Reducing physical violence and developing a safety culture across wards in East London

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East London NHS Foundation Trust has identified reducing incidents of physical violence on its inpatient mental health wards as a major quality improvement priority. In 2013, physical violence was the most frequent type of reported safety incident causing harm across the trust—responsible for 18% of all harm reported. The last national audit of violence in England identified that 18% of service users had been physically assaulted while an inpatient in a mental health setting, and this figure rose to 46% for nursing staff (Healthcare Commission, 2007).

The annual NHS staff survey shows a national average of 15–20% of staff that have reported experiencing physical violence from patients, relatives or the public in the past 12 months, in each of the past four years (2012–2015). These experiences can result in high levels of psychiatric morbidity within the staff group; high staff turnover and difficulty with retention; decreased morale; absenteeism; injury claims and reduced quality of patient care (Owen et al, 1998; Kisa, 2008; Roche et al, 2009; Chen et al, 2010).

Current knowledge on factors contributing to violence and interventions to prevent violence

The literature suggests that a broad range of factors may contribute to the escalation of aggression, including psychopathological symptoms such as delusions and hallucinations, limiting patients' freedoms or boundary setting, drug and alcohol use, frustration, overcrowding and staff attitude (Harris and Varney, 1986; Powell et al, 1994; Lancee et al, 1995; Mortimer, 1995; Shepherd and Lavender, 1999; Barlow et al, 2000; Oquendo and Mann, 2000; Duxbury and Whittington, 2005; ; Flannery et al, 2006).

Evidence for interventions to prevent incidents of violence suggests the use of structured risk assessment, the discussion of violence in ward

ABSTRACT

Violence is the biggest cause of reported safety incidents at East London NHS Foundation Trust. Evidence suggests the utility of structured risk assessment, discussion of violence in ward community meetings and the use of restraint and seclusion in psychiatric wards. The Tower Hamlets Violence Reduction Collaborative brought together six wards with the aim of reducing violence by 40% by the end of 2015. A collaborative learning system was used to test a bundle of four interventions on the four acute admissions wards and two psychiatric intensive care units. A 40% reduction in physical violence was seen across the six wards. Physical violence reduced from 12.1 incidents per 1000 occupied bed days in 2014 to 7.2 in 2015. Across the four general acute admissions wards there was a 57% reduction in physical violence. Key elements of the system that have been addressed through this work have been developing a more predictive approach, and developing a more open and shared experience of violence and aggression on the wards.

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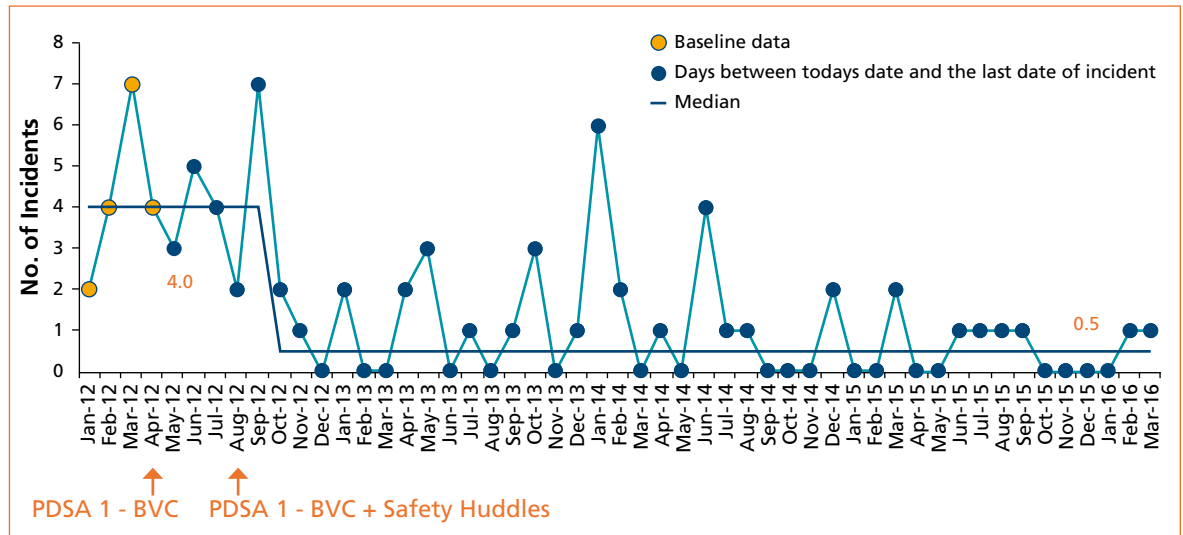*East London NHS Foundation Trust*
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Figure 1. Incidents of physical violence on Globe ward (2012–2016)

community meetings and the use of restraint and seclusion in psychiatric wards (Abderhalden et al, 2008; Lanza et al, 2009; Van de Sande et al, 2011). It has been shown that structured assessments of risk were more accurate than clinical judgement alone (Ogloff and Daffern, 2006).

The Brøset violence checklist (BVC) is one of the few instruments suited for short-time prediction of violence of psychiatric inpatients in routine care. A review of studies on the BVC has shown that it has a moderate sensitivity (63%) with high specificity (92%) and an adequate inter-rater reliability with a kappa value of 0.44 for the total BVC score (Woods and Almvik, 2002). A German version of the BVC demonstrated sensitivity of 64% and specificity of 94% (Abderhalden et al, 2004). Lanza et al showed that proactively discussing violence and safety in twice-weekly meetings reduced violence across day, evening and night shifts, with a reduction of 57% seen in day shift violence (Lanza et al, 2009).

Method
Context
At the time that this project was initiated in 2012, East London NHS Foundation Trust provided specialist mental health services to four inner East London boroughs; City of London, Hackney, Tower Hamlets and Newham. The Tower Hamlets Centre for mental health has six adult mental health wards (four acute admission wards and two psychiatric intensive care units for men and women), with a total of 76 beds. Data in 2012 indicated that Tower Hamlets had the highest levels of physical violence of the four boroughs and that Globe Ward (Tower Hamlets' busiest admission ward) had the highest levels of violence within the unit, experiencing over 40 incidents of

physical violence per year. Globe Ward was selected as the initial test site for work to reduce violence.

Globe Ward aimed to reduce violent incidents by 30% by the end of 2012. The team exceeded this ambition, reducing violence by 85%, from 4 incidents per month during the baseline period of January to April 2012 to a sustained level of 0.5 per month (*Figure 1*)**.**

This led to the establishment of the Tower Hamlets Violence Reduction Collaborative, which brought together all six wards with the aim of reducing violence by 40% by the end of 2015. These six wards were chosen because they were closest physically to the prototype ward (Globe Ward) and represented all inpatient beds for one London borough. This was the first part of a phased scale-up plan to move from one ward to one borough, to all three boroughs and all inpatient adult beds across the four East London boroughs.

Learning system
The six wards adopted quality improvement methodology, using Plan-Do-Study-Act (PDSA) cycles to test ideas for change, coming together at 6-weekly learning sessions where teams could learn from each other and look at data over time to understand whether changes were resulting in improvement. Quality improvement has been defined as 'the combined and unceasing efforts of everyone—healthcare professionals, patients and their families, researchers, payers, planners and educators—to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development' (Batalden and Davidoff, 2007).

Each ward set up a small multidisciplinary project team, including registered and unregistered nurses, allied health professionals, doctors and administrators.
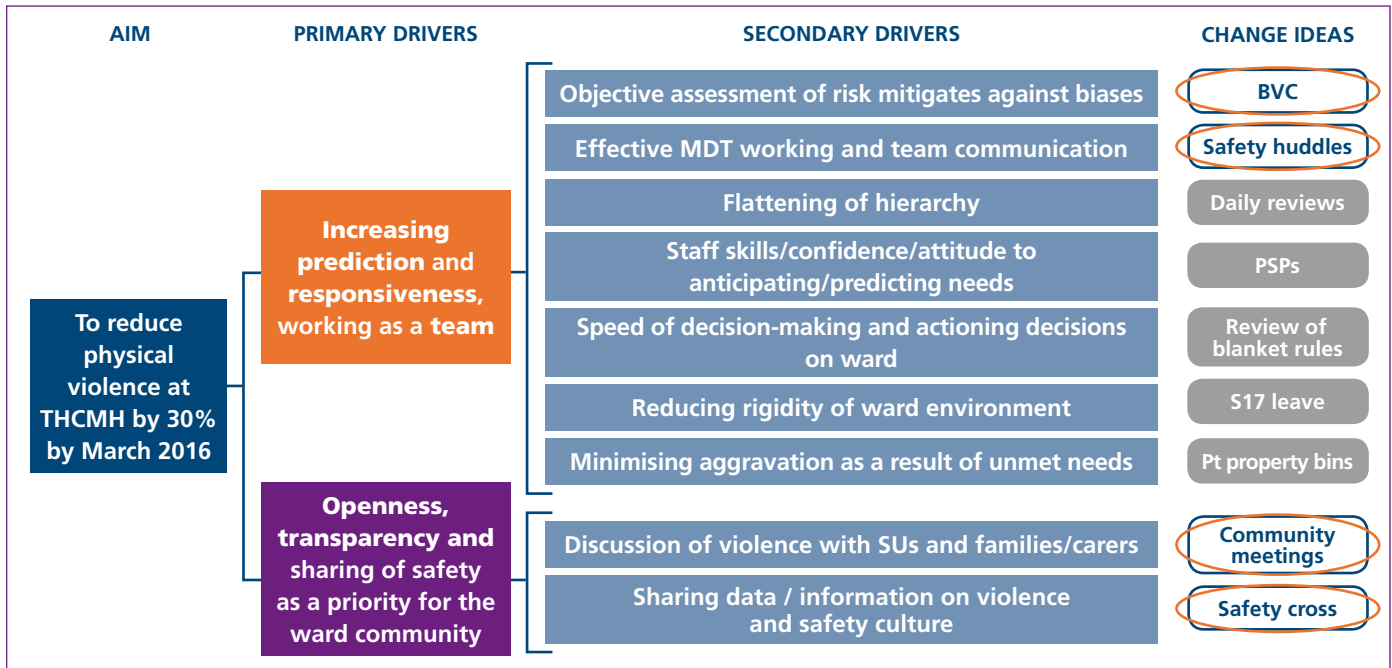
Figure 2. Tower Hamlets violence reduction collaborative driver diagram

Interventions

Change ideas were developed through sharing theories about why violence was occurring and what would help to mitigate this. A range of stakeholders contributed to this theory-building in a facilitated workshop, including staff of all levels of seniority and different professional backgrounds, service users and the police liaison officer. The ideas built on the learning from the original work on Globe Ward, and formed the theory of change that underpinned the testing strategy (*Figure 2*).

First, the teams felt there was a need to improve multidisciplinary team working and how the ward identified, predicted and managed risks of violence and aggression. Two change ideas were developed:

- **BVC**, which is a simple validated risk assessment tool, developed in Norway. Staff on the ward use it to predict the likelihood of a service users being violent in the next 24 hours through rating the presence or absence of three patient characteristics and three patient behaviours (confusion, irritability, boisterousness, verbal threats, physical threats and attacks on objects). This is used for the first seven days of the person being on the ward and whenever staff feel it is needed subsequently

- **Safety huddles**, which are stand-up micro-meetings of no more than 15 minutes. During these as many staff as possible working on the ward come together to discuss safety issues and service users. The team immediately identifies and allocates any actions to manage and mitigate risks. All six of the wards aimed to huddle at least two or three times a day at set times (once in the morning, once

mid-afternoon and once during the night shift). In addition, a staff member could also call a safety huddle when they felt the risk level was increasing outside of these times.

Second, the teams felt they needed to improve the way the ward community (service users, multidisciplinary ward team and visitors) engaged with each other around the issue of violence. Specifically, they felt wards needed to develop a more open approach to sharing the experience of violence and aggression, so that it became more of a community issue which everyone worked through together. Two change ideas were developed:

- Displaying **safety crosses** in the public area of the ward, which are a simple wall calendar that staff can mark in colour to show red days (when an incident of physical violence took place) or green days (incident-free). This was an accessible way to share incident data and provided a focal point on the ward for staff, service users and visitors. Safety crosses also served the purpose of manually recording incidents, which was important as the team believed that there was initially under-recording of violence via the electronic incident recording system

- Having **a safety discussion in ward community meetings**. The teams in Tower Hamlets chose to integrate these discussions into the weekly ward community meetings. The discussions referred to the safety cross and summarised any safety incidents over the past week in a brief and non-judgemental way. Patients and staff were invited to talk about any emotions/feelings related to being

Table 1. Qualitative feedback from staff and service users involved in the quality improvement collaborative learning sets	
Ward manager, Brick Lane ward	'Our ward feels much safer. There's a greater awareness of predicting and preventing violence, and people are much more open to talking about it and the impact it has. The social therapists are great at identifying when a service user is starting to escalate and will need intervention – they're so much more confident now.'
Service user, Lea ward	'A place to be in a time of crisis, a place of safety'
Social therapist, Lea ward	'The violence reduction collaborative has not only reduced incidents on Lea ward but has brought the team closer together. It has developed passion within us to go the extra mile to keep our patients and each other safe.'
Service user, Roman ward	'It is the best it could have been for myself'
Service user, Lea ward	'Well, what can I say, the team are fantastic! Thank you for helping all the patients here. You save lives and give us a second and third chance.'
Consultant psychiatrist, Globe ward	'There's a better therapeutic environment and patient satisfaction. You can feel the lowered levels of stress for staff and patients. There's a much closer working relationship and respect between disciplines now and I think this has been a driving force.'
Registered nurse	'The team feels more confident and are having better discussions around issues that may arise. The team are talking about risk and making decisions – something that would never have happened 18 months ago.'
Clinical leader	'There is a big difference in attitude, willingness and belief in how the safety culture has developed. Teams are more proactive.'

involved in or witnessing these incidents. The emphasis in the discussion was to identify how the whole community could learn from issues together and move forward.

The above four interventions were tested on all six wards. Each ward team also identified specific issues for their setting which acted as triggers for violence and developed change ideas in response to these, including how to manage the granting of permission for leave off the ward for those patients detained involuntarily, access to regular consultant reviews and effective management of patient property.

Measures and data collection plan

The outcome measure used was:

- Rate of incidents of physical violence per 1000 occupied bed days. This was captured using electronic recording of safety incidents (incidents of physical violence are reported electronically through a central risk management system) and bed occupancy. It was decided to use a rate rather than a simple count of incidents, as occupancy levels on the ward were felt to be a significant confounder for levels of conflict, aggression and violence. The operational definition of physical violence was an assault by a patient/service user on another person; this definition excluded assaults on objects, threats or verbal abuse.

The process measures were:

- Safety huddles completed per day. At the start of the project this was poorly recorded, but mid-project the team developed a reliable way of capturing safety huddles within the nursing handover documentation
- Safety crosses were photographed at the end of each month on each ward.

The balancing measures were:

- Days lost to staff sickness and incidents resulting in staff injury (captured from the safety incident reporting system)
- Incidents resulting in restraint (captured from the safety incident reporting system)
- Incidents resulting in seclusion (captured from the safety incident reporting system)
- Incidents resulting in use of rapid tranquilisation medication (captured from the safety incident reporting system)

Balancing measures reflect what may be happening elsewhere in the system as a result of the changes being tested, and help identify unforeseen consequences from the improvement project. The above data were shared with the teams on a fortnightly basis.

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Results

Time series analysis shows a 40% reduction in physical violence across all six wards participating in this quality improvement project (*Figure 3*). Physical violence reduced from 12.1 incidents per 1000 occupied bed days in 2014 to 7.2 in 2015. These results have been sustained for over 12 months, since mid-February 2015.

Stratification of this data to separate the general acute admissions wards from the psychiatric intensive care units shows different results for these two settings (*Figure 4*). Across the four general acute admissions
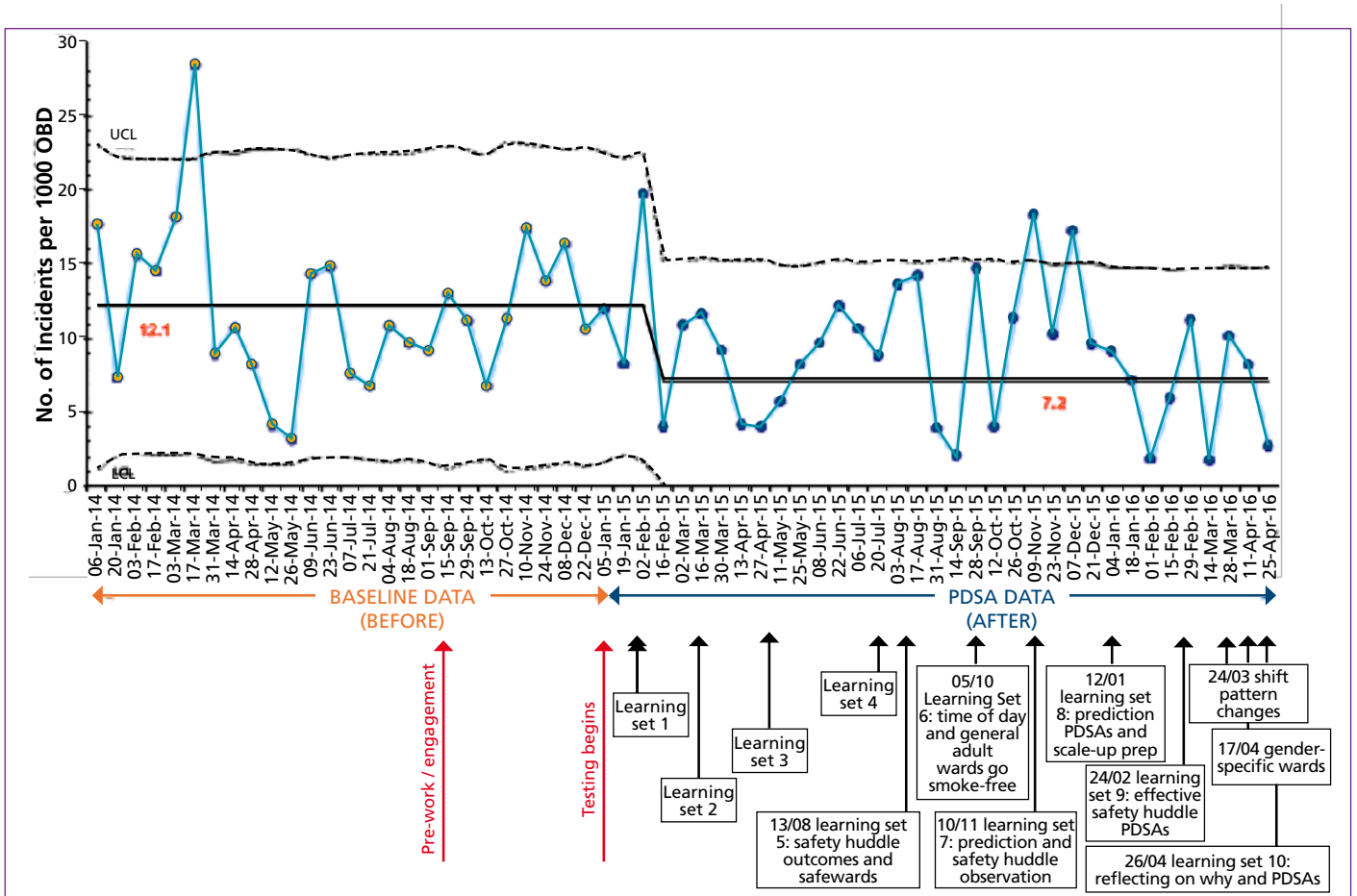

Figure 3. Rates of physical violence across all six inpatient mental health wards in Tower Hamlets
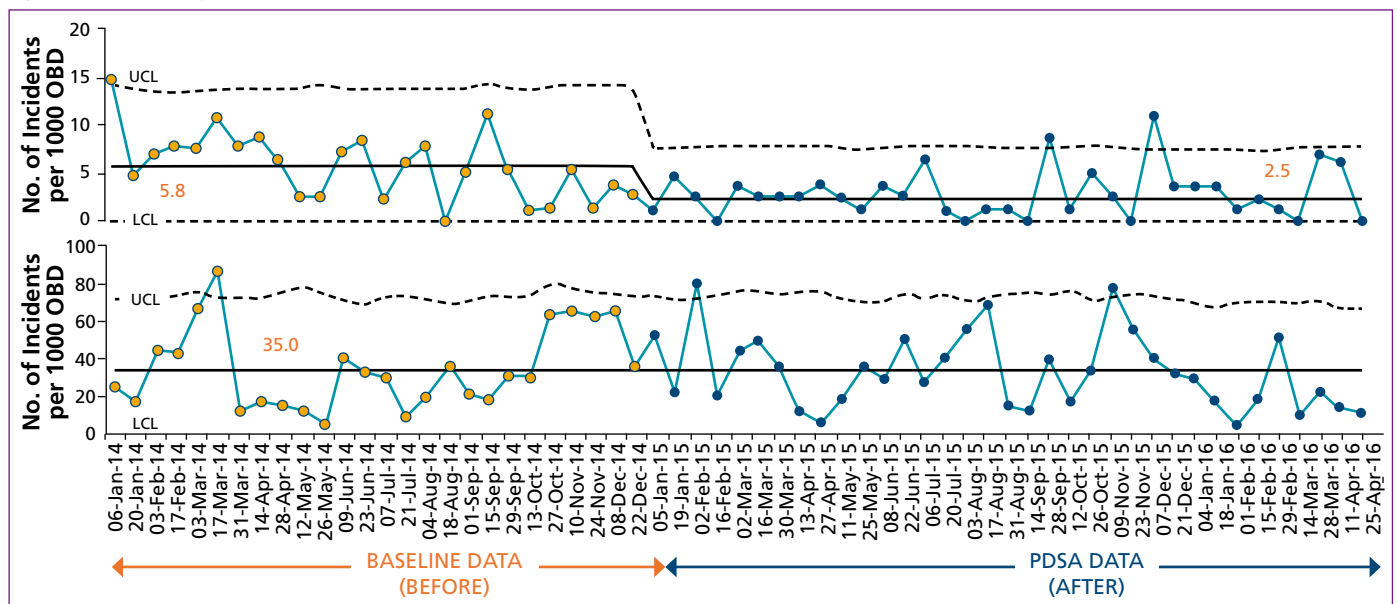

Figure 4. Rates of physical violence across inpatient wards in Tower Hamlets

wards there has been a 57% reduction in physical violence, from 5.8 incidents per 1000 occupied bed days in 2014 to 2.5 per 1000 occupied bed days in 2015. As yet, a reduction has not been seen across the two psychiatric intensive care units, although recent data has shown a downward trend of seven data points (between November 2015 and February 2016), which is suggestive of changes to the system since the teams have introduced a stronger focus on prediction.

In addition to the quantitative data, *Table 1* shows some qualitative feedback from staff and service users across the wards.

Financial analysis

The finance team evaluated the cost implications of this work through estimating the cost of an episode of violence on the Tower Hamlets inpatient wards. Through consultation with the clinical teams, a model was developed that identified the following cost elements:
- Staff sickness
- Treatment costs (medication)
- Estates costs (repairs to property damage, replacement of broken items)
- Legal costs
- Bank cover
- Response team costs

Violence and aggression on the wards is a major contributor towards staff sickness within the trust. Permanent staff are paid while off sick, plus there is an added cost through covering shifts with bank staff. Ward managers were asked to estimate the proportion of staff sickness and bank staff spend attributable to violence, proportion of estates costs and the proportion of medication costs on the ward that were related to preventing or managing violence.

Legal costs can be directly linked to incidents of violence, and these showed a £31 000 cost in 2014–15 and £700 cost in 2015–16. The response team consists of six staff, and each response to an incident was estimated to last on average one hour. The cost of this response was calculated as £140.49 per hour per rapid response incident. The overall model for estimating the costs related to violence in 2014–15 and 2015–16 was independently evaluated by other members of the finance team for validation, and is shown in *Figure 5*. This shows that the overall costs related to violence reduced from £949 045 in 2014–15 to £767 749 in 2015–16, a saving of £181 296.

Discussion
A product of the system?
Historically, the experience of violence and aggression by patients with mental health problems on inpatient wards has tended to be seen as the unavoidable consequence of their psychiatric condition. This is a simplistic view which fails to acknowledge the myriad of factors and dynamics at play in this environment which affect people's behaviour.

One of the four pillars of improvement science is understanding things as a system—in other words, recognising the complex interplay of structures, processes and cultural dynamics, which produce the outcome of what we see in our care environments (Deming, 2000). Violence and aggression by people who are mentally unwell is no different. A person's psychiatric health is one factor; but it is just one among many factors which affect whether or not that person will be violent during an inpatient admission.

Identifying when violence is likely to occur: The Brøset Violence Checklist
Part of the team's theory of change was the concept of developing a more systematic approach to identifying when service users were likely to become violent. The BVC tool helped identify behaviours indicating a high risk of violence—allowing the team to intervene and prevent violence from occurring. This prediction did not initially hold out (see *Figure 1*). Although the BVC risk assessment tool was being undertaken as recommended three times each day for the first seven days of admission, very little meaningful action was being taken in response to the results. This is a common experience with risk assessment tools, which in and of themselves, cannot address the barriers and issues resulting in lack of proactive responses in ward teams.

This led the team to identify that they lacked a process for supporting staff to take action on BVC scores—including understanding what a suitable response would be to a particular identification. The team realised they needed a model that would bring the whole multidisciplinary team together to be part of the decision-making and action-taking process to mitigate risks of violence once identified. This led the team to identify and test the concept of a 'huddle'.

Responsiveness as a team: The introduction of the safety huddle
Originating in American football, a range of sports teams across the world use brief stand-up meetings, or 'huddles', on the field to quickly discuss what is going on with the field of play, develop their strategy, define roles and motivate the team. The US Army also hold 'huddles' before and during missions to ensure everyone understands the objective, their role and is ready for the mission. This idea had already been tested in healthcare and is now used widely throughout the USA, and in acute care settings in the

UK, such as emergency departments (Provost et al, 2015).

The Globe ward team started doing safety huddles on the wards and immediately saw violence levels begin to drop (*Figure 1*). The BVC and safety huddles were therefore introduced at the same time when the work was scaled up in Tower Hamlets. The theory was that while using the BVC was really helpful to objectively identify risk, they also needed to change the way the ward team worked together and create the opportunity to manage risks, clarify roles and identify actions.

Strengthening prediction: The Tower Hamlets Safety huddle

The use of safety huddles has evolved over time in Tower Hamlets, with ongoing reflection and learning through PDSA testing. Although identification of pressing risks and taking action were crucial initial steps, the team felt that safety huddles could provide a structure to go even further—to try to predict and then mitigate future potential violence and aggression. To strengthen prediction, the collaborative introduced two questions to the Tower Hamlets safety huddle:

Are you safe?

This means: are you concerned about any of the patients that you are looking after? Are there warning signs or is it likely that they will be violent, ill, cause emotional or psychological harm? Then, focus on action: do you have any plans or strategies to mitigate or prevent these things occurring? What do you need?

Which of your patients will not be satisfied with their care today?

This means: will someone get bad news, be refused leave, given a diagnosis, change of medicines, or not have any visits. Then, focus on action: what are you plans or strategies to mitigate or work these issues through with them?

The second question 'Which of your patients will not be satisfied with their care today?' is used by Cincinnati Children's Hospital and is based on the theory of unmet needs. The link between unmet needs and negative behaviours goes back to Abraham Maslow, who emphasised the importance of human needs, such as safety, security, love, belonging and self-esteem, and the negative consequences that can be experienced if needs go unmet (Maslow, 1943).

Institutional environments such as inpatient wards, in which liberty is restricted, where people are brought together with other service users and staff they don't know, and which are governed by a host of imposed rules, directly undermine many fundamental human needs. Furthermore, we know that when wards are struggling with high levels of violence, they generally become more constrained and less therapeutic, as

PERIOD: APR-14 TO MAR-15	
COST SUMMARY	£
STAFF SICKNESS ABSENCE	219 464
STAFF SICKNESS ABSENCE % Related to violence	90 777
Estates costs	5820
Response team costs	39 056
Legal costs	31 143
Bank costs	500 484
Medication costs	277 778
TOTAL INCIDENT COSTS	945 059
No. of incidents	278
Cost per incident	3399

PERIOD: APR-15 TO MAR-16	
COST SUMMARY	£
STAFF SICKNESS ABSENCE	189 616
STAFF SICKNESS ABSENCE % Related to violence	73 775
Estates costs	23 899
Response team costs	33 577
Legal costs	733
Bank costs	346 310
Medication costs	289 455
TOTAL INCIDENT COSTS	767 749
No. of incidents	239
Cost per incident	3212

Figure 5. Evaluation of costs attributable to physical violence pre- and post-intervention

teams are focused on containing problems, thereby aggravating unmet needs further.

The first question, 'Are you safe?', has less of an established underpinning theory. The collaborative believed that it had a powerful function in tapping into a deeper level of awareness of staff about how things are on the wards. Part of the art of mental

health nursing is in the way in which nurses are able to connect with, and attune to, how patients are. Unfortunately, there are many factors in the everyday life of the ward which can distract from this, but safety huddles provide a catalyst to help staff to stop and reflect. The question 'Am I safe?' helps staff to connect with their sense of their situation and brings so-called 'gut-feelings' and preconscious thoughts into conscious awareness. The nature of safety huddles, as a forum involving the whole team, also means there is a collective pooling of these thoughts, with individual inklings taking on a greater significance when experienced by multiple team members.

Openness, transparency and sharing safety and non-violence as a priority for the whole ward community: The safety cross and safety discussion in community meetings

Violence and aggression is fundamentally a community issue; each individual incident involves a perpetrator and a victim, and will also affect all those who witness it. Despite this, it is generally the classic 'elephant in the room'; the massive issue affecting everybody—staff, service users, relatives—but not proactively discussed. Lanza et al (2009) describe their belief that effective violence prevention requires a change in a community culture from acceptance and expectations of violence to a focus on non-violence as a value and pattern of behaviour regularly affirmed among community members. The team decided that it would be important for safety and 'non-violence' to become values that were explicitly shared and worked on together in a positive way.

The use of a safety cross, publicly displayed on the ward, was felt to be helpful in providing a focus point for the whole ward community (including service users, families and whole multidisciplinary team) to start sharing data and bringing experience out into the open. The community meeting discussion was felt to bring an emphasis on learning from incidents together; what could be learnt from what happened and how a similar incident might be prevented. The team believed that the discussion helped everyone (staff, service users, relatives) to appreciate the feelings and experiences of others and demonstrated in a very visible way that safety involved everyone on the ward and that learning from incidents is a partnership between staff and patients (and friends and family of patients too).

Learning, reflection and cultural change

Achieving the sustained reduction in violence on the adult mental health wards in Tower Hamlets has been a journey of system change. While the wards are now consistently using four interventions which they were not prior to starting this work, this was not just about doing things differently. Giving teams descriptions of the four interventions and telling them to do them is very unlikely to work, and especially not in the long term. Teams need to be supported, enabled and empowered to think and feel differently—about their patients, themselves in their role and their team, about how to approach trying to improve things, and about what it may be possible to achieve on this issue. This was crucial to shifting hearts and minds on our improvement journey. It is important to emphasise that this focus on enabling staff reflection and having a constant dialogue was key to every step taken in developing the above change ideas.

Plan, Do, Study, Act (PDSA) Cycles

PDSA (Plan, Do, Study, Act) learning cycles provided a method by which we could approach tackling this complex issue. Reflecting the understanding of systems, PDSAs work on the basis that staff are not expected to have the answer at the outset, but just need to be enabled and empowered to go on a journey of gradual exploration and learning about the problem to find solutions.

The 'Plan' phase of PDSAs requires staff to express their predictions about how a test will go; for example, if testing how to get the safety cross going on a ward, a team might predict that if it is put up in the public area of the ward, it will be promptly torn down by patients. If it is not torn down, this makes them realise they hadn't totally got the measure of the situation. Crucially important is the 'Study' phase, whereby teams stand back and acknowledge all this kind of learning, and then consider if any adjustments are needed in approach in the next cycle (the 'Act' phase). This approach allows incremental improvement through a series of interventions on a complex issue such as violence.

Collaborative learning structure

The collaborative learning system enabled teams from all six wards to meet every six weeks to share their PDSAs and data. This allowed the work to reach and engage a broader audience, and enabled the sharing of ideas, approaches and learning across wards.

It is important that the drive to be involved in quality improvement is intrinsic, and that it is not experienced as a top-down imposition. At the same time, as Everett Rogers (1962) helped us to understand with his diffusion of innovations theory, not all people will have the same level of readiness for change. The collaborative learning system was important in helping to engage more staff in the project, by demonstrating results through showing data over time; sharing stories of when and how the interventions had made

a difference; and generally hearing perspectives of colleagues on the value of the work.

The collaborative learning system was also important in bringing the whole unit together to work towards a common purpose. The project was led by the borough lead nurse, alongside one of the ward managers and a consultant psychiatrist. The multiprofessional leadership was critical to getting the project off the ground initially, to demonstrate that this was a whole system approach led by a coalition of leaders across different professions. In addition, the individual ward teams have been coached throughout the improvement journey by members of the central quality improvement team.

Limitations

One limitation of this project was a failure to capture process measures reliably from the start of the work. This has made it difficult to draw a clear association between reliability of implementing the interventions and the improvement in outcomes.

It also makes it difficult to ascribe relative importance to the four change ideas tested and implemented. The data does not yet demonstrate sustained improvement in our high acuity psychiatric intensive care units. This could be because of poor reliability in implementing the change ideas. However, discussion with the teams suggests that while they have experienced these ideas as helpful and positive interventions on the wards, there are other things needed to achieve sustained reductions. This work is continuing, to build our theory about how to reduce violence within these settings.

Next steps

East London NHS Foundation Trust is now scaling up the violence reduction work to 14 wards in Newham, City and Hackney (Barker et al, 2015). The project will use a 'planned experimentation' design to help understand the relative effect of the four change ideas on the outcome of physical violence, through testing the four change ideas in different combinations across the fourteen wards (Moen et al, 2012). **BJMHN**

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