RAND EUROPE

Reviewing the Evidence Base for De-escalation Training

A Rapid Evidence Assessment

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Abbreviations

CITs   Crisis Intervention Teams

REA   Rapid Evidence Assessment

Summary

RAND Europe was commissioned by NHS Improvement to report on the evidence of de-escalation training programmes in healthcare settings. Violence in the workplace is a major issue for healthcare systems. Estimates from the United Kingdom suggest that around 15 per cent of NHS staff in England experienced physical violence in 2017 (RCN 2018). Those running healthcare services have a duty of care to their staff to prevent and minimise workplace violence, but this is challenging given the types of work that some healthcare professionals do, and the patients that they work with. There is therefore a significant interest in, and a large commercial market for, approaches and tactics to help individual healthcare staff manage, reduce or prevent violence from occurring in the first place. These approaches range from skills-based training on the causes of violent and aggressive behaviour along with verbal and/or physical techniques for responding to it; to environment-based security approaches that entail redesigning physical workspaces, hiring security personnel or installing security equipment such as metal detectors and cameras; to policy oriented responses to this sort of violence (Anderson et al. 2010).

This report focuses on individual skills-based training approaches to violence prevention, specifically emphasising de-escalation tactics; however we bring in occasional evidence from other approaches to provide a fuller picture of the violence prevention landscape. Based on a rapid evidence assessment (REA) of the literature, this report examines if de-escalation training is effective in managing violence towards NHS staff, and the associated benefits and methods used to provide training. It learns from de-escalation in other settings, including emergency departments, psychiatric hospitals and policing. It also explores the key types of training and content, and the factors of success in deploying training in the evidence base. We included 19 reviews in our analysis.

Evidence on de-escalation training programmes

The evidence indicates that individual staff training programmes, such as in de-escalation, do not reduce violent incidents. However, there is some evidence that de-escalation training can help staff to manage patient aggression. The current evidence is inconclusive on the effectiveness of de-escalation training for reducing staff injuries. However, interventions are more likely to be effective when they are not adopted in isolation but instead rely on multimodal approaches.

There is some anecdotal evidence on common content within de-escalation programmes that include verbal and non-verbal strategies, control and restraint skills, and prediction and prevention of aggression. There is no consistent evidence on the efficacy of training, but staff and managers tend to believe that multimodal approaches combining programme elements and recurring programmes that extend over a long period of time are more effective than other methods.

Facilitators and barriers of de-escalation training programme success

The literature cites the economic benefits of de-escalation training that offsets some of the costs of its provision. Several authors cite management commitment and engagement as key to a programme's success. The literature provides evidence that repeated and renewed training can achieve sustained benefits for staff. Comprehensive and organisation-wide approaches that introduce systemic change in organisational practice and culture might also be necessary for reductions in violent incidents. However, there are also barriers to implementation. For example, de-escalation training might also lead to short-term increases in reports of violent and/or aggressive incidents.

Next steps

There is a need for well-designed evaluations of de-escalation training programmes to provide a firmer evidence base on the approach's efficacy. The available evidence is quite weak, with very few rigorous evaluation studies that include a robust comparison and counterfactual. Any efforts towards implementing de-escalation training should include evaluation considerations within their design in order to inform the programme's development.

1. Background and context

1.1. Workplace violence in healthcare settings

Violence in the workplace is a major issue for healthcare systems. Workplace violence may derive from multiple sources, including violence from those with criminal intent, violence from patients, domestic violence that occurs in the workplace, or violence from co-workers (Anderson et al. 2010). De-escalation training may theoretically address violence from any source, although the focus is typically on violence from patients and those with criminal intent. Estimates from the United Kingdom suggest that around 15 per cent of NHS staff in England experienced physical violence in 2017 (RCN 2018). Overall there were 56,435 such incidents recorded between 2016 and 2017 (RCN 2018). A recent analysis of violence against NHS staff found that the level of violence experienced by staff varied by setting, and that, worryingly, violence against most healthcare workers rose between 2015 and 2016 (Cowper 2017). The report found that although mental health workers experienced the highest overall rates of physical assaults, the increase in violence against them between 2015 and 2016 was just 1.5 per cent. In contrast, there was an increase in violence against ambulance staff of 14.5 per cent and against acute care staff of 21 per cent during this period. The assault rates for NHS staff in acute care settings were highest for trusts with the longest waiting times and for those reporting a financial deficit (Cowper 2017).

In response to concerns over rising levels of violence against healthcare and other emergency workers, the UK passed the Assault on Emergency Workers (Offences) Act 2018. This law makes it an aggravating factor to assault an emergency worker, including healthcare staff in accident and emergency departments or urgent treatment centres, and all nursing staff. In doing so, any individual who assaults or attacks emergency workers face longer jail terms with maximum sentence increasing from 6 to 12 months. This is achieved by doubling the maximum sentence from 6 to 12 months in prison for the assault of an emergency worker.

Workplace violence is a problem that extends beyond the NHS, and has garnered significant attention in the UK in recent years (see for example HSE 2018, and globally WHO 2019). Those running healthcare services have a duty of care to their staff to prevent and minimise workplace violence, but this is not always possible at a structural level given the types of work that some healthcare professionals do, and the patients they work with. There is therefore a significant interest in, and indeed a large commercial market for, approaches and tactics to help individual healthcare staff manage, reduce or prevent violence from occurring in the first place.

This report focuses on individual skills-based training approaches to workplace violence prevention, specifically emphasising de-escalation tactics. Other approaches to violence reduction

include redesigning the environment or physical layout of buildings, and introducing security measures and policy or procedural changes. These approaches are often undertaken in conjunction with individual skills-based approaches as part of a comprehensive violence prevention and reduction effort, but a full review of evidence on their efficacy or analysis of factors in their success are beyond the scope of this study. We provide some evidence on their complementary role in violence prevention and reduction as it relates directly to successful implementation of de-escalation training programmes.

1.2. Research questions

NHS Improvement is intending to implement new de-escalation training provision and to conduct a full analysis of de-escalation training. Current provision is under scrutiny and there is a call for an evidence base in 'what works' to inform and instruct the development of the pilot and roll-out of new training. In response, RAND Europe conducted a REA of the de-escalation training literature.

These research questions shaped the REA and guided our initial research:

1. Is de-escalation training effective in managing violence towards NHS staff?

2. What are the benefits and key methods used to provide the training?

3. What are the key types of training and content within the evidence base?

4. What are the factors of success in deploying training from the evidence base?

In addition to addressing the above questions with which we began our research, our analysis also identified potential negative consequences of programme implementation. We report on the results of our analysis in Section 3.

2. Study design and methods

To answer the research questions set out in Section 1.2 and to provide information that supports key training pilot and roll-out considerations, we undertook an REA. These assessments follow the principles of a systematic literature review, but make concessions to the breadth of the process by limiting some aspects such as the databases searched or time span of eligible studies. As there were several existing reviews evaluating the efficacy of de-escalation training in healthcare settings, our approach to the REA was to evaluate existing reviews on de-escalation training and other individual skills-based approaches to aggression management. This approach has several benefits over reviewing original research articles, including:

- **We were able to gather evidence across multiple settings.** The efficient nature of our approach allowed us to include review articles assessing de-escalation approaches in multiple settings, including emergency departments, psychiatric hospitals and policing.
- **The literature covers a greater span of time.** As evidenced in Figure 1, the time span covered by the articles within the reviews is extensive, and far greater than what we would have been able to review if we had undertaken an REA of original papers, given similar resources.

These are some limitations to our approach:

- **Loss of detail regarding specific aspects of study design.** By relying on other researchers' summary and interpretation of the literature our review did not have access to the full details of all of the underlying studies. If details were not reported in the reviews, we generally did not have access to them. For a few articles, we sought out the underlying study to seek clarifying details, but otherwise, we relied on the information presented in the systematic reviews.
- **We are missing articles from 2018 onwards.** Given the gap in time between conducting research and publishing in academic journals, by relying on published systematic reviews we are likely to miss the most current research on de-escalation training. However, within the reviews we assessed, we found repetition of underlying articles, which suggests that we would have captured similar literature for the covered years if we had undertaken a systematic review or original research articles.

We included 19 reviews, which covered over 800 unique studies (475 from Vigurs and Quy n.d.), from 1984 to 2017, and spanned four settings. Details of our methodology, including the search strategy and inclusion and exclusion criteria, are available in the Appendix.

Figure 1: Years covered by systematic reviews included in RAND Europe's REA

Authors	Sector	pre-90	90	91	92	93	94	95	96	97	98	99	2000	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Anderson et al. 2010	Healthcare - ED		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█										
Calow et al. 2016	Healthcare - ED																					█	█	█	█	█	█			
Compton et al. 2008	Policing																													
Gaynes et al. 2017	Mental health			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Hallett et al. 2017	Mental health	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█					
Heckemann et al. 2015	Healthcare		█	█	█	█	█	█																█						
Kowalenko et al. 2012	Healthcare								█	█	█	█	█	█	█	█	█	█	█	█	█									
Kynoch et al. 2011	Healthcare		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█										
Livingston et al. 2010	Mental health	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█										
Martinez 2016	Healthcare																				█	█	█	█	█	█	█	█	█	
Peterson & Densley 2018	Policing	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Price et al. 2015	Mental health		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█			
Puntis et al. 2018	Policing						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Ramacciati et al. 2016	Healthcare - ED									█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		█	█	█	█
Spencer et al. 2018	Social care	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Taheri 2016	Policing	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Taylor & Rew 2011	Healthcare - ED		█	█	█	█	█	█	█	█	█	█	█	█	█	█						█	█	█	█					
Vigurs & Quy n.d.	Policing					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Wassell 2009	Healthcare						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				

3. The effectiveness (or otherwise) of de-escalation training in healthcare and other settings

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Summary of evidence

- Poorly designed evaluations of programmes and interventions limit the quality of available evidence on the efficacy of de-escalation training.
- From the evidence reviewed, de-escalation training:
    - Probably does not reduce violent or aggressive incidents, but
    - May help staff manage violent and aggressive incidents through increased knowledge, confidence and skills.
- The evidence is inconclusive on the effectiveness of de-escalation training for reducing staff injuries.
- A multimodal approach to managing violence in the NHS may be more effective than de-escalation training alone.

3.1. Key findings from the literature

In Section 3.1 we present key findings from the REA. Section 3.2 presents evidence on the remaining research questions.

3.1.1. Is de-escalation training effective in managing violence towards NHS staff?

De-escalation training probably does not reduce violent or aggressive incidents

Evidence on the effect of de-escalation training on reducing violent or aggressive incidents is mixed, with few studies evaluating long-term effects of training. The evidence we reviewed generally suggests that **individual staff training programmes in areas such as de-escalation training do not reduce violent incidents**. For example, a review of aggression management training programmes in psychiatric hospitals found that only 37.5 per cent of the studies the authors evaluated reported reductions in violent and aggressive incidents as a result of the training (Livingston et al. 2010). Other reviews from mental health and healthcare settings found that when studies reported reductions in violence after training, the evidence connecting lower levels of violence to the training was weak (Taylor & Rew 2011, Spencer et al. 2018). Furthermore, when reductions in violence were reported, they were not always sustained throughout a given study period, a so-called 'fade out effect', leading some authors to conclude that there is a need for periodic interventions (Fernandes et al. 2002, Anderson et al. 2010).

De-escalation training may help with managing aggression and/or violence towards staff

There is no strong evidence that de-escalation training would reduce violent or aggressive incidents or prevent them from occurring, but **there is some evidence that de-escalation training could help staff to *manage* patient violence and aggression that occurs**. This is because when staff have the appropriate knowledge, confidence, attitudes and skills to handle aggressive or violent patients they may be less likely to experience negative outcomes resulting from patient aggression such as injuries (Kynoch et al. 2011).

The evidence from the reviews and studies included in our assessment suggests that, almost universally, participants in **de-escalation training gain knowledge and confidence**. For example, participants stated that they were better able to identify and work with people with mental illness in evidence from police de-escalation training programmes (Compton et al. 2008), have a higher awareness of risk for violent situations and how to avoid them, and know how to deal with aggressive patients in evidence from hospital-based training programmes (Kynoch et al. 2011). It is unclear from the reviews if these knowledge and confidence gains were sustained over time or were only evidenced immediately post-training.

Two reviews (one from a healthcare setting and one from a mental health setting) found that **the quality and intensity of training corresponded with participants' confidence levels to manage patient aggression** (Kynoch et al. 2011, Price et al. 2015). It is important to note that many evaluations of training outcomes assess staff perceptions of training such as self-assessed knowledge and confidence gains; fewer studies examine objective measures of knowledge gains (Ramacciati et al. 2016, Peterson & Densley 2018). There can be an inherent bias in self-reported data because participants may be likely to report positive outcomes from training they have participated in (Wassell 2009). Knowledge and confidence gains are often measured using unvalidated measurement instruments and limited to artificial training scenarios (Price et al. 2015).

The evidence is inconclusive on the effectiveness of de-escalation training for reducing staff injuries

Evidence from our review suggests that **some forms of violence prevention efforts reduce injuries to staff, but of those programmes citing injury reductions, de-escalation training was sometimes only one component within a broader training or violence prevention strategy**. For example, a review of aggression management training programmes in psychiatric hospitals found that 62.5 per cent of the studies evaluated showed evidence that staff training reduces staff injuries, with some of the reductions being 'substantial' and in the order of 99 per cent (Livingston et al. 2010). There is reason to interpret the results with caution, however, because the authors note that training for staff in cardiopulmonary resuscitation techniques also reduced staff injuries. They therefore suggest that unmeasured factors may be responsible for some of the positive gains attributed to de-escalation training.

Specific types of violence prevention efforts that include de-escalation components were also associated with lower rates of staff injuries, including **risk assessment tools** and **crisis intervention teams (CITs) in policing**. Risk assessment tools includechecklists that staff use to help them identify violent behaviour early, deriving evidence from emergency departments and in-patient healthcare settings (Calow et al.

2016); CITs in policing include de-escalation as one component of a larger intervention (Compton et al. 2008).

It is complex to design evaluations that are able to disentangle the effects of de-escalation training from other programme components, so we do not know whether de-escalation training on its own is sufficient to reduce staff injuries. It could be that de-escalation training is a necessary but not solely sufficient component of a broader approach required to reduce staff injuries.

Multimodal approaches to managing violence in the NHS may be more effective than de-escalation training alone

Given the limited evidence on the efficacy of de-escalation training to directly reduce violent and aggressive incidents, **several authors argue that individual skills-based approaches, including de-escalation training, are unlikely to be sufficient to reduce violence when adopted in isolation** (Wassell 2009, Anderson et al. 2010, Livingston et al. 2010, Heckemann et al. 2015, Taheri 2016, Gaynes et al. 2017). Instead, these authors suggest a multimodal facility-wide approach to violence prevention and reduction should be used. It involves strategies such as organisational policy interventions, security measures, and/or environmental design efforts (infrastructure changes) in addition to individual skills-based training (an approach mirrored in schools – see Valdebenito et al. 2019). An example of a multimodal violence reduction effort comes from a study of a psychiatric hospital that focused on reducing staff injuries through the use of a Plan, Do, Study, Act model (Martinez 2016). This included standardised reporting of all injuries, posting of universal precautions around the unit to remind staff to engage in proactive violence reduction and de-escalation behaviours such as maintaining appropriate body posture, and regular staff meetings and revised handoff procedures to allow staff to review potentially problematic patient behaviours.

3.1.2. There are several issues with the quality of available evidence

Poor study design limits the available evidence on the efficacy of de-escalation training

The review articles we assessed included few studies of de-escalation training with robust evaluation designs making it difficult to draw generalisable conclusions from their results. Typical evaluation methods included cross-sectional surveys, single group pre-test and post-test designs, quasi-experimental approaches and a small number of randomised controlled trials. The overall weakness of study designs presents challenges for interpreting the 'effects' of de-escalation training. For example, many of the study designs lack control groups so unmeasured organisational or contextual changes could act as confounders, which might explain in whole or in part any violence reduction attributed to de-escalation training (Price et al. 2015). The reviews concluded that evidence of the effectiveness of individual skills training programmes for decreasing violence or improving staff skills is 'variable' (Wassell 2009), moderate or weak (Price et al. 2015), or 'dubious' (Anderson et al. 2010). The literature we reviewed found that **there is a need for well-designed studies to confirm preliminary results derived from single-site and/or uncontrolled studies of de-escalation training.**

Additionally, due to weak evaluation designs one cannot isolate the effects of de-escalation training from other violence prevention efforts that may be happening simultaneously (Livingston et al. 2010). Nor can it be determined which *specific* components of de-escalation training are effective (Compton et al. 2008). For example, de-escalation training may be only one component of broader violence prevention efforts, such as programmes that involve organisational policy interventions or security upgrades in addition to de-escalation tactics. De-escalation training itself may contain many different elements, including learning verbal and non-verbal de-escalation strategy control, restraint or seclusion skills, and how to predict or prevent aggression (Livingston et al. 2010). Determining which one has an impact on violence, staff skills and confidence, or other outcomes, is not possible given the evaluation designs of studies identified by the review articles within our analysis. The review articles provide summary evidence around general content and approaches to de-escalation training, but cannot identify exactly 'what works', for whom, or under what conditions.

3.2. Given the evidence, what are the elements of a successful de-escalation training programme?

3.2.1. Evidence on specific training content and approaches from the literature

Summary of de-escalation training programme content

Keeping in mind the preceding cautions about the weakness of study design and uncertainty about how robust results might be, there is some anecdotal evidence about what is being taught in de-escalation training that staff and managers found helpful for managing violence within healthcare and other settings.

Common programme elements are theoretical models and understanding of aggression, learning about the causes and triggers of aggression, and looking at influencing factors, legal factors, prevention measures, effective communication skills and de-escalation techniques. One review states that the most common programme elements were **verbal and non-verbal de-escalation strategies** (72 per cent of programmes); **control, restraint or seclusion skills** (62 per cent of programmes); and learning how to **predict and prevent aggression** (59 per cent of programmes) (Livingston et al. 2010). Techniques and other phenomena that were perceived to be preventive included communication, knowledge (including theoretical knowledge about the causes of violence), limit setting and intervention timing (Hallett et al. 2014, Hallett & Dickens 2017). De-escalation training is found within police triage interventions, which include **CIT** and **co-responder models** (Puntis et al. 2018, Vigurs and Quy n.d.). CITs often focus on mental health didactics, de-escalation skills training and role-curriculum planning, visits to mental health facilities, training on community support and law enforcement issues (Puntis et al. 2018).

Some programmes introduced **training in physical restraint** or **response to aggression** and violence, most commonly in in-patient psychiatric facilities. Examples included training in secure and escort techniques (Anderson et al. 2010), intervention timing and containment, break-away techniques (Hallett & Dickens 2017), physical management of aggressive patients (Wassell 2009), and coping and post-incident care (Heckemann et al. 2015). Several reviews reported on **verbal aspects** of the training programmes. Training commonly involved teaching aggression management through awareness raising,

communication skills, triggering factors that lead to aggression, and appropriate responses and options (Anderson et al. 2010, Hallett et al. 2014, Heckemann et al. 2015, Hallett & Dickens 2017).

There is little evidence of the efficacy of specific programme elements, but some common themes emerge. For example, one review found that preventive violence programmes in de-escalation training reduced staff use of restraint and seclusion (Hallett & Dickens 2017), and a study of emergency department staff found that nurses and educators reported on **action research in training** as a positive feature (Ramacciati et al. 2016). However, there is little evidence of any particular content that works for participants and educators in de-escalation training programmes. Programme elements often depend on a **combination of different approaches rather than stand-alone interventions**. One of the few successful programmes described in one review found that in order for training to be successful it was necessary that there be a 'team approach' to aggression management, which combined verbal and physical management training for staff in a hospital psychiatric department (Wassell 2009).

Evidence on specific de-escalation training approaches

There was also **great variation in the duration and intensity of training programmes**. De-escalation training varied from single two- or four-hour sessions to up to ten days per year (Anderson et al. 2010, Hallett et al. 2014, Heckemann et al. 2015). Sometimes participants had 24 training sessions in a week (although it is unclear how long each session lasted) (Heckemann et al. 2015) or only 18 hours per year (Livingstone et al 2010). There were also great variations in the extent to which the training programmes recurred or were one-off interventions. Livingstone et al. (2010) found that only 35 per cent of programmes had refresher or recertification courses. With CITs in policing there is more consistency, as they generally include 40 hours of classroom teaching – discussed below (Peterson and Densley 2018, Puntis et al. 2018, Vigurs and Quy n.d.). The reviews demonstrate that recurring training modules that take place over an extended period of time result in participants having greater confidence (Kynoch et al. 2011). One-day training courses and four hours of training can be successful in reducing aggressive situations and increasing staff confidence (Wassell 2009). However, these effects tend to fade out after an extended period of time, with reported self-efficacy and confidence being back to baseline after six months (Wassell 2009). **This suggests that participants benefit from frequent training** (Price et al. 2015) and **often need periodic refresher courses** (Wassell 2009).

3.2.2. What are the key methods used to provide the training?

There is a variety of ways to deliver de-escalation training in healthcare, but training is generally given in fairly short, classroom-based sessions. Examples include **90-minute teaching sessions, instruction cards and 24 hours of one-to-one support** (Spencer et al. 2018), **focus groups** to reflect on assaults (Gillespie et al. 2014), **didactic lectures and case-based scenarios** and **45-minute educational programmes** (Ramacciati et al. 2016). **Role-play** is commonly used to teach participants to be assertive and not confrontational (Kowalenko et al. 2012). Some training programmes combined web-based training with a hybrid web and classroom model (Martinez 2016), but very few of the included reviews reported on the methods used to provide the training, making it difficult to find common approaches and lessons learned. There was some consistency in the reviews that addressed the use of **CITs in policing**, two of which

found that these CITs typically include **40 hours of classroom and experiential de-escalation training** (Compton et al. 2008, Peterson & Densley 2018).

The evaluations of specific training methods in de-escalation training are even sparser. Only two reviews focused on the efficacy of the methods and they cited the same study. Two studies (Martinez 2016, Ramacciati et al. 2016) quoted Gillespie et al. (2012), who found that **workplace violence training delivered via a hybrid web-based and classroom model was more effective than a web-only training method**. This is consistent with a general conclusion outside the literature on de-escalation training that health professionals find blended learning generally at least as effective as e-learning or face-to-face learning (Liu et al. 2016). However, neither of the reviews specified why the hybrid model was more effective or why particular outcomes related to efficacy. Because of the **weak evidence base**, it is difficult to draw any conclusions about the efficacy of the methods used in training.

3.2.3. What are the factors of success in deploying training?

Management commitment and engagement contributes to success

Two studies cited **management commitment and engagement** as key to a programme's success (Kowalenko et al. 2012, Gillespie et al. 2014). If managers support a de-escalation training programme it conveys to healthcare staff and patients that violence is unacceptable, and managers who know about violence prevention strategies can make appropriate decisions about programme development and implementation. Specifically, managers who know about security and violence prevention may be better able to judge what works and therefore less reluctant to implement strategies that may be effective but could be perceived negatively by the public (Kowalenko et al. 2012).

Economic benefits of de-escalation training might offset some of the costs associated with training

A common organisational factor that may impact the success of de-escalation and violence prevention programmes is the difficulty for employers to find the time to release healthcare staff for training. A reason often given for this is the associated costs (Kynoch et al. 2011).

The economic costs associated with staff time required for participation might be partially offset by some of the benefits of de-escalation training. One review found evidence from six studies showing **significant reduction in lost workdays, improved staff retention, reduced complaints and reduced overall expenditure** among mental health staff who had this training (Price et al. 2015).

Support for de-escalation training among healthcare staff

There is evidence that healthcare staff understand the requirement for training, including for de-escalation training. For example, one review of violence prevention in in-patient psychiatric settings found that **staff viewed training in the management of violence and aggression as important** (Hallett et al. 2014). The authors say this finding 'appears to be well-established' with 'more and better' training being an important priority for many staff, who thought training in violence prevention could improve staff safety while promoting teamwork and peer support. Relatedly, among emergency department nurses in this study there was evidence of general staff dissatisfaction over perceived inadequate organisational and

political support for the violence staff must contend with in their jobs. The authors of the review suggest that policies or interventions that are viewed as 'meaningful' by staff could help to alleviate this dissatisfaction and might therefore receive staff support (Anderson et al. 2010). However, the authors do not elaborate on what would make for a meaningful intervention.

Limited evidence suggests that repeated and renewed training may help to achieve sustained benefits

The literature also provides evidence that repeated or renewed training may be more effective than one-time training. For example, one study of an emergency department in Australia found that the number of violent interactions was reduced by 50 per cent three months after delivering de-escalation training to their employees (Wassell 2009). However, the levels of violence had returned to the baseline pre-training level six months post-training. Wassell (2009) argues this suggests a need for periodic reinforcement, though as the evaluation design did not include a control group, the increase in violent incidents could result from unmeasured external factors unrelated to training.

A facility- or organisation-wide approach to violence prevention may increase programme success

As previously described, the authors of multiple review articles argue that given the lack of robust evidence of the effect of de-escalation training on violent and aggressive incidents, organisations should undertake multimodal violence reduction interventions that include elements beyond individual skills training. The corollary argument is that **comprehensive, organisation-wide approaches that introduce systematic changes to organisational practice and culture may be necessary to achieve reductions in violent and aggressive incidents**. We found a few examples in the mental health and healthcare literature of programmes that incorporated policy changes along with de-escalation training and reported reductions in violent incidents. These policies included 'zero tolerance' policies that mandate the reporting of all violent or aggressive incidents (Anderson et al. 2010, Kowalenko et al. 2012), and policies that addressed context-specific issues such as management of patients in an emergency department waiting room (Gillespie et al. 2014). In one example, information from the mandatory reporting of violent incidents was used to inform the development of further staff training efforts in an emergency department (Anderson et al. 2010). Mandatory reporting guidelines, such as zero tolerance policies, are associated with negative outcomes in other settings, such as schools (Force 2008). It is therefore important to reiterate that individual programme elements in the literature have not been evaluated for their efficacy.

One article on violence prevention in emergency departments highlighted the importance of including security measures in violence prevention efforts (Kowalenko et al. 2012). These measures could include guards, metal detectors, security cameras and lighting, installing panic buttons, or physical barriers or structures to protect staff. Related to this is the importance of there being a facilitative environment for de-escalation training to be effective. For example, one review found that staff attitudes and perceptions regarding the level and acceptability of violence moderated the effectiveness of training interventions (Ramacciati et al. 2016).

3.2.4. What are the potential negative consequences of implementation?

De-escalation training may lead to short-term increases in reports of violent and/or aggressive incidents

One potential negative consequence of programme implementation is that **de-escalation training may lead to short-term increases in reports of violent and/or aggressive incidents** (Livingston et al. 2010). Reasons cited for this include: the inability of training to reduce violence below a certain (unstated) point; staff feeling more confident and therefore more likely to confront patients; organisations relying solely on training to confront violence and aggression; increased reporting behaviour by staff; and an insufficient critical mass of staff members who have received training. One study cited within a review found that self-reported incidents of violence were 50 per cent higher in the intervention group that had received de-escalation training than in the control group (Arnetz & Arnetz 2000). The authors argue that evidence does not support the idea that actual violent incidents were 50 per cent higher, and instead suggest that the *awareness* of violence was increased among staff who had received de-escalation training.

4. Conclusions

Is de-escalation training effective in managing violence towards NHS staff?

There is a good deal of evidence that de-escalation training improves staff self-reported knowledge and confidence in dealing with and managing aggressive and/or violent situations. Because of this, we suggest that the benefits of this improved knowledge and confidence is the main context for de-escalation training.

It is unclear if staff confidence gains are sustained over time; evidence suggests that improved self-confidence in staff may depend on the quality and intensity of training provided.

We also conclude that there is no clear indication from the evidence we reviewed that de-escalation training reduces the number of actual incidents of violence and aggression, nor whether it reduces the number of staff injuries.

What are the benefits and key methods used to provide the training?

De-escalation training has been shown to contribute to a significant reduction in lost workdays, complaints and overall expenditure, and to improved staff retention.

Key individual benefits from the training are that staff have improved knowledge and confidence in identifying and handling aggressive patients, and the tools to deal with violent situations when they occur. This can limit the negative impact of aggression and violence.

Very few of the included reviews actually report on the methods used to provide the training, making it difficult to find common approaches and identify lessons learned. There was scant evidence of the efficacy of the training programmes. Potentially a nearest proxy is found within the consistency of the reviews that addressed the use of CITs in policing. Key ingredients include classroom and experiential de-escalation training, mental health didactics, de-escalation skills training, role-curriculum plans, visits to mental health facilities, and training in community support and law enforcement issues.

What are the key types of training and content within the evidence base?

It is difficult to tease out which programme elements contribute to overall effectiveness in isolation and there was little evidence that any particular type of training was effective. The programme elements are typically enacted in combination, rather than as stand-alone interventions.

However the common programme elements found were theoretical models andunderstanding of aggression, learning about the causes and triggers of aggression, and looking at influencing factors, legal factors, prevention measures, effective communication skills and de-escalation techniques. One review states that the most common programme elements were verbal and non-verbal de-escalation strategies; control, restraint or seclusion skills; and learning how to predict and prevent aggression. Some programmes introduced training in physical restraint or response to aggression and violence.

The reviews suggest that recurring modules taking place over an extended period of time are associated with greater confidence among participants, and staff and managers find them more effective than one-off training sessions. It seems that participants are more likely to benefit from frequent training and periodic refresher courses.

What are the factors of success in deploying training from the evidence base?

There is some evidence that de-escalation training may lead to short-term increases in reports of violent and/or aggressive incidents. Some authors argue this is because of heightened perception and reporting following the training. We remark here that it would be prudent to mitigate or be ready for this upsurge by considering the reasons for these increased levels of violence cited in the literature: staff feeling more confident and therefore being more likely to confront patients; organisations relying solely on training to confront violence and aggression; increased reporting behaviour by staff; and an insufficient critical mass of staff members who have received training.

It is well known that one of the most important tasks of managers is to support their staff, and multiple authors observed that managers' commitment and engagement is key to a programme's success. We therefore highlight this as a key success factor.

Additionally, many authors argue there should be multimodal interventions to help prevent violence. Organisation-wide approaches that introduce strategic, policy and systematic changes to organisational practice and culture may be necessary to supplement training programmes that attempt to reduce violent and aggressive incidents. This comprehensive approach may help to overcome the apparent inability of de-escalation training to prevent and/or reduce violent incidents while still capturing the benefits to staff knowledge and confidence.

Next steps

There is a need for well-designed evaluations of de-escalation training programmes to provide a firmer evidence base of their efficacy, as there are currently very few rigorous evaluation studies that include robust comparison and counterfactual examples. Any efforts to implement de-escalation training should include evaluation measures within their design in order to inform the programme's development.

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6. Appendix

6.1. Overview of the study design

In order to address the study aims, our literature review followed the principles of a rapid evidence assessment (REA). These assessments are like systematic literature reviews (having clearly defined research questions, systematic and replicable search strategies, and explicit inclusion and exclusion criteria), but REAs make concessions to the breadth of the process by limiting some aspects such as the databases searched or time span of eligible studies. The typical processes involved in an REA are to search the academic and grey literature, screen titles and abstracts against pre-defined inclusion and exclusion criteria, and review and analyse the full text of articles included.

As there were several existing reviews on the efficacy of de-escalation training programmes, our approach to the REA for this study was to review existing systematic reviews on de-escalation training and other individual skills-based approaches to aggression management. This approach has several benefits over reviewing original research articles:

- **We were able to gather evidence across multiple settings.** The efficient nature of our approach allowed us to include review articles assessing de-escalation approaches in multiple settings, including emergency departments, psychiatric hospitals and police offices.
- **The literature covers a greater span of time.** As Figure 1 shows, the time span covered by the articles within the reviews is extensive, and far greater than what we would have been able to review if we had undertaken an REA of original papers, given similar resources.

There are, however, some limitations to our approach:

- **Loss of detail regarding specific aspects of study design.** By relying on other researchers' summary and interpretation of the literature our review did not have access to the full details of all the underlying studies. If details were not reported in the reviews, we generally did not have access to them. We sought out the underlying study of a few articles to seek clarifying details, but otherwise relied on the information presented in the systematic reviews.
- **We are missing articles from 2018 onwards.** Given the gap in time between conducting research and publishing in academic journals, by relying on published systematic reviews we are likely to be missing the most current research on de-escalation training. However, we found repetition of underlying articles in the reviews we assessed, which suggests that we would have

captured similar literature for the covered years if we had undertaken a systematic review or original research articles.

6.2. Search strategy

6.2.1. Development of search string

The study team developed and piloted the search string iteratively. We modelled our initial search string on terms used in existing systematic reviews on de-escalation training, which we identified through our scoping research. Then we trialled the search string in the PubMed database and refined it until we believed that it accurately captured evidence on the scope and context of the research questions. We used the final search string (see Figure 2) to search PubMed database, looking for:

- Review articles
- Articles published within the last ten years (between March 2009 and March 2019)
- Articles restricted to research on human subjects
- Articles published in English.

We also searched Google Scholar for relevant reviews using the string 'de-escalation training systematic review' and restricted the results to articles published from 2008 to 2019. Owing to the scope of this REA and limited relevance of the results found through Google Scholar, we restricted the review articles that we included in the screening from this source to those on the first ten pages (10 results per page = 100 results).

We included an additional four articles that we had identified through our initial scoping research, but were not captured through our database searches.

Figure 2: Search string for PubMed database

(violence OR homicide OR murder OR battery OR assault OR aggression OR belligerence OR bully OR bullies OR threatening OR rape OR de-escalation) AND (workplace OR co-worker OR occupation or employee) AND (prevention OR deterrence OR avoidance OR intervention OR program OR programme OR reduction OR training OR educational) AND (evaluation OR assessment OR appraisal OR effective OR outcome)
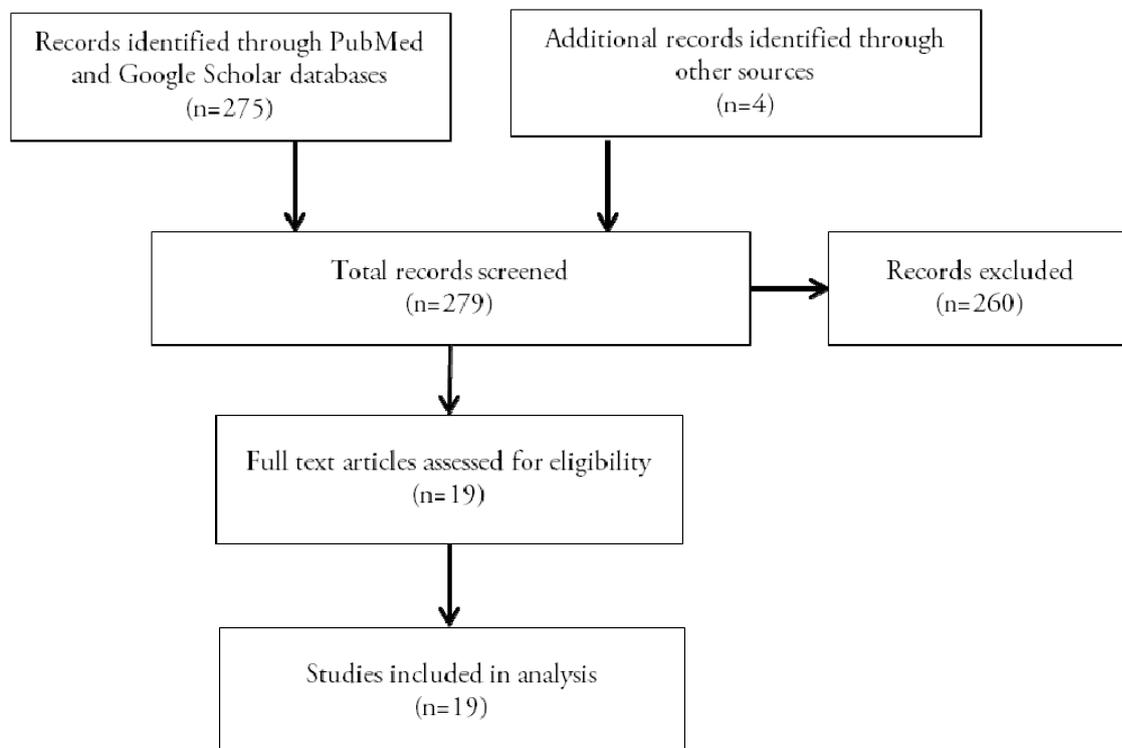
6.2.2. Article selection

We assessed the records identified by the database searches for inclusion by screening titles first, and then abstracts if clarification was needed, against a set of inclusion and exclusion criteria (see Table 1). Two reviewers (BL and EG) single-screened articles for inclusion, dividing the articles between them; and they discussed any uncertainties. Figure 3 summarises the process used to identify and select sources included in the REA.

Table 1: Summary of inclusion and exclusion criteria for the REA

Inclusion criteria	Exclusion criteria
Review articles on de-escalation training programmes and techniques for de-escalating violence against employees within occupational settings.	Articles on bullying within the workplace (e.g. staff-on-staff harassment). Articles on de-escalating violence within the home.
Articles that describe programmes that have been implemented.	Theoretical descriptions of de-escalation training programmes that have not been implemented.
Articles focused on any occupational setting.	
Articles focused on programmes set in selected high-income countries (OECD countries).	Articles focused on programmes set in countries other than identified high-income (OECD) countries.
Review articles published since 2008, but may include articles *within* the review articles from before 2008.	Review articles published before 2008.
Review articles.	Editorials, commentaries, letters, protocols, guidelines.

Figure 3: Flow diagram of process for identification and selection of articles included in REA

6.3. Full-text analysis

6.3.1. Data extraction

After selecting articles, we analysed their full text. First two researchers (BL and EG) extracted data providing key information into an Excel template. The extracted information focused on specific de-escalation training approaches, evidence of their efficacy, and any details related to training programme implementation and success. Table 2 lists the information extracted.

Table 2 Data extracted during full-text review

Extraction field
Study author(s)
Year of publication
Years covered
Countries covered
Number of sources cited
Settings covered
Any relevant or unusual inclusion criteria for articles
Overview of approaches to de-escalation covered
Specific approach or outcome #1 (new columns added as needed)
Specific points or learning about de-escalation training programmes
Evidence of approach effectiveness or ineffectiveness and methods used to assess efficacy; if efficacy isn't assessed, cite this
Evaluation methods used in studies
Limitations of training approaches
Enablers of successful approaches
Barriers to successful approaches
Overall conclusions

6.3.2. Synthesis

During the synthesis stage, we assessed the evidence from included review articles using a narrative approach. Beginning from the information collected using the extraction template, we synthesised findings across settings, pulling out common themes and learning on the efficacy of de-escalation training for managing violence and aggression against NHS staff. We also explored what approaches to training have been employed in healthcare and other settings, how this training has been delivered, and any factors underlying the success or failure of these training approaches. All members of the research team (MW, AS, BL and EG) were involved in the synthesis process, each leading on different aspects. We regularly discussed emerging insights and themes.