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Quality Improvement Article

SIN-BARRSS – Developing a mnemonic to support nurses' participation in interprofessional ward rounds in intensive care: An appreciative inquiry for quality improvement

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ABSTRACT

Objectives: To develop and pilot a mnemonic to increase the willingness and ability of bedside nurses to contribute to patient reviews in the daily interprofessional ward round.
Research methodology/design: Appreciative inquiry quality improvement study, using ethnographic observations and appreciative inquiry discussions, augmented by quantitative data collection of basic facts.
Setting: Large (44 beds) critical care unit in the United Kingdom.
Main outcome measures: Interprofessional development and acceptance of mnemonic; successful preparation for pilot; use and usability of mnemonic; improvements in bedside nurses' contributions to ward round discussions (frequency and focus).
Result/findings: Interprofessional development of a usable and useful mnemonic was successful, pilot implementation showed promising levels of take up and acceptance. Compared to before the quality improvement project bedside nurses were more willing and able to participate in ward round discussions, did so more often, and used the mnemonic script with insight and flexibility.
Conclusions: The implementation of a mnemonic supported bedside nurses' contributions to the ward round. This could provide a framework for introducing similar programmes to other intensive care units. Appreciative inquiry methodology could be replicated in other settings to aid the improvement of interprofessional ward rounds, or to address other quality improvement priorities.
Implications for clinical practice: A mnemonic can provide a structure which supports bedside nurses' contributions in ways that make good use of bedside nurses' professional expertise and most up to date knowledge of patients' clinical state. Furthermore, a well-designed mnemonic can be used flexibly and provides an outline script that supports less experienced and less confident nurses to make well-focused and well received contributions to rapid interprofessional discussions. In turn, this can increase these nurses' confidence and capability. More experienced and confident nurses, and ward round leaders, can use the same mnemonic flexibly as an aide memoir that guards against missing information and insights that could affect the quality and safety of patient care.

Introduction

Ward rounds (WRs) are an important part of hospital clinical practice: they set priorities, coordinate care, and develop management plans for each patient; supporting timely, safe, efficient care. The *Modern Wardrounds* report (Royal College of Physicians and Royal College of Nursing, 2021) and Francis Inquiry (Francis, 2013) concluded, to support safe care, WRs should be interprofessional and given central importance in the working day. Wider research reports that nurses' contributions to WR discussions support high quality care, arguing their absence (or even physical presence but lack of engagement) has adverse consequences for communication, WR efficiency and patient safety (Paradis et al., 2015; Shaughnessy and Jackson, 2015,). Worryingly, research studies from several contexts report that many nurses lack the

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willingness and ability to participate in WRs (Liu et al., 2013; Manias and Street, 2001; Merriman and Freeth, 2021; Paradis et al., 2015).

Wider analysis of the study site's WR practices (Merriman and Freeth, 2021), found bedside nurses did not contribute as much to WRs as WR leaders hoped, which risked suboptimal clinical decision-making. Senior nurses and doctors wanted to support bedside nurses' ability and willingness to contribute to medically led interprofessional WR discussions and decisions. Bedside nurses wanted to contribute but requested more support to do this more often and effectively. First, bedside nurses need to be present to contribute, necessitating greater predictability in the touring WR arrival time, reported elsewhere (reference withheld for anonymity). Here, we report another intervention: interprofessional development and implementation of a mnemonic to guide and support bedside nurses' WR contributions.

Standardised approaches and tools, such as mnemonics, may improve the quality and efficiency of clinical communication and prevent medical errors (Vincent, 2005). A mnemonic is a pronounceable phrase or words where each letter represents an item that is remembered in the order given by the phrase (Radovic and Manzey, 2019). The Situation-Background-Assessment-Recommendation (SBAR) tool was an early example, originally introduced to help structure communication primarily between nurses and physicians in acute care (Leonard et al., 2004). The popularity and international uptake of SBAR in acute and community hospitals, quickly made it a 'best practice' for rapid transmission of information (NHS, 2018). Other mnemonics followed to support ward round communication in intensive care. For example, Shaughnessy and Jackson (2015) MINDERS checklist and Alamri and colleagues (2016) adhesive proforma stickers found a mnemonic checklist, primarily to structure junior doctors' contributions, could improve communication during intensive care WRs. Furthermore, mnemonics can aid communication for less experienced or less confident staff (Boaro et al., 2010; Vincent, 2005). Preexisting mnemonics did not cover all the aspects of care that the unit multidisciplinary team felt nurses should cover during the ward round, so we developed and piloted a new mnemonic. The aims of the new mnemonic were to provide a structure to follow, to help WR participants remember the aspects of care the unit had agreed bedside nurses should normally report during the WR due to the foci of their work and their up-to-date knowledge, and to increase bedside nurses willingness and ability to make succinct well-focused contributions to WR patient reviews.

Objectives:

- To co-develop and pilot a WR mnemonic, focused on improving the frequency and quality of bedside nurses' contributions to WR patient reviews.
- To evaluate pilot implementation of the new mnemonic to discern its usability in the practice setting and its potential impact on the willingness and ability of bedside nurses to contribute to WR patient reviews.

Methods

Study design

This quality improvement initiative took place in a critical care unit that was already engaged successfully in appreciative inquiry into WR practices (Merriman and Freeth, 2021). The unit chose to continue with appreciative inquiry for the new mnemonic development. Appreciative inquiry is collaborative, using generative discussions with participants to support organisational and practice changes that promote improvement (Watkins and Cooperrider, 2000). After selecting the topic for appreciative inquiry, the methodology cycles through four phases, often termed *discovery, dream, design, and destiny* (Cooperider and Srivastva, 2013). Reality is not always as neat as separate, sequential phases: overlaps occur and learning during one phase may initiate revisiting an earlier phase, see Fig. 1.

First, *discovery* focuses on what things look and feel like when they are going well, noticing what people are doing when things are going well. This is a critical stage of the appreciative inquiry. It involved collecting useful, strength-based data to provide a platform for future improvements (see data collection section and Table 1). Analysis of data collected during the pre-implementation stage of the quality improvement initiative found that a key component of a good WR was bedside nurses contributing to patient reviews. We found that the bedside nurses

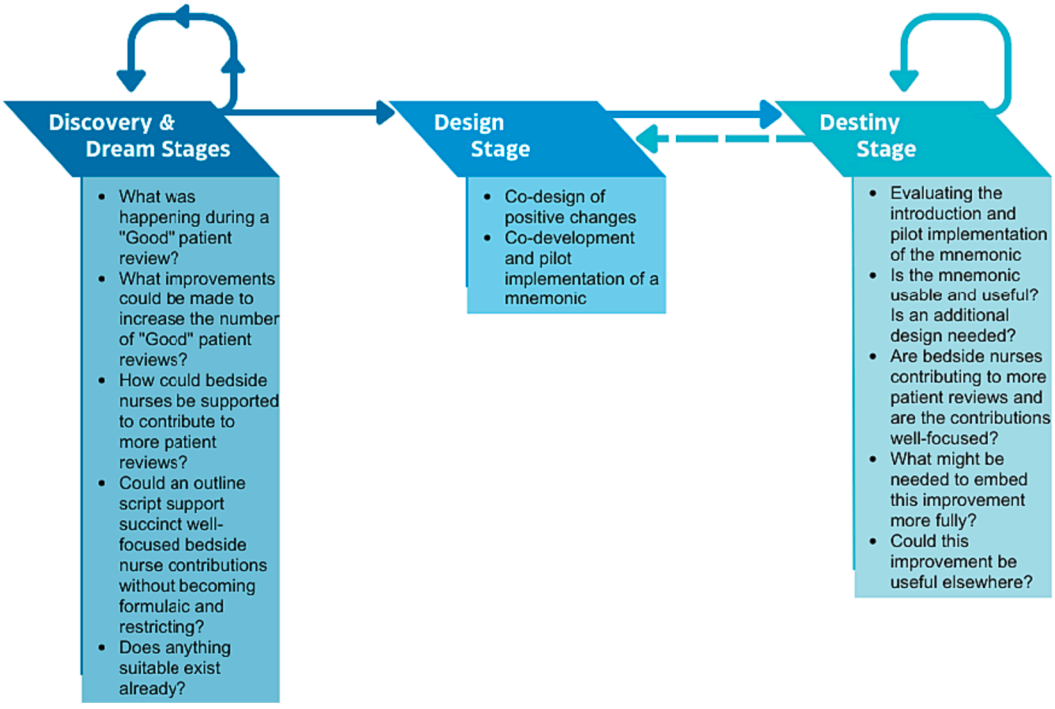

Fig. 1. Appreciative Inquiry Cycle.

Table 1
Data collection summary.

Pre-Implementation (Discovery and Dream Stages)	Pilot-Implementation (Destiny Stage)
Detailed fieldnotes from non-participant ethnographic observations of 16 WRs, led by 14 different critical care consultants: included 194 patient reviews	As before: 12 WRs including 154 patient reviews
Basic quantitative data: WR start, finish times, duration, whether bedside nurse present for their patient's review, whether bedside nurse introduced to circulating WR team	As before plus the extent of adoption of the mnemonic
Detailed fieldnotes of opportunistic conversations that took place with team members.	As before
Transcripts and reflections upon 7 semi-structured interviews: 5 doctors, a pharmacist, a nurse	As before: 2 interviews, doctor, and physiotherapist
Detailed fieldnotes and reflections following 3 appreciative inquiry discussions with nursing teams (35 staff nurses, junior to senior grades)	As before: 2 appreciative inquiry discussions with nursing teams (27 staff nurses, junior to senior grades)
Detailed notes and reflections generated from facilitating four appreciative inquiry steering group meetings, including email correspondence from those who were unable to attend	As before: two steering group meetings.

contribution to WR patient reviews were less frequent than WR leaders desire, inconsistent and sometimes suboptimal (Merriman and Freeth, 2021).

Second, the *dream* phase focuses on how people would like things to be in the future, often posing the question 'how can we help more instances of [inquiry focus] to go really well more of the time?'. We wanted the bedside nurses to be able and willing to contribute to WR patient reviews more often and effectively. The dream phase is imaginative and creative but anchored in the *discovery* phase outcomes and involving those with first-hand knowledge of the context and inquiry focus (here, bedside nurses' contributions to WR patient reviews). Participants need to be able to draw on pertinent knowledge and wisdom from elsewhere, themselves or via an appreciative inquiry facilitator or researcher. Together with the unit staff, including bedside nurses, we felt the best way to achieve the desired improvement was to develop a structure to support bedside nurses in presenting their patient during the WR patient review.

Third, *design* is the participants' co-construction of improvement. The unit team wanted to try a mnemonic as a tool to improve the frequency and quality of bedside nurses' contributions to WR patient reviews. We supported the search for a suitable preexisting mnemonic: none was found, and attention turned to creating a new mnemonic, both for this unit and with the intention of the quality improvement having potential for implementation elsewhere. Together we produced a list of aspects of care and other relevant information for which we felt the bedside was best placed to update the wider WR team regarding their patient (see design stage findings below). These aspects were generated from the findings of pre-implementation data collection and analysis, and expert opinions of the wider multidisciplinary team, including bedside nurses. A mnemonic incorporating these elements was developed, with the aim of providing the bedside nurses with a structure to help script their contributions and an aid to remembering what aspects of care they should be reporting on.

Fourth, the *destiny* phase focuses on how to achieve sustained improvement. It includes data collection and reflection to discern initial impact and identify refinement needs, which may prompt revisiting earlier stages for further improvement. Preparations for a pilot implementation of this quality improvement initiative included a communications plan, guidance on using the mnemonic and rehearsal in simulation (see findings below) During the pilot we collected a range of data to evaluate if the mnemonic had been adopted and if it had improved the bedside nurse's ability and willingness to contribute to their patient reviews (summary in Table 1).

Setting

A large critical care unit in the United Kingdom (UK): 28 intensive care beds and 16 'high-dependency' beds in eight 4-bedded bays and 12 single rooms. Core staffing included 48 doctors (16 consultants and 32 doctors known as 'trainees'), the full-time equivalent (FTE) of 166 nurses (including over 150 FTE bedside-nurses), physiotherapists (5FTE) and pharmacists (3FTE); other professions and teams attended as needed. Bedside nurses included very junior grades, fully focused on bedside nursing, and more senior nurses who might undertake unit leadership roles for part of the week. There was a high concentration of nurses who trained outside the UK and nurses whose first language was not English.

The improvement study focused on morning interprofessional WRs, the unit's main forum for clinical decision-making through review and care planning. To manage WR duration while covering 44 beds, three simultaneous consultant-led WRs ran, each normally reviewing 13–14 patients. Each touring WR team group included: consultant, senior trainee, nurse in charge and pharmacist. They were joined at each bedside by the patient's reviewing doctor (normally a trainee) and bedside nurse; possibly other specialist input as required, if available.

Participants

Qualified healthcare professionals (HCPs) working in the critical care unit were included. Unqualified HCPs (e.g., students, health care assistants) and patients' relatives were excluded because they did not attend WRs. After careful consideration, patients were excluded because most would not be able to contribute due to their clinical state.

Quality improvement process

The overriding strength of appreciative inquiry is it collaborative and positive nature (Cooperrider and Srivastva, 2013), lending itself to building effective partnerships and collaborations. Forming an interprofessional appreciative inquiry steering group provided the method of working in partnership and collaborating through regular discussions. This included three consultants, two trainees, eight nursing staff (the unit matron, practice development nurses, bedside nurses ranging from senior to junior grades), a pharmacist and a physiotherapist. Initially, the first author (a researcher and critical care nurse in a different city) led and coordinated the appreciative inquiry steering group. As participants gained experience with the process, others began to lead and coordinate. Collaboration between the practitioners and researchers during the study extended across each phase of the study, the practitioners' critique, priorities, and questions helped shaped the study design, the spectrum of data collection, data analysis and actions to be taken in response to the findings from the pre-implementation phase, implementation, and evaluation.

Data collection

Data collection (summarised in Table 1) centred on ethnographic observations (Atkinson, 2001) and appreciative inquiry discussions (Arundell et al., 2021), augmented by quantitative data collection of basic facts (e.g., bedside nurse presence/absence, duration of WR). It spanned 19 months, February 2015-August 2016: ten months initial data collection (*discovery* and *dream* stages); a six-month *design* stage which included coproduction of the mnemonic and associated documentation and training; and an evaluated 3-month pilot implementation of the mnemonic (*destiny* stage).

Fitting well with appreciative inquiry methodology, ethnographic observations were the main method of data collection. Ethnography is the study of people in naturally occurring settings using methods of data collection which capture their social meaning and ordinary activities; this involves the researcher watching people, coupled with talking to them about what they are doing, thinking and saying, to gain an understanding of their world (Delamont, 2004). This study used marginally participant ethnographic observations (Atkinson, 2001; Hammersley and Atkinson, 2007) of WR practices, in that the first author (CM), a critical care nurse in another city joined the WR team whilst observing WRs, observed and made notes but contributed nothing to the WR discussion. The aims of the ethnographic observations were to gain an understanding of the strengths and weaknesses of current WR practices; the participation of different stakeholders; and of the processes within and linked to the WR, in order to see the WR in its context.

Ethnographic observation field notes used a semi-structured form to support documenting the culture, perspectives, behaviours and communication practices of the HCPs during the ward round. This provided detailed descriptions and narrative accounts of WR practices within the unit, which were analysed iteratively (see data analysis). Concurrently, CM collected a limited amount of numerical and categorical data (see Table 1), for example if the bedside nurse was present for their patient's review.

CM frequently visited the unit to collect data, at different times in the week. During these days she engaged in opportunistic conversations with staff from the unit: this is a recognised facet of ethnographic field work (Hammersley and Atkinson, 2007). At the beginning these conversations were initiated by [initials] to help her understanding by asking for clarification of something observed. However, as staff started to recognize CM they would approach her and ask her questions about her research and/or voluntarily give her their perspectives on the current WR practices, and the quality improvement initiatives.

In addition, appreciative inquiry semi-structured interviews and facilitated discussions with nursing teams were conducted. The interview and discussion guides were informed by the iterative analysis of field notes from ethnographic observations and related conversations. Each question was written in an appreciative tone. Appreciative inquiry holds that by asking appreciative questions participants draw on peak experiences and what was working well to stimulate dialogue about future possibilities (Cooperrider and Srivastva, 2013). Interview guides were different for the interviews conducted in the pre-implementation and post-implementation phases, as we wanted participants' perspectives on different aspects of the WR. In the pre-implementation phase, we explored participants' perspectives on what a really good WR looked and felt like, and what they thought it would take to make more really good WRs happen more often. Whereas the interviews in the post-implementation phase sought participants' perspectives on how they thought the WRs were going, particularly in the period after introduction of the quality improvements. Each interview lasted 20–40 min and was audio recorded and transcribed verbatim.

Data analysis

Ethnographic and appreciative inquiry fieldnotes, interview transcripts, and reflective diary notes were coded thematically using NVivo software. This involved a process of breaking down, comparing and conceptualising data to enable recognition of emerging patterns and identification of major themes and subthemes (DeSantis and Ugarriza, 2000). Miles and Huberman's (1994) transcendental realism approach was adopted, which involved three concurrent flows of activity: data condensation, data display and conclusions drawing and verification.

Quantitative data collected during WR observations were summarised descriptively in ways that helped to illuminate and make comparisons with the themes that emerged from the qualitative data. SPSS software was used to aid basic statistical testing of the quantitative data and to gauge whether the targeted improvements were beginning to emerge.

Trustworthiness of the findings was achieved through member checking/validation, searching for negative cases and alternative explanations, triangulation, an audit trail and reflexivity (Mays and Pope, 2000). Member validation was carried out by sharing the data summaries, excepts and provisional analyses with the participants, through appreciative inquiry steering group meetings, interviews, appreciative inquiry with nursing teams. This helped participants to judge the analysis and interpretations themselves and to strengthen these through critical comment upon the adequacy of the findings (Bryman, 2008). Triangulation included comparing and contrasting results and insights from different types of data collection to support comprehensiveness and reflexivity. For example, results from exploratory analysis of the quantitative data were placed in the context of the qualitative data to guide interpretation. An iterative analytic process was adopted to check the findings. This included a deliberate search across the data and coding for contradictory (negative and disconfirming) examples that would challenge emerging findings and prompt deeper analysis. An audit trail was kept throughout the study, providing a clear and transparent description of the research and quality improvements processes. This included, for example, an accurate log of data collection, a log of significant decisions (with rationale), and the first author keeping a reflexive research diary to capture evolving thinking about this appreciative inquiry. The Standards for Quality Improvement Reporting Excellence for Education (SQUIRE) were followed.

Ethical considerations

The hospital and university joint ethics committee granted ethical approval for the study (Rec Ref: QMERC2014/44). The main ethical considerations were that the study should not jeopardise patient care or confidentiality, it should enable genuine choice for potential participants and obtain informed consent.

Findings

None of the potential study participants (qualified healthcare professionals working in the critical care unit) declined to participate and all were included in the study. A total of 28 WRs were observed (total of 73 h, 348 patient reviews), typically including 18 qualified healthcare professionals on each occasion (usual WR staffing described in 'setting' section above). In addition to ethnographic observations, nine semi-structured interviews and five appreciative inquiry discussions with nursing teams were completed (further details can be found in Table 1). Interprofessional development of a usable and useful mnemonic was successful, pilot implementation showed promising levels of take up and acceptance. Overall, compared to before the quality improvement project bedside nurses were more willing and able to participate in ward round discussions, did so more often, and used the mnemonic script with insight and flexibility. We have structured our results around the fours stages of the appreciative inquiry cycle: discovery, dream, design, and destiny.

Discovery and dream stages

During the discovery phase, which sought to understand the components of a good WR, three interlinked major themes emerged from the cycles of analysis and interpretation. These were, good use of expertise, good use of time and good communication. Each theme forms one of the pillars of the 'Greek Temple' diagram which synthesises the components of a good WR (Fig. 2).

A good WR needs all three pillars. The three major themes were influenced by the actions of WR participants. Actions that supported the themes represented in the pillars are displayed in the steps leading up to the pillars. The mnemonic development and piloting quality improvement initiative reported here supports all three key components of a

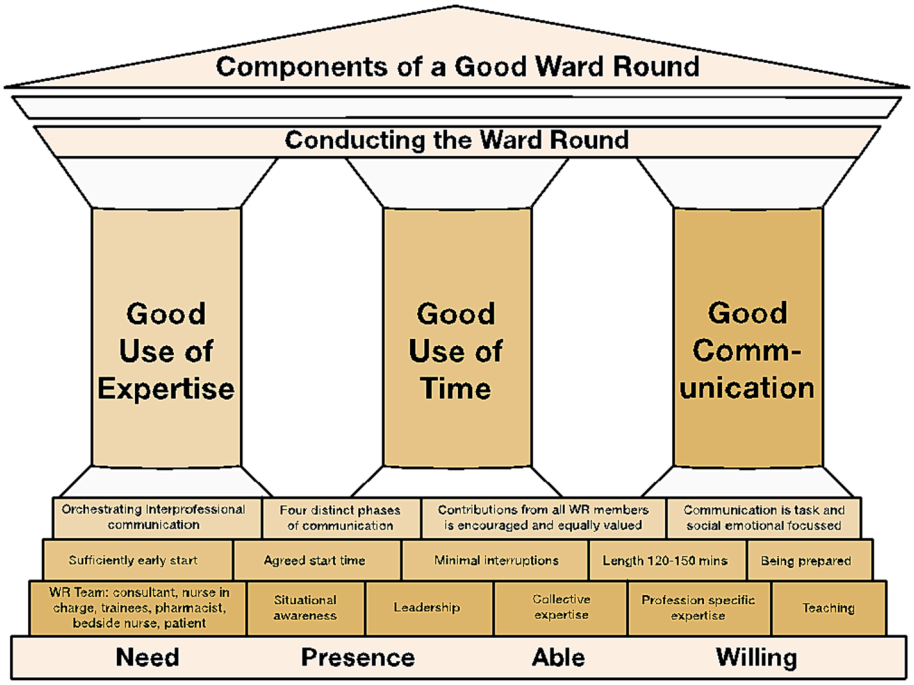

Fig. 2. Components of a Good Ward Round.

good WR: good use of expertise, good use of time, good communication. It does this by supporting bedside nurses' contributions.

The appreciative inquiry cycled repeatedly between *discovery* and *dream* stages before focusing on mnemonic development (*design* stage), see Fig. 1.

The bedside nurse was the HCP with the most up to date information about the patient's (often changing) condition. During a good WR patient review the bedside nurse used professional expertise to contribute relevant updates and highlight important matters. For example, below:

> Consultant: *'Is he ready to go to the ward?'*
> Bedside nurse: *'What about their secretions? We are still suctioning a lot?'*
> Consultant: *'Maybe you are correct. Shall we ask the physios?'*
> Bedside nurse: *'I will ring them and ask them what they think.'* (Fieldnote)

The importance of bedside nurses' up-to-date clinical knowledge was recognised widely, for example:

> *I think they, are the most important person, they are the ones who know the most about the patients as they are with them 24 h a day, the rest of us just spend short periods with the patient* (Interview, Senior Trainee)

Exemplified by this bedside nurse recognising that if she did not provide updated information about urine output, it could have patient safety implications:

> Trainee*: 'The patient's urine output is still very low despite being given* [drug A]…*'*
> Bedside nurse interjects*: 'Over the last hour it has actually picked up to 95mls'*
> Consultant: *'Great, let's keep an eye on it and if it drops again we should give* [drug B].' (Fieldnote)

Bedside nurse presence did not automatically mean they offered their expertise to the WR. Observations noted junior bedside nurses appearing to want to be involved in the WR but not contributing. Most consultants and some of the nurses-in-charge used situational awareness and clinical expertise to encourage bedside nurse contributions by asking them questions about their patient. Some did not. Consequently, some patient reviews did not include the bedside nurse's expertise.

Inexperienced, junior, and international bedside nurses all contributed less frequently than more experienced and UK-trained bedside nurses. The unit's most junior nurses were allocated the bedside nurse role, with more senior nurses filling any gaps. This position in the clinical hierarchy, often coupled with limited experience of speaking during interprofessional team discussions, affected their ability and willingness to contribute, particularly when English was not their first language,

> *'Nurse confidence can impact on involvement in the WR, international nurses are less confident due to language barrier. Processing the communication on the WR is often difficult and time consuming. We do not want to question as may have misunderstood what was being said'* (International nurse, nursing team appreciative inquiry)

Importantly, ability and willingness to contribute to WR decision-making was not simply an individual matter. Observations showed that the same nurse could be more, or less, able and willing to contribute with different WR leadership (explored in greater depth elsewhere, ref withheld for anonymity).

Dream stage, appreciative inquiry during routinely scheduled nursing team development days supported bedside nurses to outline what they felt would increase their ability and willingness to contribute to WR discussions.

This quotation encapsulates the key finding:

> *'We need a more structured approach and a place in the WR to speak, similar to the trainees. It is hard for us to chip in and often we are not asked our opinion or any questions until the end of the review when the plan has been decided'* (nursing team appreciative inquiry)

The steering group committed to embedding a more structured approach to WR patient reviews, including eliciting knowledge and expertise mainly held by bedside nurses, and was interested in trailing a mnemonic to provide structure. Revisiting the *discovery* stage confirmed no suitable mnemonic could be found elsewhere. Therefore, the steering group initiated interprofessional co-production of a new mnemonic.

Design stage

The interprofessional appreciative inquiry steering group, including bedside nurses, used [initials] analysis of *discovery* stage ethnographic observations, and their broad clinical and leadership expertise, to produce an initial list of aspects of care and other relevant information on which they felt bedside nurses were best placed to update the WR team. This seeded an iterative process involving wide consultation with unit staff through routine team meetings and drew in [initials]'s wider research and practice development expertise. Feedback generated minor revisions and identified an omission (rehabilitation). Thus, interprofessional coproduction was achieved.

Eight agreed areas of care were arranged as the mnemonic SIN-BARRSS:

- **S**kin **I**ntegrity (e.g., pressure sores or wounds)
- **N**utritional status
- **B**owels
- **A**HPs (input from Allied Health Professionals and specialist teams)
- **R**ehabilitation (informed by the physiotherapists)
- **R**elatives (including family and significant others)
- **S**leep
- **S**afeguarding

Initial plans for piloting and collecting pertinent data on implementation and refinement needs were developed by the interprofessional steering group and scrutinised by a wider interprofessional pool of unit staff (See Table 1).

A target date for commencing pilot implementation was publicised through multichannel communications. First, awareness-raising via an email to all staff from the Lead Consultant and Matrons. Then: a summary in the unit's monthly newsletter; information placed on notice boards in staff rooms; an agenda item about SIN-BARRSS included in unit staff meetings, which were interprofessional and provided opportunity for discussion and questions. The pilot was also added to the daily safety briefing during the first month of implementation.

The practice development nursing team developed guidance on using the mnemonic. For example, suggestions on what the bedside nurse may wish to cover during their patient presentation for each element of SIN-BARRSS. They also developed SIN-BARRSS scenarios for the unit's established weekly training 'skills stations', which targeted bedside nurses, including those who also worked some shifts in the 'nurse in charge' role.

The guidance was well-received. Thirty-eight nurses rehearsed SIN-BARRSS in simulation, using new scenarios in the 'skills stations' training, on three consecutive weeks before the pilot launch date. Participants asked questions, shared concerns, and had time to practise presenting the patient they were looking after that day using the SIN-BARRSS structure. Praise and constructive feedback were given, particularly about how they could make their presentation more succinct.

These interprofessional and nursing-specific *design* actions laid sound foundations for piloting.

Destiny stage

The pilot launched on the anticipated date. Overall, the multichannel awareness raising worked well. It prepared interprofessional team members for the change, provided opportunities for questions, voicing concerns, discussing, and refining piloting plans. A need for ongoing communication was anticipated and, when some waning of initial momentum was detected, a second wave of communication was initiated, focusing especially on encouraging consultants and nurses-in-charge to incorporate SIN-BARRSS in patient reviews.

Observations recorded that if a consultant prompted SIN-BARRSS (n = 12 of 14 observed), this occurred for all or most patient reviews. This suggests these consultants were integrating the mnemonic into their routine practice. Some or all elements were included in 101 (65.5 %) of the 154 patient reviews observed (Table 2). Patient reviews without discussion of SIN-BARRSS elements predominantly involved the two consultants who did not use the mnemonic. Nurses-in-charge rarely prompted SIN-BARRSS.

Explicit prompting of SIN-BARRSS typically resulted in the bedside nurse presenting the patient using elements sequentially and, importantly in this quality improvement study, making suggestions for further management of the patient, for example:

> Bedside nurse reports SI*, N, then, … 'He has not had his bowels opened for 4 days, I have given him* [drug]*, however I wonder if we need to try* [drug]*'*
> Consultant: *'Sounds good to me'*
> Bedside nurse continues … (fieldnote)

Previously, suggestions from bedside nurses were rare.

Implicit consultant mnemonic prompting was observed in more organic patient review discussions if elements of SIN-BARRSS did not emerge. They would commonly ask the bedside nurse, *'what about skin, nutrition etc?*'. Frequently, the bedside nurse then worked through the elements of SIN-BARRSS. While this risked repeating an element already discussed, as they gained experience bedside nurses avoided this by saying: [Element} *'as already discussed'*

Appreciative inquiry conversations found that consultants noticed the additional work of supporting SIN-BARRSS during the pilot and wished this burden had been shared more broadly, for example:

> *'It is tiring having to consistently lead and remember everything especially when things are new. I wish the nurse-in-charge would be more proactive when I forget to ask the bedside nurse to present their patient using SIN-BARRSS. I think it is a really good idea, however I sometimes forget, the more we are reminded the quicker it will become second nature'* (fieldnote: ad hoc conversation with consultant)

A concern expressed by more experienced nurses-in-charge was finding SIN-BARRSS patronising and constraining. They felt the bedside nurse should be able to contribute as and when they felt it was appropriate, not just when it was 'their turn'. The steering group discussed this and responded to the senior nurses that introducing SIN-BARRSS did not result in consultants limiting bedside nurses' contributions to its eight elements, as this fieldnote illustrates:

> Consultant speaks directly to bedside nurse: *'we have already covered all elements of SIN-BARRSS, however anything else to add? Or do you need anything else?'*
> Bedside nurse: *'no I am fine, thank you'*

These observations suggested that people were using SIN-BARRSS as intended: as a guide to encourage and support bedside nurses' contributions, not a straight-jacket.

Unit staff discussed themes emerging from data collected during the pilot and broadly found these resonated with their experiences. They recognised that use of SIN-BARRSS was inconsistent and WR leadership behaviours had the most impact. People also noted early progress towards the objective to increase the willingness and ability of bedside nurses to contribute to WR patient reviews, which was linked to hopes that this would improve clinical effectiveness and patient safety. For example:

Table 2
Use of SIN-BARRSS mnemonic during 154 observed WR patient reviews.

All SIN-BARRSS elements discussed	Some elements discussed	No elements discussed
54 (35 %)	47 (30.5 %)	53 (34.4 %)

Going through SIN-BARRSS makes it clear what we need to cover, so we can prepare, this is especially helpful for new starters and those of us whose English is not our first language (Appreciative Inquiry with nursing teams)

It's a great thing [SIN-BARRSS]*, this morning we've picked up at least two things by going through it that we probably would not have otherwise. Even if we only pick up two things each WR, over the week that it is a lot of things* [that] *have an impact on the care of the patient and even patient safety* (Consultant interview)

Prolonged WRs carry several negative implications (references withheld for anonymity) so it would have been a concern if SIN-BARRSS prolonged the WR. Comparing the pre-implementation and pilot data allayed this concern: mean 170mins pre-implementation and 173mins subsequently.

The unit staff, led by the steering group, began to formulate the next improvement cycle, including more multichannel communication, more coaching where needed to enhance skill and/or engagement with SIN-BARRSS, and exploration of responsibilities for initiating SIN-BARRSS. The consensus was that preparatory work in the *design* stage had provided good foundations for the improvement pilot. Further, the SIN-BARRSS pilot had as intended (*destiny*), begun to embed a culture of encouraging bedside nurses' contributions to WR patient reviews. While this required willingness and support from all team members, WR leadership was most influential.

Discussion

The stable WR duration in this study echoes studies of WR checklists' implementation elsewhere (Trahan et al., 2021; Tranter-Entwistle et al., 2020), in that they can serve as useful tools to improve WR practices and communication without necessarily prolonging WRs. However, we could not find a previously published WR mnemonic that adequately supported bedside nurses. Our mnemonic was explicitly formulated to support and focus bedside nurses' contributions to WR patient reviews and to help other WR participants anticipate and support such contributions. It clarified expectations and focused attention. This helped all bedside nurses, to prepare their contributions, especially those who lacked confidence to contribute.

Learning in workplaces centres on participation in work activities (Lave, 1993). Willingness to participate lies partly in individual agency, and significantly in the 'affordances' (Billett, 2001) for participation and learning offered by the workplace. Billett argues that workplace readiness to afford opportunities to engage in work activities, and to access direct and indirect support, is key to the quality of workplace learning. Bedside nursing in critical care can be an isolated experience. Opportunities to interact with or observe other bedside nurses are limited in the very busy critical care workplace which provided the context for this quality improvement initiative: contextual features which are shared by other critical care units in the UK and beyond. Nevertheless, Basheer and colleagues (2018) helpfully curated a range of ways to integrate learning affordances into busy workplaces, which are worth considering.

In critical care, other HCPs' visits to the bedside are likely to be short and focused, perhaps conducted in a manner which does not invite bedside nurse participation. Bedside nursing roles are allocated mainly to junior nurses (more senior nurses fill any gaps), who find the uninviting (sometimes intimidating) atmosphere difficult to overcome through individual agency (Elias and Day, 2020). Yet for safety and efficiency, bedside nurses' contributions should be valued and encouraged (Royal College of Physicians and Royal College of Nursing, 2021). The generative discussions in this study's appreciative inquiry approach clarified bedside nurses' views on the potential for a more structured approach to WR patient reviews to support their willingness and ability to contribute; in Billett's terms, indirect support ahead of developing direct support. This motivated interprofessional coproduction of a mnemonic, development of guidance for use, opportunities for rehearsal in simulation and feedback (all examples of direct support), and encouragement of discussion at all levels across the unit's workforce (direct and indirect support); ahead of a pilot which generated data for the evaluation and further development of these new workplace learning affordances supporting best use of bedside nurses' insights during WR patient reviews, thus looping back through the four Ds of appreciative inquiry (*discovery, dream, design, destiny*).

Typical for UK critical care (and other clinical environments) the study site workforce included a high proportion of internationally educated nurses (IENs). IENs must overcome cultural, professional, and often language differences when they commence work in the UK, which may inhibit their confidence in their communication skills. Professional differences include differences in expectations of nursing practices (Bond et al., 2020; Safari et al., 2022) and interprofessional communication (Magnusdottir, 2005; Tregunno et al., 2009). In many of the countries where the IENs trained, nurses are not expected to be as vocal or participatory as is expected in the UK (Joseph et al., 2022). Therefore, their training may not have given them experience and the necessary skills for interprofessional communication and challenging other professions, particularly medical colleagues.

Junior nurses (UK trained and IENs) lacked confidence or ability to 'chip in' during the WR. Literature highlights that nurses' levels of education and years of clinical nursing experience help develop knowledge and skills (Bobay, Gentile and Hagle, 2009; McHugh and Lake, 2010), affording opportunity for increasing confidence, ability, and willingness to contribute to complex social interactions, such as WR discussions. Under-researched changes in workforce recruitment over two decades have increased the number of newly qualified nurses employed in critical care units (Elias and Day, 2020). Historically, a minimum of one to two years post-qualification ward experience was required before joining a critical care environment. O'Kane (2011) highlights that, therefore, junior nurses joining critical care in recent years have less experience of prioritisation and time management and may need to learn basic clinical skills. Furthermore, the high turnover of staff in critical care environments (Khan et al., 2018) means there will always be new (most likely junior) staff in need of support. This suggests a sustainable structured approach, such as SIN-BARRSS, could be important.

Appreciative inquiry is a motivational, positive organisational change intervention (Cooperider and Srivastva, 2013). Using appreciative inquiry as a quality improvement methodology we were able to encourage the whole team to focus on the positive aspects of their interprofessional WR by investigating what is good and working well, before looking at how we support good WRs happening more often. This did not overlook difficulties which people experienced but focused on incremental improvement possibilities generated by HCPs involved in WRs.

Appreciative inquiry has been widely adopted outside healthcare (Merriel et al., 2022). It is less documented in healthcare, although its popularity is growing. Our study provides a practical example of using appreciative inquiry in a healthcare context to produce positive outcomes.

Limitations

This was a single site study, therefore the use and usefulness of SIN-BARRS needs to be evaluated elsewhere. However, the nursing staff were typical of United Kingdom critical care unit. Nurses' involvement in WRs is expected in many parts of the world and nurses' experiences described in this study are likely to be generalisable.

Conclusion

This quality improvement initiative focused on inviting and supporting bedside nurses' contributions to interprofessional WRs. Through interprofessional appreciative inquiry with HCPs who lead and attend

interprofessional WRs, it created the workplace learning affordance and direct support of a mnemonic to structure bedside nurses' pertinent and succinct WR contributions. The components of the mnemonic were developed collaboratively in dialogue with HCPs at all levels and from across the range of interprofessional WR participants: the memorable product (SIN-BARRSS) highlighted areas in which bedside nurses are likely to be able to provide important contributions to WR patient reviews. The interprofessional appreciative inquiry approach increased understanding of bedside nurses' challenges and generated practical potential improvements. Piloting demonstrated the usability of SIN-BARRS, it provided structure which supported contributions from less confident bedside nurses, who previously did not contribute to WR discussions. SIN-BARRSS was also a useful *aide memoire* for more experienced nurses and other HCPs, who were able to use it flexibly. A multifaceted communications campaign, production of targeted guidance for using SIN-BARRSS and provision of opportunities to rehearse in simulation and receive feedback, preceded pilot implementation of SIN-BARRSS: these were designed to support the culture change that was desired to ensure that WR discussions and decisions benefitted from succinct and pertinent bedside nurse input. Pilot outcomes were pleasing and provided feedback to focus the subsequent appreciative improvement cycle. A longer pilot evaluation of the implementation of SIN-BARRSS is needed to evaluate whether its implementation is sustainable and if it supports better care, increased efficiency or reduced complications.

Declarations of interest

SIN-BARRSS - Developing a mnemonic to support nurses' participation in interprofessional ward rounds in intensive care: An appreciative inquiry for quality improvement.

The authors Dr Clair Merriman and Professor Della Freeth report no conflict of interest.

CRediT authorship contribution statement

Clair Merriman: . **Della Freeth:** Conceptualization, Data curation, Formal analysis, Methodology, Supervision, Validation, Visualization, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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