

Title Page

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Abstract

Restrictive practices are used in response to conflict and aggression in psychiatric inpatient settings. Reducing such practices is the focus internationally of policy and legislative change, many initiatives and a growing body of research. Safewards is a model and a set of 10 interventions, designed to reduce conflict and containment in inpatient services. The current study aimed to assess the impact of implementing Safewards on seclusion in Victorian inpatient mental health services. The study used a before and after design, with a comparison group matched for service type. Thirteen wards opted into a 12-week trial to implement Safewards and 1-year follow-up. The comparison group was all other wards ($n=31$) with seclusion facilities in the jurisdiction, matched to service type. Mandatorily reported seclusion event data for all 44 wards over a 15-month period was analysed using negative binomial regression. Adherence to Safewards was measured via fidelity checklists at four time points, twice during the trial, post trial and at one-year follow-up. Seclusion rates were reduced by 36% in Safewards trial wards by the 12-month follow-up period (IRR = 0.64) but in the comparison wards seclusion rates did not differ from baseline to post-trial (IRR = 1.17) or to follow-up period (IRR = 1.35). Fidelity analysis revealed a trajectory of increased use of Safewards interventions after the trial phase to follow-up. The findings suggest that Safewards is appropriate for practice change in Victorian inpatient mental health services more broadly than adult acute wards, and is effective in reducing the use of seclusion.

Key words: aggression, mental illness, psychiatry, Safewards, seclusion

Introduction

Internationally, there is recognition that inpatient mental health services are under increasing pressure to treat people with the most acute symptoms of mental illness (Green and Griffiths, 2014, Allison and Bastiampillai, 2015, Foster et al., 2007). In light of this, high levels of distress, agitation and aggressive behaviour and the use of restrictive interventions to manage aggression has become the focus of research and legislative changes internationally (Brophy et al., 2016b, McSherry, 2008, Bowers, 2014, LeBel et al., 2014). In the context of being involuntarily treated in an inpatient ward and experiencing an acute phase of severe mental illness, it is common for consumers to feel distressed and show agitated behaviour, sometimes including verbal or physical aggression, self-harm or attempts to abscond (Dumais et al., 2011, Bowers et al., 1999). Collectively these situations have been termed conflict events (Bowers, 2014). Restrictive interventions are coercive measures that include seclusion and restraint. Seclusion has been defined as “the deliberate confinement of a person in a room or area that he or she cannot freely exit” (Kinner et al., 2016). The high degree of conflict and restrictive interventions occurring in inpatient mental health wards has been identified as a significant problem over two decades, both in Australia (Australian Human Rights Commission, 1993, Oster et al., 2016) and around the world (LeBel et al., 2014, Boumans et al., 2015). Policy changes, practice initiatives and a growing body of research have been directed at improving nursing interventions in response to conflicts and reducing reliance on restrictive interventions (van de Sande et al., 2013, Boumans et al., 2014, Wharewera-Mika et al., 2016).

Background

The Australian Institute of Health and Welfare (Australian Institute of Health and Welfare, 2014b) estimates that 2-3% of the Australian population is affected by serious problems of mental health, most commonly severe depression, anxiety or psychosis. Morgan et al (2012) estimated that 64,000 people accessed public mental health services annually for severe mental illness. In 2015-16 in the Australian state of Victoria, 67,555 people were registered as consumers of government mental health services (Victorian Department of Health and Human Services, 2016). According to the 2016 Victorian Government Mental Health Annual report, in 2015-16 there were 18,684 admissions of adults in a public mental health services and 58% of hospitalisations were compulsory admissions (that is, people were admitted without their consent for compulsory treatment) (Victorian Department of Health and Human Services, 2016). Lengths of stay were reported to be brief, averaging 9.6 days for adults (Victorian

Department of Health and Human Services, 2016). This indicates that people are treated in hospital only for the most acute phase of care.

Restrictive interventions have long been used by staff in inpatient wards to manage conflict events (Happell and Harrow, 2010) and seclusion has been relied upon in particular in Australian services (Oster et al., 2016). Across all jurisdictions currently in Australia, legislation allows for the use of restrictive interventions, including seclusion, to manage potentially dangerous situations involving patients whose legal status is involuntary. Reduction in the use of restrictive interventions is a national priority in Australia, requiring that practice is consistent with the underlying principles in mental health legislation, including recovery oriented practice, and Australia's obligations under the United Nations Convention on the Rights and Persons with Disability (CRPD).

Harms associated with seclusion have been widely reported. The use of seclusion is not supported by research to be therapeutic (Sailas, 2012), rather it has been linked to negative consequences for mental healthcare consumers and staff (Victorian Government Department of Health, 2013). Consumers report feeling distressed, angry or anxious, consider that their human rights have been infringed, or may be re-traumatised if they have a history of abuse (Bower et al., 2003, Brophy et al., 2016b). Feelings of distress have also been reported by patients who witness seclusion without being secluded themselves (Bower et al., 2003). In addition, staff may experience distress and feel conflicted between maintaining control and upholding their professional values to provide care and support. Furthermore, the use of restrictive interventions has been found to result in substantial cost to staff time (Bower et al., 2003, Victorian Government Department of Health, 2013). Awareness of these negative effects of restrictive practices has led to a strong desire from all key parties, including mental health professionals, people who have experienced seclusion, their family members and supporters, and human rights bodies, to reduce to an absolute minimum, restrictive practices in mental health settings (McSherry, 2008, Kinner et al., 2016, Keski-Valkama et al., 2007, Brophy et al., 2016a).

LeBel and colleagues (2014) highlight that whilst efforts are being made internationally to reduce restrictive practices, there has been limited useful reporting of these efforts. Since 2006, there has been a national focus on reducing coercive practices in Australia (Commonwealth of Australia, 2009) and rates of seclusion have since been reported systematically, by State and Territory. Across Australia, rates of seclusion have reduced, on

average, 11% per year for the past five years. However, at the national level, child and adolescent services have a higher rate of seclusion than adult and aged acute services (Australian Institute of Health and Welfare, 2014b). The most recent reporting period reveals that by State, the rate of seclusion ranged from 0.9 per 1000 bed days to 19.7 per 1000 bed days. In Victoria the rate of seclusion in inpatient units per 1,000 occupied bed days reduced, from 9.8 in 2013–14 to 9.1 in 2015–16 (Victorian Department of Health and Human Services, 2016). These rates are consistent with recent reports from other Australian states (Oster et al., 2016). Therefore, there appears to be some evidence of a reduction in the rate of seclusion in Australia as a result of legislation and policy change. However, limited attention has been given to researching methods of practice change or interventions that would further support this reduction and potentially eliminate the use of restrictive practices altogether (Brophy et al., 2016a).

Effort has been undertaken to identify the conflict events, including physical and verbal aggression, absconding, and self-harm, that may contribute to the use of restrictive practices (Stewart et al., 2012, Bowers and Crowder, 2012, Bowers et al., 2011). Even so, a key limitation of research in this area has been the focus on one particular issue in isolation; for example, absconding or self-harm. A review of seclusion reduction interventions highlighted the need for multifactorial interventions to achieve effective change in restrictive practices (Gaskin et al., 2007). Bowers and colleagues contributed literature reviews (Alexander and Bowers, 2004, Bowers and Jeffery, 2008, Bowers et al., 2008a, Bowers et al., 2011, Dack, 2013, Van Der Merwe et al., 2009) and empirical research (Bowers and Crowder, 2012, Bowers et al., 2013a, Bowers et al., 2013b) assessing a range of conflict events or containment events (such as seclusion, restraint, special observation or time out). These investigators addressed significant conflict and containment issues facing inpatient mental health by developing a theoretical model alongside a set of evidence based strategies, in an attempt to reduce conflict events and thereby reduce the need for containment (Bowers et al., 2008b, Bowers et al., 2013b, Bowers and Crowder, 2012). Findings from literature reviews and empirical research were synthesized and Bowers et al developed Safewards (Bowers et al., 2014). Safewards as a model and a set of interventions has subsequently been adopted in several contexts internationally to support the aim of reducing restrictive practices on inpatient units

Safewards model and UK trial

Safewards is a theoretical model and set of ten interventions developed and trialled in the United Kingdom. The Safewards model provides a conceptual framework regarding conflict and containment events on acute mental health wards and proposes 10 interventions designed to reduce conflict and containment events (Bowers, 2014).

[Figure 1 here]

Figure 1 displays the simple form of the Safewards Model (Bowers, 2014). The model shows that there is a linear relationship between originating domains, flashpoints and conflict events, whereby the originating domains (e.g. a physical aspect of the ward) may give rise to flashpoints (a situation signaling and preceding for example physical aggression) which can then set in motion an incident of conflict, possibly resulting in containment. The relationship between conflict and containment is reciprocal, given that research shows the use of containment can also lead to further conflict. The model also indicates that the influence of staff modifiers, such as staff interactions with patients, may be present at every level. Patient modifiers, such as patient response to another patient, can influence processes either before or after a flashpoint, and patient modifiers are also influenced by the staff modifiers. Table 1 outlines the ten interventions that comprise the Safewards intervention.

[table 1 about here]

The Safewards model and these 10 interventions were tested in a single blind randomised controlled trial (RCT) with a sample of 31 wards in the UK. Results of the RCT suggested that implementation of the Safewards model and 10 interventions resulted in a significant decrease in conflict and containment events (15% and 24%, respectively) (Bowers et al., 2015).

However, in light of the limitations of the UK Safewards RCT as described by Bowers and colleagues (2015), such as lack of long-term follow-up, and further limitations proposed by Mustafa (2015) regarding the blinding of the investigators and levels of compliance to the intervention, additional research is needed to assess the efficacy of the Safewards model and the 10 interventions.

Safewards: Victorian Trial

In July 2014, a new Mental Health Act was enacted for the Australian state of Victoria, a key goal of which is for mental health services to reduce, and where possible eliminate, the use of restrictive interventions. In support of this goal each health service was asked to submit a

proposal to the Government outlining initiatives they would use to reduce the use of restrictive interventions. As a result seven health services nominated the implementation of Safewards as their initiative, including four different ward types; adult acute, adolescent acute, aged acute and secure extended care units. The Government initiated the Victorian Safewards Trial to support these mental health services to achieve this goal. Therefore, wards were funded on an opt-in basis to implement Safewards over a 12 week trial period with follow-up for one year. Implementation in Victoria provides an opportunity to extend the use of Safewards beyond acute adult wards, to explore the applicability of Safewards in the Australian mental health system, and to address a number of methodological concerns raised in relation to the UK RCT.

Reporting of seclusion is mandatory for staff of inpatient wards in Victoria. Use of seclusion is non-ambiguous in its reporting (occurrence or non-occurrence), thus seclusion is one ideal outcome measure to use in the assessment of the effectiveness of the Safewards intervention. Measurement of the level of fidelity to the Safewards model and interventions, over a 12 month period, also allowed the researchers to better assess the dose effects of intervention than was evident in the UK trial. Therefore, the aims of the present study were to compare seclusion rates between Safewards trial wards and other Victorian mental health wards (comparison wards) and to investigate the impact Safewards has on the use of seclusion in trial wards. Specifically, the primary research questions were:

1. Is the rate of seclusion in trial sites different from the rate of seclusion in comparison wards, pre-trial to post-trial and follow-up?
2. Is there a dose-response relationship between intervention fidelity and rates of seclusion in trial sites?

Methods

Study Design

This is a before and after study with a comparison group, identified as belonging to the same service type, i.e. adult and adolescent. The study was conducted between March 2015 and April 2016, with Victorian inpatient mental health services.

Ethics approval

Ethics approval was obtained from the University of Melbourne Human Ethics Sub-Committee (ID 1443604), as well as Victorian Human Research Ethics Multi-site (ID 15225L) approval for each of the seven involved Health Services.

Study setting

The wards implementing Safewards were provided three train-the-trainer sessions to representative nurse educators by the Victorian Department of Health and Human Services, who then rolled out local training reaching an estimated 75% of nurses employed on the wards. In terms of compliance, the goal rate of fidelity to the intervention was set prior to the start of the trial to be at least 70% by the end of the trial. Setting this minimum target was seen as prudent from the perspective of the Victorian Department of Health and Human Services.

Data collection

Overall 44 inpatient mental health wards were included in the present Safewards paper, representing two service types. Thirteen wards implemented Safewards and 31 served as comparison wards. Comparison wards were identified and grouped according to service type. In both the trial and comparison groups there was a mix of regional and urban wards, and large and small organisations. In large organisations some wards are connected. Table 2 below indicates the number of wards for each service type. While the Safewards trial included aged care and SECU, they were excluded from this paper to reduce heterogeneity, and because rates of seclusion (the primary outcome in this paper) in these wards were zero or near-zero, such that we had a floor effect that would preclude observation of a reduction over time.

[table 2 about here]

Measures

Two sources of data were used in this study. The first is the statewide mental health data from the Client Management Interface and the second is the Fidelity Checklist.

The **Client Management Interface (CMI)** data represents all records of mental health service contacts that are reported to the Victorian Government. The evaluators were provided with de-identified per admission data, regarding all mental health inpatient consumers in Victoria. Linked data were provided about seclusion events, and also the numbers of

available beds. These data enabled generation of per-ward seclusion rates, standardised to allow for variations in ward size and occupancy. CMI data were obtained for a 15 month period, beginning 3 months prior to the Safewards trial and ending 12 months after the start of the trial.

The **Fidelity Checklist** is a brief standardised audit tool used by the UK Safewards trial team and available as freeware on the UK Safewards website (Bowers et al., 2015). This tool was modified and used to collect data about the consistency with which each of the 10 interventions was implemented in each ward. The checklist enabled scoring of overall fidelity with intervention implementation, per site at four time points throughout the study. A member of the research team attended each ward for between 30-60 minutes per visit: during the trial in March 2015 (Time 1) and May 2015 (Time 2); immediately post-implementation in June 2015 (Time 3); and again in March 2016 (Time 4).

Data Analysis

CMI data were grouped into three time points, pre-trial (1 Dec 2014 – 28 Feb 2015), post-trial (1 Jun – 31 Aug 2015), and follow-up (1 Dec 2015 – 29 Feb 2016).

Descriptive analyses assessed the ward characteristics and rates of seclusion for all trial and comparison wards for the 15-month trial and post-trial period. For all analyses, the number of operational beds available for each ward per month was used to calculate the number of seclusion events per 1000 occupied bed days per ward per month. The rate of seclusion per 1000 occupied bed days was suitable in this study as it aligned with the method suggested by Bowers (2000) and it aligns with standard Victorian Government Reporting (Australian Institute of Health and Welfare, 2014a) .

Research question 1 related to seclusion rates. Analysis of seclusion rates in trial and comparison wards from pre-trial to post and follow-up was conducted using negative binomial regression. The outcome variable was the number of seclusion episodes in each ward for each time point and the number of available beds was used as an offset term. The key predictors were trial phase (pre, post and follow-up) and terms for ward occupancy rates and service type. Our modelling strategy was to fit an interaction term between trial phase and exposure to Safewards (trial or comparison ward). On the basis that we observed a significant interaction between the two results ($p = 0.04$), we then refit the model stratified by trial site.

We did this because stratified models are easier to interpret than models with interaction terms.

Research question 2, regarding the dose-response relationship between intervention fidelity and rates of seclusion in trial sites, was answered with an analysis of CMI data and fidelity scores.

The Fidelity Checklist data was scored and analysed in a manner consistent with that used in the UK Safewards trial (Bowers et al., 2015). That is, each intervention was recorded as either being present or not, and for some interventions the evaluators were required to count the number of occurrences; for example evaluators counted discharge messages up to 10. Each intervention then received a score out of a maximum ten. For example, for the *soft words* intervention, the presence of a poster would result in a 10/10 and poster absence would result in 0/10, whereas for the *discharge messages* intervention the score was a composite of the presence of a display and then number of messages displayed, so the score ranged from 0-10. The result is an overall fidelity score out of 100. Changes in fidelity over the four time points were graphed in conjunction with 3-monthly seclusion rates, in order to examine the relationship between fidelity and seclusion rates for the Safewards trial wards.

A composite two way area graph of seclusion rates was combined with a scatter plot of fidelity scores over time for adult and adolescent wards, to depict the relationship between fidelity scores over the life of the trial in relation to seclusion rates. Coefficients were transformed into incidence rate ratios (IRRs) to assist interpretation. All analyses were undertaken using Stata v14.0.

Results

Seclusion rates in trial and comparison wards

[table 3 about here]

Seclusion rate per 1000 occupied bed days were comparable for trial and comparison wards in the pre and post periods (Table 3). However in the follow-up period in the Safewards group, seclusion rates decreased, where as in the comparison group seclusion rates increased.

Occupancy rates are a measure of how many people are on the ward as a percentage of the

ward capacity and occupancy rates tended to be slightly higher in trial wards than comparison wards throughout the 15-month period.

[table 4 about here]

Table 4 indicates that in trial wards, in comparison to the seclusion rate in the pre-trial period, there was no evidence of a change in the seclusion rate in the post-trial period (IRR = 1.03) but there was a 36% reduction from baseline to follow-up period (IRR = 0.64). These results were independent of the overall occupancy rate and the service type.

A different pattern emerged for the comparison wards. There was no evidence that the seclusion rates in the post-trial period (IRR = 1.17) or the follow-up period (IRR = 1.35) were different from the pre-trial period.

Fidelity and Seclusion for trial wards

[table 5 about here]

Table 5 highlights the trajectory of improvement of each service type over the course of the trial period. Each 10-point range indicates that one intervention is being implemented, so for example a score of 45 indicates that at least four interventions are being implemented. Adult services showed consistent improvement over the four time points. At the initial fidelity visit on average these services were delivering four interventions. By the last fidelity visit an average of nine interventions was being delivered. In contrast the Adolescent /youth services began the trial with high fidelity; seven interventions at time 1. For the remaining fidelity visits the scores varied between seven and nine, consolidating with nine interventions 12-months after the trial began.

[figure 2 about here]

For adult and adolescent wards that implemented Safewards the average seclusion rate for all wards trended down over the 15-month period, with a high degree of variation between the seclusion rates of some wards (Figure 2). Fidelity scores show a strong trajectory of improvement in the number of Safewards interventions that were being implemented that continued to improve after the end of the trial period at the end of May 2015. This graph shows that seclusion was not significantly reduced immediately post-trial implementation where fidelity was only moderate, but in the follow-up period where seclusion was reduced

significantly the graph highlights that fidelity to intervention was excellent, on average wards were implementing 9 of the 10 interventions.

Discussion

The findings from this study provide evidence that implementing the Safewards intervention in Victorian adult and adolescent inpatient mental health services can reduce the use of seclusion. The results of the negative binomial regression indicate a 36% ($p= 0.04$) reduction in the rate of seclusion in Safewards trial wards from the pre-trial period to follow-up. This finding is in contrast to the increased rate of seclusion indicated in the comparison wards over the same time frame.

This was not a randomized controlled trial and the wards implementing Safewards did so on an opt-in basis. However, it is noteworthy that all Victorian wards were part of Reducing Restrictive Interventions projects in the same time period, requiring each service to implement a strategy of their choosing, in an effort to directly impact on seclusion rates. Thus the comparison wards were engaged in efforts to implement some sort of program to reduce the rates of seclusion over the same time frame, and despite these efforts the rate of seclusion in the comparison wards as a group increased. These comparison data provide further weight to the finding that Safewards can significantly reduce the use of seclusion in inpatient settings.

The findings from the independent fidelity checklists show that the goal set at the start of the trial to reach 70% fidelity was achieved by the end of the trial (time2). Fidelity with the intervention steadily improved throughout the 12-week trial and the trajectory of improvement continued throughout the 12 month follow-up period. At the completion of the follow-up period on average wards were implementing 9 out of 10 Safewards interventions, thus indicating a high 'dose' of the intervention. The last 3 months of the follow-up period coincides with the significant improvement in rates of seclusion. In contrast to the Victorian fidelity scores the UK trial was 16-weeks in total (8 weeks of implementation and 8 weeks outcome period) and achieved on average 50% fidelity by the end of 16 weeks (Bowers, 2015).

The findings of the current study are positive. Safewards implementation success seems linked to high fidelity; as wards opted in, it may have been that staff on participating wards were highly motivated to change. Additionally, reasons for success may be attributed to two key activities that were unique to the Victorian Trial: first, there was a concerted and systematic effort to train staff prior to the commencement of the 12 week trial; second, the fidelity

monitoring of the Victorian trial was extended beyond the trial period for 12 months. Victorian staff were involved in interactive training utilising the UK Safewards training materials and other materials developed locally for the trial. It is likely that the concerted effort to train all staff had a positive impact on the level of fidelity achieved in the 12 week trial period and beyond. In contrast, staff training in the UK trial was self-directed, whereby staff were provided with Safewards training material and access to videos (Bowers et al., 2015).

The advantage of the extended follow-up of the Victorian study is that there is evidence that, after the trial period was complete and the direct funding and extra support stopped, all wards continued to implement Safewards. The fidelity scores highlight that it took 12-months for implementation efforts to be consolidated and ward staff were able to sustain implementation on average for 9 out of 10 interventions. Furthermore, the Victorian trial highlighted that fidelity with the intervention can be achieved across a broader range of inpatient mental health services, such as acute adolescent wards.

There are gaps evident in the present study. First, seclusion is a rare event and previous research shows that there are more proximal practices of containment such as special observation, intramuscular medication and time out (Bowers et al., 2015). The use of the Patient Staff Conflict Checklist (PCC) developed by Bowers et al (2013b, Bowers et al., 2015) in the UK RCT enabled the impact of Safewards to be evaluated across a number of meaningful indicators of conflict and containment. Unfortunately the use of the PCC was not feasible in the present study, as it was considered too demanding on staff time to complete and the researchers noted the low completion rate in the UK trial (Bowers et al., 2015). It is a limitation of the present study that we were unable to report on an objectively measured outcome for Aged and SECU services. Given the almost zero rate of seclusion for these services, this was not a sensitive indicator of change despite the high fidelity with the intervention achieved in these services. Future research should therefore focus on the development of a more proximal measure of conflict and containment to provide objective feedback on the outcomes of using the Safewards model and interventions. In the case of services for Aged persons, attention must be paid to restraint use, as this has been identified as a more common strategy (Gerace et al., 2013).

Second, whilst this study involved wards in 7 health services across urban and regional Victoria, it still only covers one Australian state, so our ability to generalize about the compatibility of Safewards to the Australian context is limited. However, the present study

does provide evidence that the Safewards model and its 10 interventions have applicability outside the UK setting.

This study found a 36% reduction in containment events in the Victorian context which is comparable to a 24% reduction in containment events reported for the UK trial. Mustafa (2015) argued that fidelity to the intervention was low in the UK RCT, up to 50% immediately after the outcome period (16-weeks), which then calls into question what exactly was impacting upon conflict and containment. However, as discussed above, fidelity to the intervention was an important factor in this study and it appears that the longer term follow up of measuring fidelity to the intervention alleviates some of the limitations raised by Mustafa, regarding the UK trial. Also, for the Victorian trial it was made explicit by the funding body, the Victorian Department of Health and Human Services, that all wards were expected to implement all 10 interventions, and training resources were committed to enable this. Thus the degree of implementation in Australia was significant and gives weight to the findings that it is in fact Safewards implementation that is having an impact upon rates of seclusion. Practically, it was evident that there were significant challenges for staff to implement all 10 interventions as rapidly as in the UK trial. The increase in fidelity scores over the project period offers weight to the suggestion that slower implementation may be more successful. Further, organisational changes in leadership, other policy demands on the units, and staff churn may make it difficult to implement practice changes.

The present study has key strengths, such as an extended follow-up period and an objective measure of containment events. A number of limitations are also evident. First, lack of measurement of changes to conflict and to containment events, apart from seclusion, that are targets of the Safewards model and interventions is a significant limitation which prevented an analysis of the impact of Safewards in aged and SECU services. Second, lack of fidelity measurement at more regular intervals is problematic; more regular fidelity measurement may have added some detail about implementation after the initial period of the trial and after the end of the associated funding. Third, the study is confined to one jurisdiction in Australia and so it is possible that the successes here may not translate in other jurisdictions. Fourth, whilst this study involved a comparison group there was no randomization involved.

Conclusion

The present study adds much needed evidence to the literature about a practice change initiative that supports legislative and policy directions to reduce and if possible eliminate the use of seclusion and restraint in inpatient mental health services. Safewards is a complex intervention developed in the UK that has been successfully implemented in Victoria, Australia. This evaluation of the Victorian trial provides new evidence that Safewards is applicable and can be implemented on wards other than adult acute inpatient wards. Future research should focus on a method of measuring conflict and containment events on inpatient wards that is fast, accurate and simple for staff to use so that future implementation of Safewards can be studied in greater depth than the present study.

This study is relevant for clinical practice as it adds detail to the implementation of Safewards; specifically implementation of Safewards to a point of sustainability takes 6-12 months, when a concerted training effort precedes the implementation. Safewards is applicable in adolescent acute wards, which is an extension of the use of Safewards beyond the UK trial. Finally, it is effective in reducing rates of seclusion significantly when implemented sustainably over a 6-12 month period.

References

- ALEXANDER, J. & BOWERS, L. 2004. Acute psychiatric ward rules: a review of the literature. *Journal of Psychiatric & Mental Health Nursing*, 11, 623-631.
- ALLISON, S. & BASTIAMPILLAI, T. 2015. Mental health services reach the tipping point in Australian acute hospitals. *The Medical Journal Of Australia*, 203, 432-434.
- AUSTRALIAN HUMAN RIGHTS COMMISSION 1993. Report of the national inquiry into the human rights of people with mental illness. Canberra.
- AUSTRALIAN INSTITUTE OF HEALTH AND WELFARE 2014a. Key Performance Indicators for Australian Public Mental health Services: PI 15-Rate of Seclusion (acute inpatient units).
- AUSTRALIAN INSTITUTE OF HEALTH AND WELFARE 2014b. Mental health services - in brief 2014. Canberra: AHWI.
- BOUMANS, C. E., EGGER, J. I. M., SOUREN, P. M. & HUTSCHEMAEKERS, G. J. M. 2014. Reduction in the use of seclusion by the methodical work approach. *International Journal of Mental Health Nursing*, 23, 161-170.

- BOUMANS, C. E., WALVOORT, S. J. W., EGGER, J. I. M. & HUTSCHEMAEKERS, G. J. M. 2015. The methodical work approach and the reduction in the use of seclusion: how did it work? *The Psychiatric Quarterly*, 86, 1-17.
- BOWER, F. L., MCCULLOUGH, C. S. & TIMMONS, M. E. 2003. A synthesis of what we know about the use of physical restraints and seclusion with patients in psychiatric and acute care settings: 2003 update. *Online Journal of Knowledge Synthesis for Nursing*, 10, 29p-29p.
- BOWERS, L. 2000. The expression and comparison of ward incident rates. *Issues in Mental Health Nursing*, 21, 365-374.
- BOWERS, L. 2014. Safewards: a new model of conflict and containment on psychiatric wards. *Journal Of Psychiatric And Mental Health Nursing*, 21, 499-508.
- BOWERS, L., ALEXANDER, J., BILGIN, H., BOTHA, M., DACK, C., JAMES, K., JARRETT, M., JEFFERY, D., NIJMAN, H., OWITI, J. A., PAPADOPOULOS, C., ROSS, J., WRIGHT, S. & STEWART, D. 2014. Safewards: the empirical basis of the model and a critical appraisal. *Journal of Psychiatric and Mental Health Nursing*, 354.
- BOWERS, L. & CROWDER, M. 2012. Nursing staff numbers and their relationship to conflict and containment rates on psychiatric wards—A cross sectional time series Poisson regression study. *International Journal of Nursing Studies*, 49, 15-20.
- BOWERS, L., JAMES, K., QUIRK, A., SIMPSON, A., STEWART, D. & HODSOLL, J. 2015. Reducing conflict and containment rates on acute psychiatric wards: The Safewards cluster randomised controlled trial. *International Journal of Nursing Studies*, 52, 1412-1422.
- BOWERS, L., JAMES, K., QUIRK, A., WRIGHT, S., WILLIAMS, H. & STEWART, D. 2013a. Identification of the 'Minimal Triangle' and Other Common Event-to-Event Transitions in Conflict and Containment Incidents. *Issues in Mental Health Nursing*, 34, 514.
- BOWERS, L., JARRETT, M., CLARK, N., KIYIMBA, F. & MCFARLANE, L. 1999. Absconding: why patients leave. *Journal of Psychiatric and Mental Health Nursing*, 6, 199-206.
- BOWERS, L. & JEFFERY, D. 2008. Alcohol and drug use by inpatients: A literature review. In: UNIVERSITY, C. (ed.). London: City University
- BOWERS, L., JEFFERY, D., BILGIN, H., JARRETT, M., SIMPSON, A. & JONES, J. 2008a. PSYCHIATRIC INTENSIVE CARE UNITS: A LITERATURE REVIEW. *International Journal of Social Psychiatry*, 54, 56.

- BOWERS, L., SIMPSON, A., NIJMAN, H. & HALL, C. 2008b. Patient ethnicity and three psychiatric intensive care units compared: the Tompkins Acute Ward Study. *Journal of Psychiatric & Mental Health Nursing*, 15, 195-202.
- BOWERS, L., STEWART, D., PAPADOPOULOS, C., DACK, C., ROSS, J., KHANOM, H. & JEFFERY, D. 2011. In patient violence and aggression: a literature review. Report from the conflict and containment reduction research programme. London: Institute of Psychiatry, Kings College London.
- BOWERS, L., STEWART, D., PAPADOPOULOS, C. & IENNACO, J. D. 2013b. Correlation between levels of conflict and containment on acute psychiatric wards: the city-128 study. *Psychiatric Services*, 64, 423-430.
- BROPHY, L. M., ROPER, C. E., HAMILTON, B. E., TELLEZ, J. J. & MCSHERRY, B. M. 2016a. Consumers' and their supporters' perspectives on barriers and strategies to reducing seclusion and restraint in mental health settings. *Australian Health Review: A Publication Of The Australian Hospital Association*.
- BROPHY, L. M., ROPER, C. E., HAMILTON, B. E., TELLEZ, J. J. & MCSHERRY, B. M. 2016b. Consumers and their supporters perspectives on poor practice and the use of seclusion and restraint in mental health settings: results from Australian focus groups. *International Journal Of Mental Health Systems*, 10, 6-6.
- COMMONWEALTH OF AUSTRALIA 2009. National mental health policy 2008. Canberra: Commonwealth of Australia.
- DACK, C. R. J. P. C. S. D. B. L. 2013. A review and meta-analysis of the patient factors associated with psychiatric in-patient aggression. *Acta Psychiatrica Scandinavica*, 127, 255-268.
- DUMAIS, A., LARUE, C., DRAPEAU, A., MENARD, G. & ALLARD, M. G. 2011. Prevalence and correlates of seclusion with or without restraint in a Canadian psychiatric hospital: a 2-year retrospective audit. *Journal of Psychiatric and Mental Health Nursing*, 394.
- FOSTER, C., BOWERS, L. & NIJMAN, H. 2007. Aggressive behaviour on acute psychiatric wards: prevalence, severity and management. *Journal of Advanced Nursing*, 58, 140-149.
- GASKIN, C. J., ELSOM, S. J. & HAPPELL, B. 2007. Interventions for reducing the use of seclusion in psychiatric facilities. *British Journal of Psychiatry*, 191, 298.
- GERACE, A., MOSEL, K., OSTER, C. & MUIR-COCHRANE, E. 2013. Restraint use in acute and extended mental health services for older persons. *Int J Ment Health Nurs*, 22, 545-557.

- GREEN, B. H. & GRIFFITHS, E. C. 2014. Original Contribution: Hospital admission and community treatment of mental disorders in England from 1998 to 2012. *General Hospital Psychiatry*, 36, 442-448.
- HAPPELL, B. & HARROW, A. 2010. Nurses' attitudes to the use of seclusion: a review of the literature. *International Journal Of Mental Health Nursing*, 19, 162-168.
- KESKI-VALKAMA, A., SAILAS, E., ERONEN, M., KOIVISTO, A.-M., LÖNNQVIST, J. & KALTIALA-HEINO, R. 2007. A 15-year national follow-up: legislation is not enough to reduce the use of seclusion and restraint. *Social Psychiatry And Psychiatric Epidemiology*, 42, 747-752.
- KINNER, S. A., HARVEY, C., HAMILTON, B., BROPHY, L., ROPER, C., MCSHERRY, B. & YOUNG, J. T. 2016. Attitudes towards seclusion and restraint in mental health settings: findings from a large, community-based survey of consumers, carers and mental health professionals. *Epidemiology And Psychiatric Sciences*, 1-10.
- LEBEL, J. L., DUXBURY, J. A., PUTKONEN, A., SPRAGUE, T., RAE, C. & SHARPE, J. 2014. Multinational experiences in reducing and preventing the use of restraint and seclusion. *Journal Of Psychosocial Nursing And Mental Health Services*, 52, 22-29.
- MCSHERRY, B. 2008. Protecting the Integrity of the Person: Developing Limitations on Involuntary Treatment. *Law in Context*, 26, 111-124.
- MORGAN, V. A., WATERREUS, A., JABLENSKY, A., MACKINNON, A., MCGRATH, J. J., CARR, V., BUSH, R., CASTLE, D., COHEN, M., HARVEY, C., GALLETLY, C., STAIN, H. J., NEIL, A. L., MCGORRY, P., HOCKING, B., SHAH, S. & SAW, S. 2012. People living with psychotic illness in 2012: The second Australian national survey of psychosis. *Australian and New Zealand Journal of Psychiatry*, 46, 735-752.
- MUSTAFA, F. A. 2015. The Safewards study lacks rigour despite its randomised design. *International Journal of Nursing Studies*, 1906.
- OSTER, C., GERACE, A., THOMSON, D. & MUIR-COCHRANE, E. 2016. Seclusion and restraint use in adult inpatient mental health care: An Australian perspective. *Collegian*, 23, 183-190.
- SAFEWARDS. *Safewards Interventions* [Online]. London: Institute of Psychiatry Available: <http://www.safewards.net/interventions> [Accessed March 2015 2015].
- SAILAS, E. E. S. 2012. Seclusion and restraint for people with serious mental illnesses. *Cochrane Database of Systematic Reviews*.

- STEWART, D., ROSS, J., WATSON, C., JAMES, K. & BOWERS, L. 2012. Patient characteristics and behaviours associated with self-harm and attempted suicide in acute psychiatric wards. *Journal of Clinical Nursing*, 21, 1004.
- VAN DE SANDE, R., NOORTHOORN, E., WIERDSMA, A., HELLENDORRN, E., VAN DER STAAK, C., MULDER, C. L. & NIJMAN, H. 2013. Association between short-term structured risk assessment outcomes and seclusion. *Int J Ment Health Nurs*, 22, 475-84.
- VAN DER MERWE, M., BOWERS, L., JONES, J., MUIR-COCHRANE, E. & TZIGGILI, M. 2009. *Seclusion: a literature review*. London: City University.
- VICTORIAN DEPARTMENT OF HEALTH AND HUMAN SERVICES 2016. *Victoria's mental health services annual report 2015-2016*. Victoria.
- VICTORIAN GOVERNMENT DEPARTMENT OF HEALTH 2013. *Reducing restrictive interventions: A literature review and document analysis*. Melbourne.
- WHAREWERA-MIKA, J. P., COOPER, E. P., WIKI, N. R., FIELD, T. R., HAITANA, J., TOKO, M., EDWARDS, E. & MCKENNA, B. R. B. M. P. 2016. Strategies to reduce the use of seclusion with tāngata whai i te ora (Māori mental health service users). *International Journal Of Mental Health Nursing*, 25, 258-265.

Tables

Table 1 Description of the 10 Safewards interventions (Safewards)

Safewards Intervention	Description
Clear Mutual Expectations	involves negotiation process between nurses and consumers, resulting expectations are displayed in a poster
Soft Words	encourages deliberate use of consumer-centred language by nurses, encouraged via a set of signs/framed statements, one displayed prominently in staff space and changed frequently
Talk Down	Is a structured de-escalation approach, supported by champion role modelling and individually mentoring staff; key elements are displayed in a poster

Positive Words	structures every nursing handover to include positive comments about each consumer
Bad News Mitigation	involves staff sharing at handover any knowledge about consumer experience of bad news or potential events (e.g. denied leave), making priority of listening to consumer concerns when this happens
Know Each Other	requires every-day introductory information about each staff member and each consumer to be displayed in a folder, poster or similar for all people in the ward to read
Mutual Help Meeting	Is a daily or frequent facilitated ward meeting structured to encourage the sharing of thanks, support and requests between consumers
Calm Down Methods	provides a set of resources for sensory self-soothing (such as herbal tea, blankets, soft toy, iPods with music, stress balls) freely available for consumers in the ward
Reassurance	requires the deliberate rounding by nurses to explain and provide support to every consumer who may have been impacted specifically after a conflict event in the ward
Discharge Messages	involves collecting and displaying in the ward encouraging messages from consumers as they leave to ward to other consumers

Table 2: Number of trial and comparison wards according to service type

Service type	Trial wards (N = 13)	Comparison wards (N = 31)
Adult	10	23
Adolescent	3	8

Table 3: Seclusion and occupancy rates, trial and comparison wards

	Trial Wards			Comparison Wards		
	Pre	Post	Follow-up	Pre	Post	Follow-up
Seclusion rate[†]	14.1	15.8	10.1	14.1	15.9	21.9
Occupancy rate	94.2	92.7	89.0	91.2	85.2	86.2

[†]seclusion rates are reported as a rate per 1000 occupied bed days

Table 4: Negative Binomial Regression, seclusion in trial and comparison sites

Predictor Variable	Trial Wards			Comparison Wards		
	Seclusion Incident Rate Ratio	95% CI	P-value	Seclusion Incident Rate Ratio	95% CI	P-value
	Trial phase					
pre_trial	1			1		
post_trial	1.03	0.66, 1.58	0.931	1.17	0.78, 1.95	0.501
follow-up	0.64	0.41, 1.00	0.040	1.35	0.88, 2.12	0.190

Note: The analysis controlled for all predictors in the table and service type, occupancy rates and for the number of operational beds available in each ward.

Table 5: Average fidelity score for adult and adolescent wards implementing Safewards

Service type	Time 1	Time 2	Time 3	Time 4
Adult wards	48	64	78	95
Adolescent wards	71	76	93	90

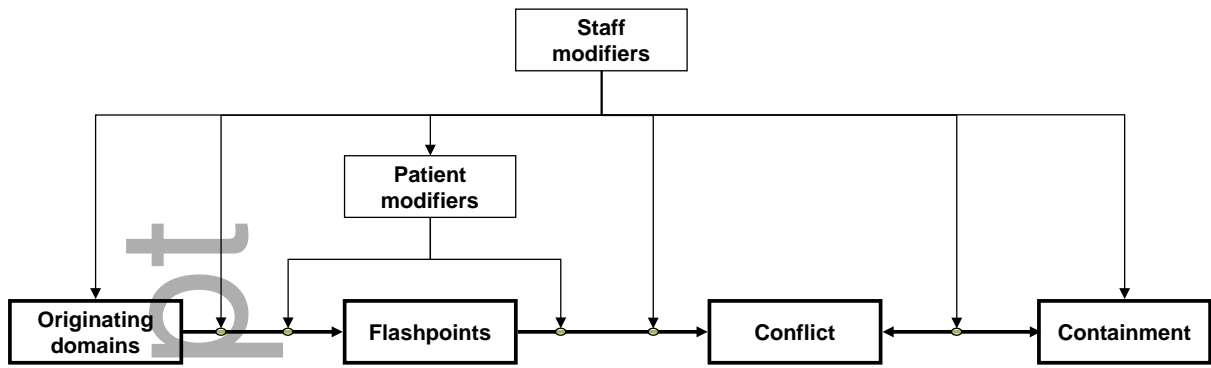
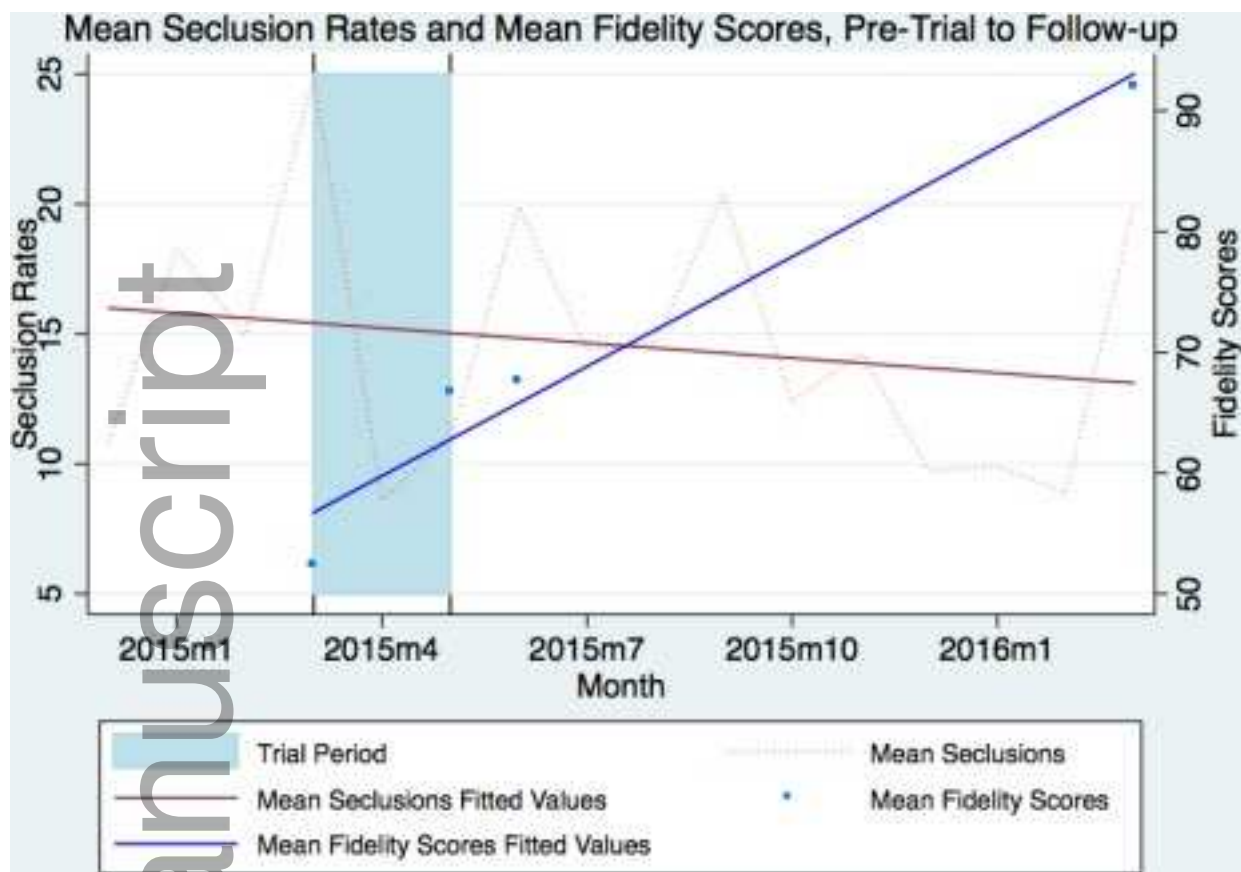


Figure 1 Safewards Model (Bowers, 2014)



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