Patient safety improvement in the ear, nose and throat (ENT) speciality: a scoping review of improvement initiatives and involvement of frontline staff

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Running head: Improving patient safety in the ENT speciality

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(Word count: 2975)

Abstract

Background

The success of patient safety improvement initiatives depends on frontline staff engaging with improvement efforts. However, in the ENT speciality, there is less patient safety research compared to other healthcare specialities, and limited evidence on staff perspectives regarding safety improvement and the factors influencing their engagement.

Objectives

To map the literature on safety improvement efforts in the ENT speciality in UK settings, and to explore staff involvement and engagement with initiatives to improve patient safety in ENT.

Methods

A literature search was conducted using the PubMed, Ovid MEDLINE and SCOPUS databases to retrieve studies reporting the implementation of patient safety initiatives in ENT departments in the UK, and studies exploring frontline staff perspectives on improving safety in ENT. The selected studies were peer-reviewed, written in English and published between 2013 and 2023. Data were extracted and synthesised in accordance with the predefined research questions.

Results

1,661 studies were screened, and 10 met the selection criteria. Findings demonstrated evidence of staff initiating, designing and implementing safety improvement initiatives. Frontline staff engagement and senior staff/managerial involvement were identified as key contributors to successful implementation. Only one study addressed frontline staff priorities for safety improvement, in the context of improving tracheostomy, with the author

stating that results indicated that frontline staff are unwilling to implement low priority interventions.

Conclusion

Further research is needed to explore the factors influencing staff perspectives on how patient safety can be improved in ENT and the factors influencing their engagement. This could lead to recommendations for the development of successful, sustainable initiatives. The authors of this review recommend establishing the following as standard practice: (a) appointing staff as quality/safety champions, and (b) involving frontline staff and senior managers in co-developing improvement strategies.

Key messages:

- Unsuccessful implementation of patient safety initiatives is frequently attributed to poor frontline staff engagement with improvement efforts.
- Studies have shown examples of how effective ENT staff engagement improved implementation of safety initiatives, while poor engagement hindered it.
- Further research is needed to explore the factors influencing frontline staff engagement, and staff priorities for safety improvement. This could lead to recommendations for the development of successful patient safety initiatives.

Introduction

Although patient safety has seen significant improvements over the years, there remains an alarming incidence of avoidable harm occurring in UK healthcare (1,2). Panagioti et al.'s systematic review and meta-analysis (3) of UK-based studies found that nearly 1 in 20 patients experience avoidable harm. This review found that such harm was more common in secondary care settings and in surgical specialities. On the extreme end, the impact of avoidable harm can at times be life-threatening or fatal. A retrospective case record review found that an estimated 11,000 deaths occur each year due to preventable harm in acute hospitals in England (4).

Research shows that, where implemented successfully, patient safety/quality improvement (PS/QI) initiatives can be effective (5-7). However, there are often challenges in implementing these initiatives in practice (1,8). It is often stated that for PS/QI projects to succeed, frontline clinicians must be engaged effectively, but this is often not the case (9,10). Research suggests that the support and involvement of senior managers and leaders within organisations also plays a key role in driving successful implementation of improvement initiatives (11-13). Some suggest that aligning the interests of frontline staff and managerial staff may result in more successful initiatives as this would encourage engagement from both groups (12,14). However, there is little evidence on how frontline staff perceive the alignment between their priorities and their organisation's priorities, and how alignment or misalignment can influence initiative implementation.

This scoping review focussed on the ear, nose and throat (ENT) speciality, also known as otolaryngology, where there is a lack of evidence on staff perspectives on safety

improvement and less patient safety research compared to other healthcare specialities. ENT is a highly varied surgical speciality which deals with many diseases ranging from those concerning hearing and balance to those affecting breathing and speech (15). Within ENT, there are subspecialities which include otology, rhinology, laryngology, head and neck surgery, plastic surgery and paediatrics (15). Danino et al. conducted a descriptive review (16) of 68 studies to elicit the main safety risks in ENT. Results demonstrated that patient safety issues were related to "medication errors", "diagnostic errors", "wrong-site surgery", "planning and technical surgical errors", "laser safety" and "emergency services" (p.1318-9). Gettelfinger et al. carried out a systematic review (17) to define the scope of research on training and education in PS/QI in the ENT speciality. They concluded that there is a knowledge gap in how evidence is translated into safer practice in ENT.

This scoping review aims to map the literature on safety improvement efforts in the ENT speciality in UK settings, and to explore staff involvement and engagement with initiatives to improve safety in ENT. The review addresses the following questions:

- Which patient safety issues have been the focus of improvement interventions in ENT in the UK?
- How have frontline staff been involved in improvement efforts in ENT?
- How does staff involvement and engagement impact on implementation success?
- What are the priorities of frontline staff for safety improvement?

Methods

Once the research questions were chosen, the research team (OO, NA, CT) agreed a search strategy, using Arksey and O'Malley's methodological framework (18), to identify relevant studies to address the research questions. This review is reported in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist (see Online Supplementary Material 1).

Identifying relevant studies

The literature search was conducted using the Ovid MEDLINE, PubMed and SCOPUS databases. The searches were limited to articles written in English, due to a lack of resources for translation of non-English sources, and articles published between 2013 and 2023, to reflect more recent healthcare safety initiatives in the ENT speciality. The full MEDLINE search strategy is shown in Online Supplementary Material 2. This search strategy was also applied to the other databases. These searches were then supplemented by a further screening of the references and citations of relevant articles retrieved from the database search and an additional hand-search of 'British Medical Journal (BMJ) Open Quality', a key journal dedicated to publishing UK-based healthcare improvement work (19).

Study selection

Titles and abstracts for all papers arising from the database searches were screened by the lead researcher using predefined selection criteria. For the studies which appeared to be eligible for inclusion, full-text articles were obtained and assessed to confirm eligibility. The same selection criteria were applied to studies found when screening references, citations and BMJ Open Quality. 5% of the original set of articles identified were independently screened by another member of the team (CT), and decisions checked for consistency. In addition, 20% of the full-text articles obtained by the lead researcher were independently screened by CT and there was consensus on their inclusion/exclusion.

Studies were included if they: (i) were empirical studies implementing, or evaluating the implementation of, patient safety improvement initiatives/projects in a hospital setting within the ENT speciality in the UK or (ii) were empirical studies identifying/addressing clinicians' perspectives on improving patient safety in ENT. Figure 1 demonstrates the study screening and selection process.

Charting the data

Once the study selection was complete, data were "charted" to allow for the synthesis of results, in accordance with the research questions (18). The lead researcher extracted key information from each study and entered the data into forms created using Microsoft Word. The subheadings for the data charting forms were as follows: author(s), year of publication,

study type, aims, methods, results, patient safety issue, extent of frontline staff involvement and authors' perceived barriers/enablers to successful implementation. Once the forms were completed, data were combined and compared between studies to generate a thorough understanding of each research question. Results were shared with the research team who contributed to their interpretation.

Results

Ten papers met the eligibility criteria. Nine papers outlined the implementation of PS/QI projects (20-28). The final paper was a qualitative project exploring frontline staff perspectives on improving the safety of tracheostomy care (29). Table 1 provides a summary of these studies.

Patient safety issues focussed on in improvement interventions

The papers retrieved in this scoping review focussed on improving safety in ENT in the following areas: clinic referral systems (20,21), tracheostomy care (22,23), post-operative management and discharge (24,25), outpatient clinic safety (26), nasal trauma management (27) and paediatric bronchoscopy (28). Eight interventions were initiated by frontline staff due to departmental safety concerns (20-22, 24-28).

Involvement of frontline staff in improvement efforts in ENT

Most projects used "Plan-Do-Study-Act" (PDSA) cycles; an iterative process which allowed for multiple adaptations to be made to interventions based on staff critique during implementation (21,22,24,27,28). Exceptions were Twose et al.'s project (23) where it appeared that feedback was only collected from staff after the implementation period, and Evans et al.'s project (20) which does not document any use of staff feedback in their improvement initiative.

In three projects, frontline staff were involved in collective decision-making, on how to address the safety issues in their departments. Strategies for including frontline staff in

decision-making included multidisciplinary open forums, focus groups, co-development meetings, and appointing staff as QI champions (24,25,28). Staff champions are a widely used, and reportedly successful, means of using strong leadership to drive improvement in healthcare organisations (30,31).

Impact of staff involvement and engagement on implementation success

Khajuria et al. (27) found that motivating junior doctors to implement changes to their practice was a challenge which negatively impacted implementation. Saxby et al. (28) stated that "empowering" staff within their ENT department to make decisions on how to address safety concerns "…ensured hierarchical boundaries were broken and created a strong team spirit…" which contributed to the success of their intervention (p.2). Collins et al. (24) stated "it can be challenging for long-term staff to embrace new practice" and that this may have been a barrier to success in their intervention (p.6).

McGrath et al. (22) and Sharma et al. (26) both reported that involving hospital senior management in their safety interventions played a key role in driving successful implementation. Additionally, Swords et al. (21) noted that involving senior healthcare professionals would ensure that improvement efforts were continued in their department despite junior doctors regularly rotating between different specialities. The author stated that improving healthcare "…requires commitment from all levels of the hierarchy within a team, but in particular, engagement from the most senior member of the team is key…" (p.5).

Frontline staff priorities for safety improvement

Only one study addressed frontline staff priorities (29). In this study, frontline staff took part in interviews, focus groups and a prioritisation exercise focussed on improving tracheostomy safety. Results demonstrated that training/education, establishing multidisciplinary care, and standardising care were the highest priority areas requiring intervention. Results of the prioritisation exercise showed lowest agreement scores for the interventions that staff were not planning to implement which, according to the author, indicated a reluctance from staff

to implement low priority interventions. This review revealed a gap in research focussed on identifying which safety issues are a priority for frontline ENT staff and how frontline staff feel their priorities may align with their organisation's priorities.

Discussion

Statement of principal findings

The papers retrieved in this scoping review focussed on improving safety in ENT in the following areas: clinic referral systems, tracheostomy care, post-operative management and discharge, nasal trauma management, outpatient clinic safety and paediatric bronchoscopy. Findings demonstrated evidence of ENT staff initiating, designing and implementing safety improvement initiatives. Most of these improvement strategies sought frontline staff input through feedback, co-development or championing. Many authors reported that frontline staff engagement and senior staff and managerial involvement were, or would have been, contributors to successful implementation of their safety initiatives. Finally, one study addressed frontline staff priorities for improving tracheostomy care. The authors of this paper stated that their results indicated that frontline staff are unwilling to implement what they see as low priority interventions.

Interpretation within the context of the wider literature

Interestingly, only two of the selected studies focus on categories of safety issues identified in Danino et al.'s review (16) on patient safety issues in ENT. Khajuria et al.'s intervention (27) for improving nasal trauma care fits Danino et al.'s (16) "emergency services" category, while Collins et al.'s intervention (24) for improving post-operative hypocalcaemia management fits the "diagnostic errors" category as this intervention was developed to improve diagnosis and management of post-operative hypocalcaemia. While neither this scoping review nor

Danino et al.'s review (16) provides an exhaustive list of safety issues seen in the ENT speciality, they both provide examples of such issues.

This review highlighted staff engagement as a key enabler to successfully implementing patient safety initiatives (21,24,27,28). In order for PS/QI initiatives to be successful, frontline staff need to be committed to engaging with interventions, however studies have shown that this is often not the case in practice (9,32,33). Some studies suggest that the extent to which clinicians engage with efforts to improve safety depends on their perception of the proposed interventions (34-36). It can therefore be argued that eliciting and acting upon frontline staff perspectives is important to ensure their engagement with safety initiatives.

Based on the suggestions that engagement may be enhanced by positive perceptions of an intervention (34-36), it might be expected that involving frontline staff in designing an initiative encourages engagement. However, findings of this review demonstrate that this is not always the case. In the case of Saxby et al. (28) and Collins et al. (24), staff were engaged in intervention development via focus groups and meetings. Despite this, both authors reported poor staff engagement as a barrier to implementation. It is, however, difficult to make links between staff engagement and the extent of their involvement in intervention design based on this review as there are only nine PS/QI projects included, and no consensus on the definition for engagement.

Involvement of senior staff was an additional key enabler of successful implementation highlighted in this review (21). This finding is supported by wider literature highlighting that positive leadership to drive change is necessary when implementing patient safety initiatives (37-39). Incorporating staff champions as leaders to oversee and promote initiatives plays a key role in successful implementation (40,41). However, it is important to understand that the responsibility for implementing change does not lie solely with frontline staff, and that the role which healthcare managers play in safety improvement must also be considered (9,37,42). Some authors of the papers retrieved in this review stated that involving hospital senior managers was a key enabler for successful initiative implementation (22,26). Interestingly, wider research which has suggested an association between high-level organisational support and hospital performance (42). Pannick et al.'s narrative synthesis (12) suggests that neither clinician engagement nor managerial support can work in isolation

to make meaningful change. They concluded that "…developing effective and sustainable QI interventions may depend on our ability to align the two groups' divergent interests…" (p.722). Lundmark et al.'s scoping review (14) concluded that more attention needs to be given to alignment when designing interventions.

This scoping review yielded one study exploring staff priorities for improving safety (29). The results of this study seem to indicate an unwillingness of staff to implement initiatives which they deemed to be low priority. This finding therefore re-emphasises the importance of understanding clinicians' perspectives and priorities and how they relate to engagement with initiatives. An extensive literature review conducted by the Health Foundation highlighted a lack of research into how clinicians' attitudes and beliefs impact their engagement with efforts to improve safety (9).

Implications for policy, practice and research

As senior staff involvement, senior managerial involvement and a consideration of the staff perspective were highlighted as key drivers for successful implementation, it is crucial that this is reflected in practice. The authors of this review recommend that fostering effective communication between frontline staff and senior managers, and appointing frontline staff as trained PS/QI champions should be established as standard practice. Regular meetings, for example, would allow for frontline staff and managers to discuss concerns and work together to develop and implement strategies to address safety risks. Additionally, appointing staff as champions would allow them to take on a leadership role, driving change in their departments, encouraging and empowering staff to be active participants in safety improvement work.

An important finding of this review is that, in the studies which reported poor staff engagement (24,27,28), there was a lack of exploration as to why this could have been, prompting the question of whether staff would have engaged with initiatives with a different focus. Most interventions from this scoping review were initiated by frontline staff due to departmental safety concerns. Consequently, the findings of these interventions do not represent how staff may engage with initiatives which have been initiated from a hospital

managerial, regional or national level. Further research could provide valuable insight, from an ENT staff perspective, into the factors influencing their engagement with safety improvement initiatives, including those which are not initiated by frontline staff.

Strengths and limitations

This scoping review used a comprehensive search strategy which was focussed yet broad enough to retrieve papers outlining safety initiatives implemented in ENT or the priorities of frontline staff for improving safety. Findings produced valuable insights into the safety issues seen in ENT departments in the UK and how staff are involved in addressing these issues. PS/QI projects are typically not considered as traditional scientific research and there is less consensus for how these projects should be reported (43-45). It is therefore difficult to compare designs and outcomes of different initiatives. All papers were retrieved from peer-reviewed journals with the aim of obtaining higher quality, well-reported interventions. However, it is important to note that the interventions discussed within this review are unlikely to be representative of the variety of safety initiatives being implemented to improve safety in ENT departments in the UK. It is likely that many patient safety initiatives will go unpublished, especially those which have been initiated by trust managers or independent organisations. PS/QI projects may also be subject to publication bias, resulting in a potentially unrepresentative pool of projects with positive results (46).

Conclusion

This scoping review explored the literature on patient safety improvement in the ENT speciality in UK hospitals, and staff involvement and engagement in such initiatives. Results demonstrated that ENT staff play a key role in initiating and designing interventions to improve patient safety. Selected studies also highlighted key implementation barriers and enablers, such as staff engagement and senior support, which are commonly discussed in wider literature. This scoping review revealed gaps in evidence. For example, there were no studies exploring the safety issues which were a main concern to ENT staff and how they felt these issues should be addressed. There were no studies exploring how staff felt their priorities for safety improvement aligned with their organisation's priorities and how this

might affect safety initiative implementation. Finally, although this review found that staff engagement was one of the most common barriers to successful implementation, there was a lack of exploration as to why engagement was lacking. Further research, perhaps through qualitative exploration, could lead to a better understanding of the factors that impact on frontline staff perceptions of and ability to engage with safety improvement in ENT, including organisational initiatives. This research could lead to recommendations for developing successful, sustainable interventions to improve patient safety in ENT and perhaps other specialities. The authors of this review recommend establishing the following as standard practice: (a) appointing staff as quality/safety champions, and (b) involving frontline staff and senior managers in co-developing improvement strategies.

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Tables

Table 1: Summary of retrieved papers

AUTHOR	STUDY TYPE	AIMS	METHODS	RESULTS
Evans et al. (20) 2023	Pilot study	Improve the timeliness of detection of patients with serious illness and reduce waiting times for ENT clinic appointments.	Implementing a clinical photography (digital otoscopy) service for use in triage.	Improved identification of mistakes made in referrals. Identification and discharge of patients (approximately 50%) who were not in need of face-to-face appointments which led to more timely ENT appointments and treatment.
Swords et al. (21)	QI project	Improve the safety and	Development and implementation of	Statistically significant improvement in the quality

2017		efficiency of the ENT emergency clinic referral system.	electronic referral system. Junior doctor education.	of referrals, however the referrals did not meet the goal of 100% compliance with five predetermined domains: (“booking date, urgency, legibility, patient identification and appropriateness”).
McGrath et al. (22) 2017	QI project	Improve the quality and safety of tracheostomy care.	Educating staff, involving staff and patient champions, implementing multidisciplinary tracheostomy care teams. Intervention implemented in four NHS trusts.	Statistically significant reduction in frequency and severity of tracheostomy-related safety incidents, reduction in length of stay in hospital.
Twose et al. (23) 2019	QI project	Improve the quality and safety of tracheostomy care.	Teaching for staff. Implementing multidisciplinary ward rounds for tracheostomy patients.	Improvement in staff confidence in knowledge. Reductions in adverse events. Statistically insignificant reductions in length of hospital stay and time between insertion and decannulation.
Collins et	QI project	Improve	Co-development	Post-intervention re-audit

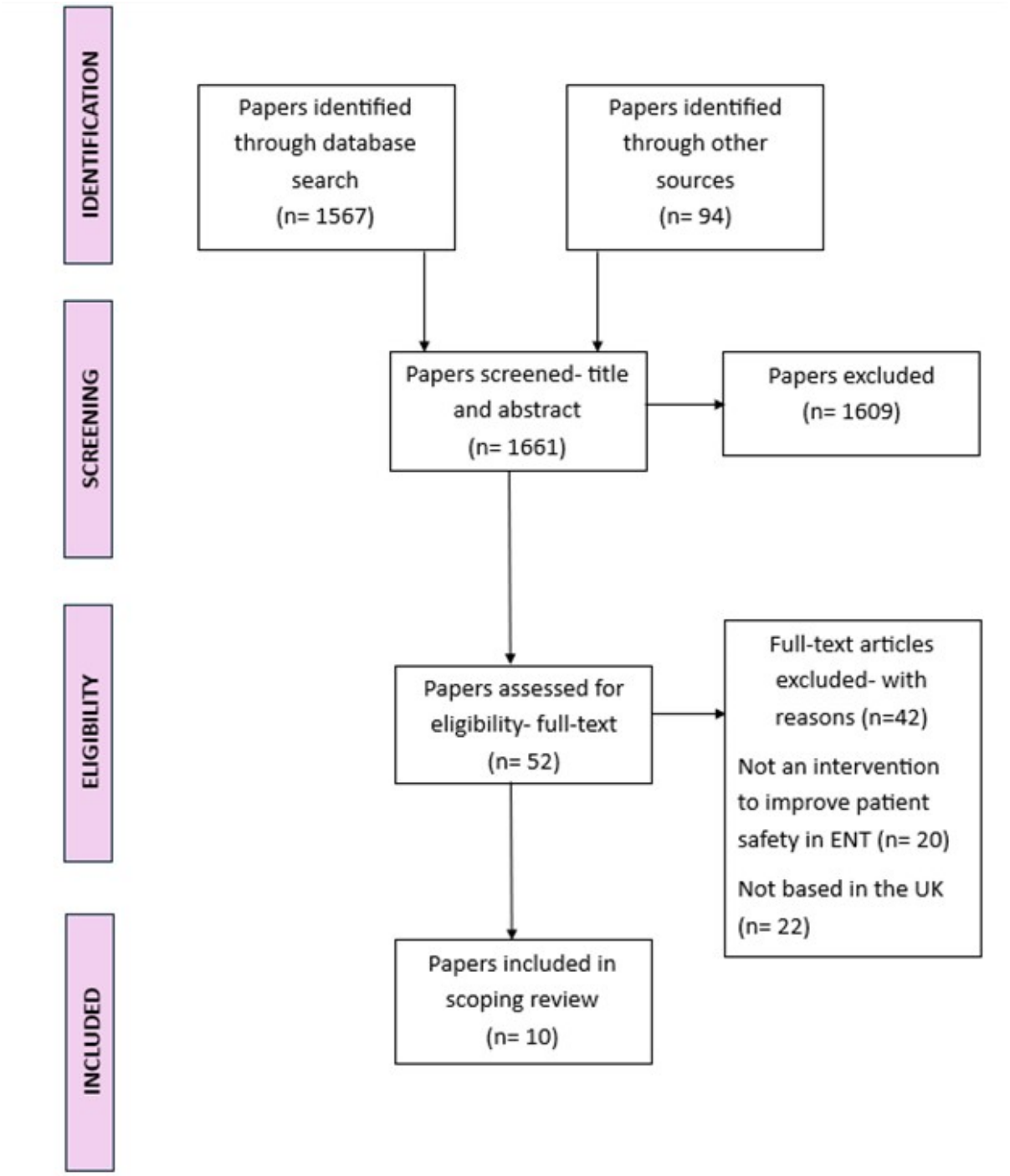
al. (24) 2021		quality and safety of post-operative hypocalcaemia management.	and implementation of new post-operative management guidelines.	showed improvement in patient monitoring and prophylactic prescribing.
Carter et al. (25) 2014	QI project	Improving safety of post-tonsillectomy discharge.	Co-design and implementation of a new patient information leaflet.	Post-intervention re-audit found improvement in post-tonsillectomy discharge compliance with the Royal College of Surgeons of England (RCSEng)'s guidelines.
Sharma et al. (26) 2016	Pilot study	Improve the safety of the ENT outpatient clinic.	Co-developing and implementing a safety checklist.	Achieved 94% adherence to the predetermined criteria for clinic safety.
Khajuria et al. (27) 2019	QI project	Improve quality and safety of the assessment and treatment of nasal trauma.	Educating junior doctors. Implementation of a new proforma, patient information leaflet and clinic poster.	Improvement in timely trauma assessments. Improved quality of assessments (clinical examination and history taking) and trainee confidence with nasal trauma assessments.
Saxby et al. (28) 2014	QI project	Improving the assembly of paediatric	Co-development and implementation of	Increased frequency of correct assembly and reduced time for assembly

		bronchoscopes (time and efficiency).	a guide/prompt poster.	compared to baseline measurement taken before implementing the use of the prompt poster. Baseline: 10 staff members, 30% assembled correctly, average time: 3 minutes 39 seconds. After intervention: 10 staff members, 100% assembled correctly, average time 1 minute 37 seconds.
McGrath et al. (29)	Qualitative	Develop a national strategy for improving tracheostomy care.	Recruiting staff (varied specialties) and key stakeholders from 20 UK hospitals that participated in the UK Improving Tracheostomy Care (ITC) project. Thematic analysis of semi-structured interviews and appreciative inquiry forms (39 participants). Participants took	Staff training/education interventions were highest priority. Establishing multidisciplinary care, standardised care, and collecting data to measure progress and adverse events were also scored as high priorities. Results of the prioritisation exercise showed lowest agreement scores for the interventions that staff were not planning to implement, indicating a

			part in subsequent focus groups with a prioritisation exercise using sticker voting.	reluctance from staff to implement low priority interventions.

Figures

Figure 1. PRISMA flow diagram outlining study selection



Contributorship

OO, CT and NA designed the review protocol. Study screening and selection was conducted by OO and CT. Data synthesis and interpretation were led by OO, with valuable insights and contributions from the other authors. All authors were involved with writing and editing the article.

Ethics and other permissions

Ethical approval for this study was not sought because it is a scoping review.

Funding

NA & CT are funded by the National Institute for Health and Care Research (NIHR) Greater Manchester Patient Safety Research Collaboration (GM PSRC). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

Conflict of interests

No known conflict of interests

Acknowledgments

OO would like to acknowledge the University of Leicester's librarians for their guidance with undertaking database searches.

Data Availability Statement

The data underlying this article are available in the article and in its online supplementary material.