. All RN staff and impact on reducing seclusion).	Please see reply to comment 24.
34	5	Minor edits listed below with page/line reference. One suggestion: Clarify early what is included in "coercion events" ... restraint, seclusion, meds, all of the above, something else. There is a lot about "composite measures for coercion" (also not well defined) and it's not clear what elements would be included in those composite measures until page 15 and then only by inference in line 7.	We revised the Introduction to clarify the meaning of coercion (see footnote a). When studies define coercion or composite measures we report the definition. Where studies do not define coercion, we indicate that the definition is not reported.
35	5	Edit Suggestions: Page 12 Line 29 "reduce seclusion on patient and staff outcomes and the resource needs required to implemented" [change to implement]	Thank you, this change has been made.

Comment #	Reviewer #	Comment	Author Response
36	5	Page 13 Line 35 "seclusion, respectively.. Based on our coding of the interventions, we identified 5 intervention" [remove extra period]	Thank you, this change has been made.
37	5	Page 14 Line 43 "for some outcomes and spares reporting of data. Studies provide insufficient evidence (providing" [change spares to sparse]	Thank you, this change has been made.
38	5	Page 16 Line 19-20 "Despite great interest from policymakers, providers and patients for effective alternatives to seclusion, there are limited data on the benefits of seclusion." [Is there a word missing here? Because not sure what this introduction to the discussion means (how the interest in alternatives relates to the benefits of seclusion) or how it ties into the paragraph that follows]	This was an error. We have corrected it to read as follows: "Despite great interest from policymakers, providers and patients for effective alternatives to seclusion, there are limited data on the benefits of protocols designed to reduce seclusion in adult inpatient mental health wards"
39	5	Page 16 Line 44 "Outcomes such as of patient aggression, patient/staff injuries, and patient/staff" [remove "of"]	Thank you, this change has been made.
40	5	Page 17 Line 51 "that aim implement all or parts of these interventions." [add "to" after aim]	Thank you, this change has been made.
41	5	Page 22 Line 30 "organizations in US or Canada or implemented or intended to be implemented these countries." [add "in" after intended to be implemented]	Thank you, this change has been made.
42	5	Page 37 Line 56 "(2) advisory statements to handled flashpoints;" [change handled to handle]	Thank you, this change has been made.
43	5	Page 65 Line 36 "reduce the likelihood of a precipitating behavior requiring seclusion or any alternatives." [I think the "a" needs to be removed to say "reduce the likelihood of precipitating behavior requiring seclusion or any alternatives"]	Thank you, this change has been made.
44	5	Page 65 Line 59 "restrain was unknown due to insufficient evidence" [should be "restraint" rather than restrain]	Thank you, this change has been made.
45	7	Thank you for reviewing efforts to reduce seclusion on IMH units. The following are	Please see reply to comment 24 above

Comment #	Reviewer #	Comment	Author Response
		<p>comments provided to enhance the draft. P11. Line 21. "open-door policy" is confusing as VHA inpatient mental health units are locked. Does this mean internal doors on the unit? Or did your review include literature on non-VA voluntary private pay facilities? VA provides IMH care to a very different clinical population than those treated in private pay free-standing IMH units.</p>	
46	7	<p>P11. e23. The "ie," here is confusing. Perhaps a word is missing? This occurs again on line 53. This phrase: environment restructuring intervention function, or intervention function environment restructuring, is not used in the clinical IMH setting in VHA. Thus, providing an operational definition for the reader would be important. Perhaps deleting the word "function" may help make this term more understandable to the reader.</p>	<p>We extracted protocol elements into 1 of 9 intervention functions defined by the behavior change wheel. "Environmental restructuring" represents 1 of the 9 intervention functions. We revised the text in the Executive Summary clarify our intent.</p>
47	7	<p>In the summary, it would have been helpful to describe more clearly interventions that focused on staff v. interventions focused on patients. The first paragraph of the discussion explained this better.</p>	<p>We have called out the target of the intervention functions (staff vs. patient vs. both) more explicitly in the Executive Summary</p>
48	7	<p>P 11 Line 47. Use of the term coercion is problematic as it has a negative connotation. Recommend stating that this term is what was used in the research you reviewed. Coercion implies that staff are threatening or forcing patients to do something they don't want to do. That is not acceptable clinical care. Coercion is different from implementing seclusion or restraint for patient and staff safety purposes. VA must follow TJC requirements. Excerpt from TJC PC.03.05.01: Program: Hospital Chapter: Provision of Care, Treatment, and Services Introduction: N/A</p>	<p>See reply to comment 23 above.</p>

Comment #	Reviewer #	Comment	Author Response
		<p>Rationale: N/A Elements of Performance: 1. The hospital uses restraint or seclusion only to protect the immediate physical safety of the patient, staff, or others. 2. The hospital does not use restraint or seclusion as a means of coercion, discipline, convenience, or staff retaliation. 3. The hospital uses restraint or seclusion only when less restrictive interventions are ineffective. 4. The hospital uses the least restrictive form of restraint or seclusion that protects the physical safety of the patient, staff, or others. 5. The hospital discontinues restraint or seclusion at the earliest possible time, regardless of the scheduled expiration of the order. Please find a different term to use in this paper.</p>	
49	7	<p>P. 12 Line 21. Physical restraint is actually the intervention of last resort, as it requires VHA staff to actually put hands on the patient to prevent movement. Seclusion is the least restrictive type of restraint. However, external accreditation standards (e.g., TJC) results in seclusion being more staff-intensive (seclusion requires direct observation) as compared to restraint. That should be clarified here.</p>	<p>We revised the text to emphasized that that seclusion is increasingly seen as “an” intervention of last resort (i.e., one of several, including restraint), not “the” intervention of last resort. For that reason, we have kept the sentence as is as we believe the intent is clear.</p>
50	7	<p>P. 13 Line 14. Operationally define behavioral change wheel.</p>	<p>We have added additional details on the behavior change wheel (already in the full report) in the Execute Summary.</p>
51	7	<p>P. 13 Line 52. In terms of discussing reduction of seclusion from transforming a unit from a locked inpatient unit to a residential unit, that is essentially changing the level of care from inpatient to residential, which are not comparable. We have locked units that treat patients who are committed (either voluntarily or but the state court) to receive acute inpatient mental health care. A residential program is not acute care.</p>	<p>See reply to comment 24 above.</p>

Comment #	Reviewer #	Comment	Author Response
52	7	P. 14 Line 35. Unclear the operational definition of enablement.	The operational definition of enablement (along with the operational definition of the other 8 intervention functions) was not included Executive Summary as this would make the summary too cumbersome. The details of how each intervention function was defined is included in the full report and Appendix B.
53	7	P15 Line 38. Should “creates” be “crates?”	Thank you, this change has been made.
54	7	P. 17 Line 12. Again, “open” wards is a residential level of care which is different from IMH care. This summary seems like a suggestion to make acute inpatient units unlocked wards, which is not realistic. Patients who do not need acute inpatient care would be discharged to a lower level of care such as residential or outpatient mental health services. This comes up again on P. 18 Line 9.	See reply to comment 24 above.
55	7	P. 33 Line 49. Unclear how continuous video monitoring is described as a restriction. Monitoring patients when they are using items that can be used for self-harm or harm to others is a safety procedure. Similarly, unclear how requiring patients to sign an agreement (BTW unsure what the agreement is about) prior to using the sensory modulation rooms is a restriction.	The <i>restriction</i> intervention function is defined as the use of rules to reduce the opportunity to engage in the target behavior or competing behaviors (see Appendix B). In one study, patients were informed that they may use the space as long as they were safe, but they would be monitored on video and staff could enter the space (ie, they would lose the privilege of using the room) if they were displaying unsafe behavior. In another study, patients had to sign an agreement form to use the sensory modulation room. Those who were unable/unwilling to sign the agreement form were not allowed to use the sensory modulation room. We interpreted both cases as examples of rules put in place to encourage positive and safe behavior for patients. We have added a clarifying statement to the agreement form (“...patients who were unable or unwilling to sign the agreement form were not allowed to use the sensory modulation room”).
56	7	P. 33 Line 53. Also unclear how customizing a sensory modulation room is enablement. Does enablement = customization? Not sure what to make of this as a treatment plan, for example,	The <i>enablement</i> intervention function is defined as increasing means/reducing barriers to increase capability or opportunity. We interpreted the extra efforts made by protocols to tailor the rooms to the specific requests of patients on the ward at that present moment (based on

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		should be customized to the individual. So is all treatment enablement?	intake forms) and supports put in place for patients to voluntarily use the rooms as examples of increasing patients' psychological capability and reducing patients' social and physical barriers (ward culture and set up) to use the sensory modulation rooms.
57	7	P. 49. Risk Assessment. As I read through this, I think what is missing for me is that it is unrealistic to expect any changes in rates of seclusion and restraint simply based on risk assessment. What is key is what you DO with the risk assessment data. In other words, how is the risk assessment data utilized by staff. It is not simply conducting a risk assessment that is key. It's that treatment is customized base on risk assessment results. Additionally, it seems that this section focused on risk of violence. On IMH assessing risk for self-harm is equally important, if not more so, in reducing seclusion and restraint. It seems that got lost in this review.	We describe the risk assessment protocols as they are reported in the studies. We agree that the staff action in response to the risk assessment is key, although not all protocols were explicit with this in their descriptions of the intervention. Where studies reported subsequent management protocols (informed by the risk assessments) we captured this information and coded the appropriate intervention functions. We have revised the name for this group of studies to be "risk assessment and management protocols".
58	7	A major theme throughout the report is that self-report data is biased, which is interesting. It seems the assumption is that the best methodology for research on variables related to reducing seclusion and restraint can only be found in RCTs. There seems to be a lack of understanding of how having researcher observers on a unit might impact staff and patient behavior, not to mention to difficulty in accommodating such a presence on many inpatient units where space is a premium. Where would the observers be situated? Some units have not had episodes of seclusion or restraint for years—how is that coded? No suggestions are provided on how to better conduct applied research in this type of setting.	<p>It is important to distinguish that bias from self-report data and non-RCT designs are different concepts. Self-reported outcomes (which are subjective and thus prone to performance bias) can still be used in RCTs. All studies in the review used self-reported data.</p> <p>Only 4 studies used an RCT design (which controls for factors associated with outcomes besides the intervention to give a more valid inference of treatment effect). We present the findings in the context of these potential biases so that decision-makers can have the full picture to inform their recommendations. We acknowledge the challenges with implementing more robust, unbiased methods in our discussion and provide suggestions for future research.</p>
59	7	P. 67 Line 50. "Recommendations" should be replaced with "requirements." Policies do not recommend behaviors rather, they stipulate required services. This occurs again on Line 58.	Thank you, this change has been made.



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60	7	P. 68 Line 8. Again, there seems to be a lack of understanding that an open ward is not consistent with an acute inpatient level of care. An open ward is essentially residential care. This must be removed.	See reply to comment 24 above.
61	7	P. 68 Line 10. Unclear why there is emphasis on smaller units. There was nothing in this report that looked at size of unit (square footage), number of beds per room, and related that to rates of seclusion and restraint. Indeed, having more treatment space and space for patients to interact, along with well-designed layouts with natural light and effective acoustics management is important. But that is not what this paragraph states.	Our intent in listing unit size as a feature to consider for future wards was not about square footage but about how many patients are housed in a unit - which was based on evidence we found in the hospital restructuring studies. We have modified this statement to add this clarification and added additional details noted by the reviewer which is consistent with the evidence we found. The sentence now reads: "As VA constructs new facilities it should consider constructing smaller units (ie, number of patients) with well-designed layouts incorporating natural light, effective acoustics management, and green space".
62	7	P. 68 Line 16. With the implementation of Cerner efforts to standardize documentation of seclusion and restraint may be proceeding more rapidly. FYI many facilities do conduct risk assessment (the Violence Risk Assessment Instrument was developed in VA) and certainly are required to conduct self-harm risk assessment. This section read as if VA does not currently do that.	Thank you for this comment. We agree that some efforts to standardize are underway. We have added "VA-wide improvement efforts have already been implemented towards standardized documentation in the electronic health record, such as the Violence Risk Assessment, however further opportunities exist which can include standardizing measures in the electronic medical record to document process (eg, use of seclusion) and outcomes (eg, aggression)."
63	7	A few typos here and there like extra periods, inserting a word out of place, wrong spelling of word, etc..	Thank you. We have reviewed the report for typographical errors and made the necessary corrections.