

The mental health safety improvement programme: a national quality improvement collaborative to reduce restrictive practice in England

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Abstract

In 2018, 38 mental health inpatient wards belonging to NHS trusts across England took part in the national reducing restrictive practice collaborative project, which aimed to reduce the use of rapid tranquillisation, restraint and seclusion of patients by 33%. Teams were supported to use quality improvement tools by skilled coaches as part of a national collaborative learning system. At the end of the programme, the overall use of restrictive practice had reduced by 15%. Of the teams that achieved improvements, the average reduction in restrictive practice was 61%. Across the collaborative there were improvements in the mean monthly use of restraints and rapid tranquillisation, and in the total use of all three measures of restrictive practice combined. Support from quality improvement coaches allowed ideas to be tested across the collaborative, enabling the creation of a theory of change for reducing restrictive practice based on areas with a high degree of belief to inform future improvement work in this area.

Key words: Inpatients; Mental health; Psychiatry; Quality improvement; Restrictive practice

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Introduction

Restrictive practice refers to the range of methods that may be used to restrain an individual or reasonably restrict their actions to reduce the risk of harm to themselves or others. For the purposes of this article, this term refers to the use of physical restraint, seclusion and rapid tranquillisation (chemical restraint). The Mental Health Units (Use of Force) Act (2018) defines physical restraint as the use of physical contact that is intended to prevent, restrict or subdue movement of any part of the patient's body, while isolation is defined as any seclusion or segregation that is imposed on a patient. Finally, the Act defines chemical restraint as the use of medication that is intended to prevent, restrict or subdue movement of any part of the patient's body. Restrictive practice should only be used by trained professionals as a last resort to ensure the safety of the patient or of others; without legal and ethical justification, restrictive practice is unlawful.

In 2021, an average of 10 756 restrictive interventions took place across NHS mental health inpatient wards each month (NHS Digital, 2022). These practices can cause harm because of the very nature of using force to restrict an individual's movements, leading patients to feel powerless and potentially retraumatised, especially if they have previously experienced trauma, such as sexual abuse (Care Quality Commission, 2020).

The *Mental Health Act: Code of Practice* (Department of Health and Social Care, 2015) called on mental health services in England to actively reduce their use of restrictive practice, with the view of improving safety, as well as staff and patient wellbeing. A report by the Care Quality Commission (2017) covering 2014–17 found that there was variation in the way in which restrictive practice was used and highlighted concerns that the care provided for some patients was overly restrictive. Reducing the use of restriction is an important part of the overall goal to improve the quality of mental health care and treatment, and is a matter of national importance.

While initiatives to reduce the use of restrictive practice while maintaining safety have been tested, evidence regarding which interventions are the most effective at reducing the

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use of restrictive practice remains weak (Baker et al, 2021). Quality improvement is one approach that could be used to improve mental health services; this is a systematic approach to improving healthcare, relying on iterative change, continuous testing and measurement, and staff empowerment. Quality improvement projects can be used in any area of healthcare and typically aim to support those directly involved in a service—both staff and patients—to undertake service improvements by providing them with the appropriate tools, skills and authority (Ross and Naylor, 2017).

In 2018, NHS England and Improvement commissioned the National Collaborating Centre for Mental Health (a collaboration between the Royal College of Psychiatrists and University College London) to run the Mental Health Safety Improvement Programme. This included the development of a national quality improvement collaborative, the aim of which was to reduce restrictive practice in mental health inpatient care (measured by the number of restraints, seclusions and rapid tranquillisations used) by 33% in the wards taking part.

Methods

Designing the collaborative

As one of the first national quality improvement collaboratives in mental health, the reducing restrictive practice collaborative project design was an adaptation of the Institute for Healthcare Improvement's (2003) breakthrough series collaborative model, which involves establishing a learning system for multiple teams that are all working towards a shared aim.

All NHS inpatient mental health wards in England were invited to apply to the reducing restrictive practice collaborative, with 118 wards doing so. Applications were assessed based on 12 months of baseline data and the 42 wards with the highest monthly use of restrictive practice were selected to take part. These wards represented 26 NHS trusts across England. Overall, 38 wards were able to complete the full 18-month programme, including a range of different ward types (Table 1).

The design stage of the programme took place over 6 months and began with two workshops attended by mental health professionals, patients, carers and academics with expert knowledge in reducing restrictive practice. The Mental Health Safety Improvement Programme team collated this shared knowledge to produce resources to assist teams, including a driver diagram, a menu of change ideas with links to resources, and a measurement plan that included operational definitions, safety crosses and run chart templates (National

Table 1. Characteristics of participating wards (n=38)

Characteristic	n (%)
Specialty	
General adult	25 (66%)
Forensic adult	7 (18%)
Child and adolescent mental health services (including forensic)	5 (13%)
Older adult	1 (3%)
Ward type	
Psychiatric intensive care unit	22 (58%)
Acute/assessment	15 (39%)
High-dependency unit	1 (3%)
Gender	
Mixed gender	23 (61%)
Male	10 (26%)
Female	5 (13%)

Collaborating Centre for Mental Health, 2021). A learning system was designed, including learning sessions held every 2 months for project leads, ward staff, patients, carers and senior sponsors. There was also regular communication with between participating wards and their coach, as well as use of the web platform LifeQI (Devon, UK) where all teams could share their aggregated monthly data, such as the number of restrictive interventions per month, and tests of change. LifeQI is specially designed for the management of quality improvement projects, providing quality improvement tools, data collection and analysis software and a platform for team collaboration. No identifying patient information was included.

Intervention: the reducing restrictive practice collaborative

Each ward was assigned a quality improvement coach and asked to form a project team, ensuring that these teams included patients and/or visitors, such as friends or relatives. All participating teams were provided with the resources mentioned above at a launch event in October 2018. From this time until the project ended in March 2020, the quality improvement coaches provided flexible, tailored support for each team by carrying out in-person visits, holding virtual meetings, and provide training and support in the use of key quality improvement tools. The Model for Improvement (Associates in Process Improvement, 2022) was the chosen quality improvement method, which involved each team adapting the overall aim into their own team-level aim, as well as developing their own specific theory of change that was appropriate to the context of their ward. The quality improvement coaches supported teams to use plan-do-study-act rapid cycles to test these change ideas. In addition, a 'learning set' was held every 2 months—these were events where everyone involved could share their ideas, solve problems and network, with a total of eight held during the project. The time periods between these events were 'action periods', where teams took their ideas back to their wards and tested the interventions using plan-do-study-act cycles.

All wards also had a senior sponsor within their trust, whose role was to unblock barriers and support the ward. Tailored support was complemented by robust management of the overall collaborative using a range of indicators to determine the level of ward engagement in the project, including attendance at learning sets, level of contact with quality improvement coaches and timely data entry. Towards the latter stage of the project, the coaches began supporting teams to embed their change ideas into practice on their wards, thus ensuring the sustainability of the initiatives introduced after the project had ended.

Study of the intervention

Teams recorded data for each outcome measure using a safety cross—a visual data collection tool comprising a 1-month daily calendar on which dots are added by staff each time an incident occurs (Flynn, 2014). Data were then collated and entered on the LifeQI online platform at the end of each month in the form of statistical process control charts, a tool commonly used for research and healthcare improvement (Benneyan et al, 2003). Aggregate control charts were also created on LifeQI, allowing teams to record and track their overall progress. Any missing data entries were flagged by the team's quality improvement coach. Teams were encouraged to annotate their charts and provide explanations for any anomalies in their data; unexplained anomalies were verified by the team's coach.

The testing period ran from August 2018 to February 2020. Each team also provided baseline data from August 2017 to July 2018 for comparison. Teams were also supported to capture data that showed the impact of the change ideas being tested, which provided additional information about how many times an intervention was carried out. To account for unintended consequences of interventions, teams were supported by their quality improvement coach to identify balancing measures that would ensure that improvements in one area did not have a negative impact on another area. Teams routinely collected informal qualitative feedback from patients and staff regarding the ideas that had been introduced and whether those ideas could be adapted or improved. Teams were also provided with a patient safety climate survey, adapted with permission from the Scottish Patient Safety Programme (Healthcare Improvement Scotland, 2022), so that patients could share their reflections, including times of the day when they felt more (or less) safe, whether they felt an incident would be handled safely and whether they felt able to raise concerns to staff.

Outcome measures

To ensure that all teams were collecting the same types of data, they were provided with operational definitions for the three outcome measures:

- Physical restraint: any direct physical contact where the intention of the person intervening is to prevent, restrict or subdue movement of the body, or part of the body, of another person
- Seclusion: the supervised confinement and isolation of a patient, away from other patients, in an area from which the patient is prevented from leaving, where it is of immediate necessity for the purpose of the containment of severe behavioural disturbance that is likely to cause harm to others
- Rapid tranquillisation: use of medication by the parenteral route (usually intramuscular or, in some cases, intravenous) if oral medication is not possible or appropriate and urgent sedation with medication is needed.

These operational definitions were adapted from those provided by the National Institute for Health and Care Excellence (2017), the Care Quality Commission (2019) and the Department of Health and Social Care (2015).

Data analysis

Each team input their data into statistical process control charts on the LifeQI platform to measure the number of incidents of restrictive practice. The upper and lower control limits (indicating normal variation) and special cause variation were then calculated. A run of eight consecutive data points above or below the mean (also known as a 'shift') was taken as a signal of sustained change as a result of the interventions introduced on the ward (rather than a natural fluctuation caused by external factors).

Ethical considerations

This was a national quality improvement collaborative that was supported within each trust by the teams' senior sponsors, who had oversight of any potential risks and were thus responsible for handling any matters under their trust's ethical procedures. A patient-driven approach was always used, with teams involving current or previous patients in their project teams.

Results

Collaborative-level results

Across all 38 teams, there was a 15% reduction in the overall aggregated monthly use of restrictive practice (restraint, seclusion and rapid tranquillisation), from a baseline mean of 783 incidents per month to a mean of 666 incidents per month. When broken down into types of restrictive practice, the mean monthly incidence of physical restraint across all wards reduced from 468 to 377, representing a 19% reduction, while the mean monthly incidence of rapid tranquillisation across all wards reduced from 165 to 123, representing a 25% reduction. However, there was no sustained reduction in the use of seclusion (Figure 1).

Team-level results

Of the 38 individual wards, 24 (63%) demonstrated a sustained reduction in their use of restrictive practices, of which nine recorded improvements in one type of restrictive practice, 12 wards reported improvements in two types and three wards recorded improvements across all three types. The greatest reduction was seen in the incidence of rapid tranquillisation, with 14 wards achieving a mean reduction of 68%, with a range of 48–94%. Meanwhile, 15 wards achieved reduction in the use of physical restraint, with a mean reduction of 66% and a range of 34–91%. Although there was no sustained reduction in the use of seclusion across all 38 wards, 13 individual wards did manage to reduce their use of this restrictive practice, with a mean reduction of 61% and a range of 25–100%.

In terms of their individual aggregate data (when all three outcome measures are combined), 17 wards achieved a sustained reduction in restrictive practice, with a mean reduction across all types of restrictive practice of 61% and a range of 25–93% across the 17 wards. However, 14 of the participating wards did not see a sustained reduction in any of the three outcome measures.



Figure 1: Outcome measures and aggregate results dashboard showing number of restrictive practice incidents across 38 participating mental health wards. UCL=upper control limits; LCL=lower control limits.

Change ideas and concepts

A variety of change ideas (specific changes introduced and tested to see if they lead to improvements) were tested by participating teams between August 2018 and February 2020. The number of ideas tested per team varied, with a mean of 15 across all wards (range: 2–41). For analysis, these ideas were grouped into change concepts. The distribution of the change concepts were then examined according to primary drivers (broad factors that directly contribute to achieving the aim) and secondary drivers (components of primary drivers, eg increased participation in activities, channels of communication between staff) (Table 2). During the project, change concepts were tested 348 times across the 38 wards.

Two change concepts were tested by over 50% of the wards completing the programme; ‘reduce blanket restrictions and rules’ was tested by 24 of the 38 wards (63%) and ‘new and innovative groups based on interests’ was tested by 20 wards (53%). Seven change concepts were tested by less than 5% of participating wards. One change concept, ‘trauma-informed care training’, was not tested by any of the participating wards.

The most commonly tested change ideas were ‘reduce blanket restrictions and rules’ (63%, $n=24$), ‘new and innovative groups based on interests’ (53%, $n=20$), ‘improved indoor and outdoor space’ (47%, $n=18$), ‘therapeutic and sensory interventions’ (42%, $n=16$) and ‘increased focus on patient preferences and needs’ (39%, $n=15$). Six change concepts were tested by less than 5% of participating wards.

The authors revised the original theory of change, created during the design of the programme, to reflect the work of the 38 wards and learning from the collaborative. As

such, the revised driver diagram reflects the primary and secondary drivers that the authors believe helped to reduce restrictive practice, which are presented in **Figure 2**. A driver diagram shows the relationship between primary drivers (which directly contribute to achieving the aim), secondary drivers (which are components of the primary drivers) and specific change ideas that can be tested in relation to each secondary driver.

Discussion

To the best of the authors' knowledge, this is the largest quality improvement collaborative in the world to address a complex mental health care safety issue. The overall aim was to achieve a reduction of 33% in the use of restrictive practice. This project achieved an overall reduction of 15%, but the teams that did see improvements had a 61% mean reduction in

Table 2. Number of teams that tested ideas within each change concept based on the four primary drivers (n=38)

Primary driver	Secondary driver	Change concept	Number of teams that tested ideas within the change concept (%)
Patients	Active participant in care	Patient involvement in care planning and schedules	13 (34%)
		Family and carer involvement	6 (16%)
		Recovery focus	3 (8%)
	Increased participation in activities	New and innovative groups based on interests	20 (53%)
		Focus on hours with more incidents	6 (16%)
		Activity boxes	6 (16%)
		Activity coordinators	3 (8%)
	Person-centred care	Therapeutic and sensory interventions	16 (42%)
		Positive behaviour support plans	7 (18%)
		Personalised care plans	5 (13%)
		Sleep hygiene	1 (3%)
	Staff	Channels of communication between staff	Safety huddles
Multidisciplinary team meetings			6 (16%)
Improved handovers			6 (16%)
Red-amber-green rating and support plans			1 (3%)
Training and the use of tools		Staff skills training at all levels according to identified need	14 (37%)
		Use of data to promote learning	7 (18%)
		Dynamic appraisal of situational aggression, Broset violence checklist, prevention and management of violence and aggression	9 (24%)
		Simulation training	2 (5%)
Supervision and wellbeing		Regular supervision	7 (18%)
		Reflective practice	7 (18%)
		Staff support groups and wellbeing tools	6 (16%)
		Trauma-informed supervision	1 (3%)

Table 2. Number of teams that tested ideas within each change concept based on the four primary drivers (continued)

Primary driver	Secondary driver	Change concept	Number of teams that tested ideas within the change concept (%)
Patients and staff	Engagement between patients and staff	Increased staff presence and support	10 (26%)
		Proactive (preventative) and least restrictive strategies	9 (24%)
		Safety bundles	3 (8%)
		Reducing restrictive practice champions and peer support	1 (3%)
	Engagement in quality improvement	Coproduction	12 (32%)
		Visual displays of data	12 (32%)
		Multidisciplinary team involvement and community meeting agenda items	14 (37%)
		Regular protected time	5 (13%)
	Good communication and transparency	Visual displays of routines, preferences, and staff allocation	14 (37%)
		Floorwalkers or coloured lanyards	10 (26%)
		Newsletters and welcome packs	9 (24%)
	The ward	Physical environment	Improved indoor and outdoor space
Trauma-focused environments			5 (13%)
Smoke free			1 (3%)
Reviewing blanket restrictions and ward rules		Reduce blanket restrictions and unnecessary rules	24 (63%)
		Focus on community, mutual expectations, trust, and shared responsibility	6 (16%)
		Personalised care planning	1 (3%)
Ward routine		Increased focus on patient preferences and needs	15 (39%)
		Morning groups/breakfast/tea or coffee	7 (18%)
		Changes to increase staff availability	6 (16%)

restrictive practice, with 63% of the participating teams achieving improvements in at least one outcome measure. This is substantially higher than the 30% that are typically expected to see 'significant improvements' in an improvement collaborative (ØVretveit et al, 2002).

Across the 38 participating wards, there was a sustained reduction in both rapid tranquillisation and physical restraint. However, there was no overall reduction in the incidence of seclusion. Although operational definitions were set before the project began, the definition of seclusion may not have been robust enough. For example, it may have been more effective to stipulate that each 24-hour period should be classed as one single episode of seclusion. While any inconsistencies in wards' interpretation of seclusion were addressed in the early stages of the project, some differences may have continued and influenced the way teams collected data.

This project was the first national collaborative project to reduce restrictive practice in England. A number of change ideas were tested across a range of different ward types, giving the authors a high degree of belief that the changes introduced during the project are generalisable to mental health inpatient wards across the country. The authors believe that the creation and maintenance of an engaged learning community, supported by quality

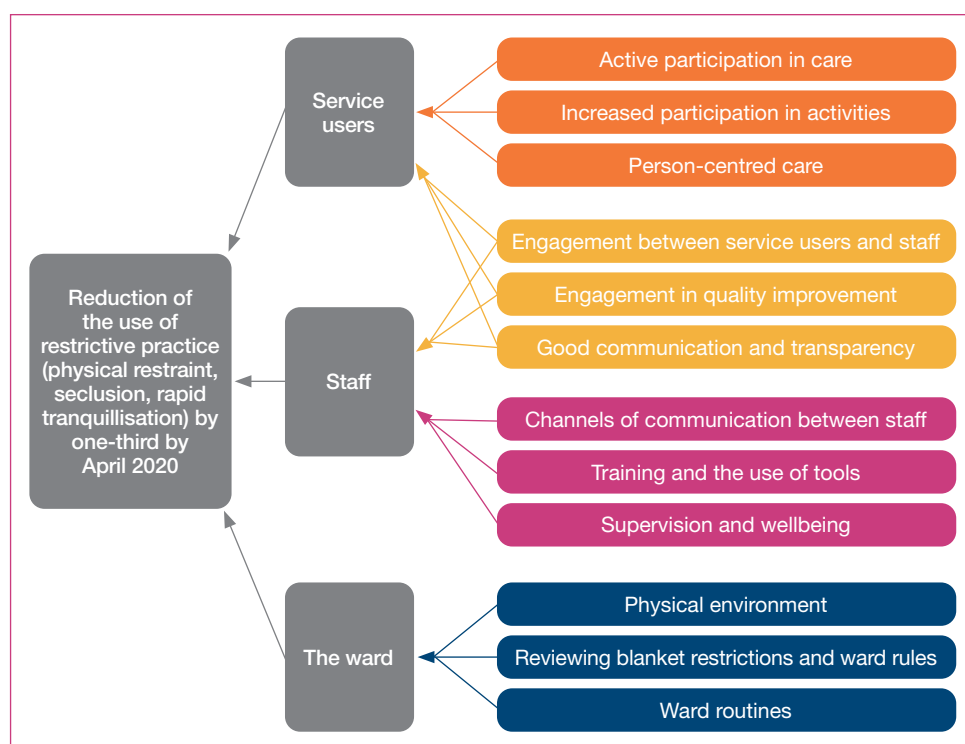


Figure 2. Driver diagram showing the new theory of change created at the end of the project.

improvement coaches, was key to the project's success. Other crucial factors were the clearly defined project team roles and support from senior sponsors within each team's trust, who empowered them to make changes and helped to remove any barriers.

As the body of evidence around the efficacy of quality improvement collaboratives continues to grow, these findings support the notion that this approach is an effective way of delivering large-scale improvement (Wells et al, 2018) and that key characteristics, such as generating trust within the learning community and in-person learning sessions, are integral to a successful collaborative (Nadeem et al, 2013; Zamboni et al, 2020).

The results of this collaborative have many positive implications for patients, staff and the culture of ward environments. The reductions made in restrictive practice during this project are not only positive for the wards involved, they have also allowed the authors to create a rich set of resources, including an overall driver diagram (Figure 2) to inform others planning to reduce restrictive practice in future. Moreover, even teams that did not see a quantitative reduction in restrictive practice reported many positive anecdotes and powerful stories related to cultural change on their wards. These included the positive impact on patients, a sense of empowerment to be part of the change for both patients and staff, and the upskilling of staff with quality improvement tools. This could have additional benefits relating to increased staff wellbeing and retention (Perlo et al, 2017).

However, it should also be noted that the number of restrictive practice incidents increased for some teams, which may be a result of several factors. For example, many teams faced considerable pressure because of the nature of their wards, with some operating with staff shortages and/or having less capacity or resources to undertake the project as it progressed.

Limitations

While the authors have a high degree of belief that the change concepts applied in the project led to the reductions seen in the use of restrictive practice, future studies may benefit from a more evenly spread sample of ward types to increase confidence further. There is potential that other factors could have led to the improvements seen. The project relied on teams consistently adding their plan-do-study-act cycles to LifeQI or informing their quality improvement coach of ideas being tested, as this information was the basis for the theory of change. All teams undertook their projects independently, which may have added problematic

variation, but this was mitigated by close support from the quality improvement coaches, who met regularly to ensure consistency across the collaborative. The change concepts that each idea belonged to were determined by the quality improvement coaches and, although parameters were agreed between coaches, there may still have been room for subjectivity.

The source of the baseline data (incident reporting) was different to that of the intervention data (safety cross). For assurance, wards were asked to retrospectively share their incident data after the project concluded. Overall, 60% of the wards ($n=23$) responded to this request, and cross-checking with their safety cross data for each of the project's measures showed no discernible difference.

Conclusions

As this project was the first of its kind, it would be interesting to see if the findings are replicated in future national quality improvement collaboratives. Further research could also investigate which interventions are most effective in reducing restrictive practice, particularly for the use of seclusion, which the teams in this study had the least success in reducing. In addition to the benefits of each teams' individual projects for their patients, staff and ward environment, the breadth of the project enabled the authors to produce a change package and associated resources that are now publicly available. The authors recommend that these materials are used to inform any future quality improvement work, rather than as the basis for a prescribed set of changes to be introduced on a ward.

The implications of this project are far reaching. The learning from this collaborative, including the driver diagram and resources, can be used as a basis for any future work on reducing restrictive practice. This work could also be applied to other care contexts outside of mental health, such as social care or educational settings. Crucially, this project shows that, when staff and patients are given the right resources, environment and support, they can be empowered to make changes and find solutions for complex care quality and safety issues.

All resources used in this project are publicly available at: <https://www.rcpsych.ac.uk/improving-care/nccmh/reducing-restrictive-practice>

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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Key points

- This study demonstrates how quality improvement can be applied at scale to address complex care quality and safety issues within mental health services.
- There was a wide range of ideas and concepts applied to reduce restrictive practice, as teams were able to develop ideas that were relevant for their specific ward environment, rather than attempting to standardise interventions at scale.
- Working together towards a shared purpose, using a systematic method of quality improvement, can be highly effective in addressing systemic issues in healthcare.

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