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Title Page

Title

QI Short Report: Using a checklist within simulation improves trainees' confidence on ward rounds

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Disclosure statement

The authors have no conflicts of interest to declare.

Author Contributions

GP and SW were responsible for the development of the ward round checklist, which was revised and refined by SR and EH. GP, SW and SR developed the ward round simulation content. SW and SR created the necessary teaching materials and facilitated the simulation sessions. GP and DG analysed the data. GP wrote the first draft and all authors have contributed to the overall project, edited, and approved the final manuscript.

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Main Text

Title

QI Short Report: Using a checklist within simulation improves trainees' confidence on ward rounds

Running Head

QI: Improving trainees' confidence on ward rounds

Summary

Ward rounds are integral to maintaining patient safety in everyday clinical care. Junior doctors are often expected to conduct independent rounds on graduation, but many feel ill-equipped to do so. We developed a safety checklist and simulation sessions to improve junior-led ward round practice at one district general hospital. We found that embedding a checklist within simulation is an effective way to teach ward round skills and increase confidence amongst undergraduate and postgraduate medical trainees.

Introduction

Ward rounds are a cornerstone of hospital practice - crucial for improving patient safety, flow and satisfaction.¹ Optimising ward rounds, following best practice guidance from the Royal College of Physicians (RCP) and Royal College of Nursing (RCN),² is a means of safeguarding quality of care and reducing costs.

RCP reports have found that 69% of consultants do not lead a ward round every day, thus the task regularly lies with junior doctors, 19% of whom reported "difficulty accessing senior clinician advice".^{3,4} Another survey confirmed that 84% of juniors were conducting ward rounds alone on ≥ 2 days a week and many (89%) felt unprepared.⁵

Checklists can guide comprehensive ward round reviews, but their conciseness means checklists alone are unlikely to provide sufficient support for those who lack specific training.⁶ The RCP/RCN advocate supplementing checklists with simulation for training.² Previous studies support this as an effective way to improve ward round skills and confidence.⁶⁻⁹

Our team of junior doctors and supervising consultant physician developed a medical ward round checklist and simulation training package. This educational quality improvement project aimed to equip medical trainees with essential ward round skills and improve their confidence - engraining best practice early in their professional careers.¹⁰

Methods

A safety checklist was developed to facilitate comprehensive medical ward rounds at the Royal United Hospitals (RUH) Bath NHS Foundation Trust, in-line with the RCP/RCN guidance (figure).² Following its introduction in simulations at trust induction in August 2020, it was disseminated across all medical wards.

The simulation was based on ward round scenarios commonly encountered in the authors' clinical practice, using authentic paper and electronic resources. Learners were invited to

conduct a ward round assessment to identify problem areas, then formulate and document a management plan within 30 minutes, reflective of real-life time pressures experienced as a junior doctor. They were also provided with the safety checklist as an aide-memoire to support a structured and comprehensive approach. This training was delivered by two facilitators to small groups of new Foundation Year 1 (FY1) doctors at induction in August 2020, and then to fourth-year undergraduate medical students from the University of Bristol on clinical attachment at the RUH.

Learners were asked to self-report their confidence on a scale of 0-10, whereby 0 was the lowest level of confidence and 10 the highest. Confidence, divided into confidence leading and confidence documenting a ward round, was measured before and after the simulation, as used in a similar study by Powell et al (2015).⁶ Feedback on the simulation and checklist was also collected after each session. The data collected is ordinal, anonymous, and not normally distributed. Therefore, we have described it using medians and interquartile ranges (IQR) and unpaired analysis was performed using two-tailed Mann-Whitney U tests with a significance level of 0.05.

Results

Training was delivered to a total of 56 learners: 34 FY1s and 22 students. The pooled analysis in the table demonstrates that simulation incorporating a safety checklist improved confidence universally, in both documenting and leading ward rounds across all groups.

In the FY1s, median confidence in documenting a ward round increased following the simulation from 7/10 (IQR 6-7) to 8/10 (7-8), $p=0.008$. Likewise, median confidence in leading a ward round also increased considerably from 4/10 (IQR 2-5) to 7/10 (IQR 6-8), $p<0.001$. In the undergraduates, initial median confidence in contemporaneous documentation improved from 6/10 (IQR 5.3-7) to 8/10 (IQR 7-8) post-simulation, $p=0.001$. There was a substantial increase in undergraduates' median confidence leading a ward round from 3/10 (IQR 2-5) to 7/10 (IQR 5-7), $p<0.001$.

The table demonstrates that irrespective of whether learners were undergraduates or postgraduates, their confidence documenting ward rounds was consistently higher than their confidence leading, but the greatest increase observed was in confidence leading ward rounds. This is supported by pooled data, whereby median confidence documenting increases from 7 to 8/10 ($p<0.001$) and confidence leading increases from 4 to 7/10 ($p<0.001$), pre- and post-simulation. Furthermore, it is notable that pre-simulation confidence was consistently lower amongst students than FY1s.

In feedback, learners rated the training on average 4.8/5 stars (N=50), describing the session as 'useful' and 'engaging'. They also rated the ward round checklist, giving it on average 4.6/5 stars (N=50).

Discussion

Our intervention was successfully delivered to undergraduates and postgraduates. Confidence pre-simulation was lower in undergraduates reflecting differing levels of experience and reinforcing a need for ward round teaching to be integrated into

undergraduate medical education. Extending training inter-professionally will also be prudent.

Our intervention can be reproduced at low-cost, without specialist facilities and the sessions themselves offer an opportunity for early-career clinicians to undertake peer-to-peer teaching. However, the organisation of larger groups may be more labour- and resource-intensive. Our small convenience sample resulted in unequal numbers of observations between groups. Use of a non-standard assessment tool has limited the extent to which we can determine whether the improvement seen was meaningful to learners. In future we will consider consenting learners to link their pre- and post-simulation responses, to enable paired data analysis, and carefully select the tools used to evaluate the success of the intervention.

We acknowledge that there are weaknesses with using self-assessed confidence. Following on from the success of this training, we can expand its provision and scope. We are considering ways to implement independent assessment of documentation and simulation recordings. A qualitative evaluation would help us better understand 'how' and 'why' our intervention works – this could be undertaken in 'real-time' via ward round debriefing.

Conclusion

The 'art' of medical ward rounding encompasses a skill-set that can and should be taught to maintain patient safety and support delivery of quality care. Our simulation-based training package is one way of educating junior doctors to discharge this duty effectively and with confidence.

Figure

Medical Ward Round Checklist for use at the Royal United Hospital (Bath). The checklist was specifically designed to be eye-catching and easy to follow, including all the core aspects required for a comprehensive ward round assessment in a logical order. The content and design were reviewed and refined by 3 junior doctors of varying grades and 1 consultant physician until consensus was achieved. This figure was created by the authors, who have all given permission for its inclusions as supplementary material with this publication.

The graphic is a vertical checklist titled "MEDICAL WARD ROUNDING" in large red letters. Below the title is the subtitle "A junior's guide to a comprehensive ward round review". The checklist consists of six numbered items, each with a circular icon and a text box. The items are: 1. TRAINING & EDUCATION (graduation cap icon), 2. CHECK THE CHARTS (traffic light icon), 3. TEST RESULTS (bar chart icon), 4. DRUG CHART REVIEW (pills icon), 5. PLANNING AHEAD (document with CPR icon), and 6. DOCUMENT & INFORM (folder icon). At the bottom, there is a red footer with the text "© CREATED BY GRACE PEARSON, SALLY WEGE & SARAH ROSEN (2020)".

MEDICAL WARD ROUNDING

A junior's guide to a comprehensive ward round review

- 1 TRAINING & EDUCATION**
Could this case be used as a workplace-based assessment for your training portfolio?
- 2 CHECK THE CHARTS**
Check the NEWS chart. Have there been any changes overnight?
Look at the bowel chart, fluid balance/hydration chart, blood glucose chart and food chart.
- 3 TEST RESULTS**
Make sure you have seen and endorsed all blood and imaging results
- 4 DRUG CHART REVIEW**
Ensure every patient has appropriate VTE prophylaxis. Ensure antibiotics and electrolyte replacement have a stop/review date.
- 5 PLANNING AHEAD**
Does this patient have a Treatment Escalation Plan? Does it have a consultant signature? What is the discharge plan?
- 6 DOCUMENT & INFORM**
All documentation must be legible, with a date, time and signature.
Communicate your plan to the patient and your team.

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Table

Summary of self-rated confidence in documenting and leading a ward round, measured before and after ward round simulation training. In the 'Pre-simulation' and 'Post-simulation' columns, median values are presented with corresponding interquartile ranges (IQR), and N is the number of observations. The final column presents the results of Mann-Whitney U tests comparing pre-simulation data to post-simulation data for each group (FY1s, medical students and pooled). U values are presented as whole integers with corresponding p values in brackets (to 3 decimal places).

	<i>Pre-simulation Median (IQR)</i>	<i>Post-simulation Median (IQR)</i>	<i>Mann-Whitney U value (p value)</i>
FY1s			
N	29	34	
Confidence documenting	7 (6-7)	8 (7-8)	301 (0.008)
Confidence leading	4 (2-5)	7 (6-8)	131 (<0.001)
Medical students			
N	22	16	
Confidence documenting	6 (5.3-7)	8 (7-8)	62 (0.001)
Confidence leading	3 (2-5)	7 (5-7)	42 (<0.001)
Pooled data			
N	51	50	
Confidence documenting	7 (6-7)	8 (7-8)	640 (<0.001)
Confidence leading	4 (2-5)	7 (5-8)	321 (<0.001)

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Supplementary Material

Ward Round Simulation

Outline of scenarios and resources used in the ward round simulation. This training was delivered by two facilitators to groups of six, divided into pairs for each scenario where one was asked to lead the review and the other to document. One facilitator observed and the other acted as the patient, and both debriefed with learners afterwards.

Case	Summary
1	<p>Background: 72-year-old male admitted with a community acquired pneumonia, course of antibiotics completed, now medically safe for discharge awaiting a community rehabilitation bed.</p> <p>Problem area: Acute kidney injury secondary to poor oral intake and nephrotoxic medications.</p> <p>Resources provided:</p> <ul style="list-style-type: none">• Recent blood tests showing inflammatory markers improving but acute deterioration in renal function.• Fluid balance/Hydration chart showing <500mls oral intake in last 24 hours.• Food chart showing eating zero to a quarter of all meals.• Electronic observation chart showing mild hypotension.• Electronic prescription chart including several nephrotoxic medications.
2	<p>Background: 80-year-old female admitted following a fall with a left wrist fracture, now medically safe for discharge awaiting reablement/new package of care.</p> <p>Problem area: Abdominal pain secondary to constipation. Multiple record-keeping and prescribing errors.</p> <p>Resources provided:</p> <ul style="list-style-type: none">• Bowel/stool chart showing bowels not opened for 5 days.• Treatment escalation plan/Resuscitation decision record without a consultant countersignature (required on all forms at the RUH).• Electronic prescription chart with missing VTE risk assessment and no VTE prophylaxis prescribed. Also prescribed regular codeine for pain, but no paracetamol, no laxatives and no bone protection.
3	<p>Background: 67-year-old man admitted with an infective-exacerbation of asthma with a past medical history of Type 2 Diabetes Mellitus and hypertension.</p> <p>Problem area: Steroid-induced hyperglycaemia and prescribing errors/omissions.</p> <p>Resources provided:</p> <ul style="list-style-type: none">• Blood tests from 7 days ago showing blood potassium of 3.0, not repeated since.• Electronic prescription chart showing acute prescriptions of Sando-K (2 tablets TDS, day 7) and Prednisolone (40mg OM, day 7). Regular medications unchanged and prescribed: Gliclazide 40mg BD, Metformin MR 1g BD and Salbutamol inhaler PRN.• Blood glucose monitoring chart showing hyperglycaemia, worsening since admission and highest in the evening/pre-bedtime.