

Improving anesthesia resident wellness: a facilitated peer discussion group evaluated with a pre-/post-intervention survey

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Abstract

Background: Many residents report a second victim response following near-miss events during their pediatric anesthesia rotation with consequences for their mental and physical wellbeing. This study investigated the impact of a Better Resident Wellness (BREW) initiative at our tertiary pediatric centre.

Methods: We invited anesthesia residents to complete a survey at the start of their pediatric rotation. Questions included the Second Victim Experience and Support Tool (SVEST). During their rotation, residents attended weekly BREW rounds, a one-hour peer discussion facilitated by a psychologist. They provided feedback in a follow-up survey, including repeat SVEST.

Results: 33/48 (69%) invited residents completed pre- and post-surveys Oct/2021-Feb/2023: all had attended one or more BREW rounds; 32/33 (97%) considered BREW helpful, safe, and would recommend to future residents; perceived benefits included improved morale (30/33, 91%) and clinical care (23/33, 70%). SVEST indicated a second victim response for 17/32 (53%) at the start and 7/32 (22%) at the end of their rotation (odds ratio 0.25, 95% CI 0.07 to 0.82, $p = 0.019$), with reduced professional self-efficacy concerns (median difference -0.25, 95%CI -0.50 to 0, $p = 0.029$).

Conclusion: BREW offers anesthesia residents a desirable and beneficial support resource. Other residency programs should consider integrating facilitated peer discussion into their curriculum.

Résumé

Résumé français à venir.

Introduction

Anesthesia residents experience nonroutine clinical events, including patient safety incidents that may result in patient harm,¹ but also non-safety-related situations of physical and emotional stress during perioperative care.²⁻⁴ The 'second victim' response⁵ focuses on severe adverse events, after which clinicians can experience anxiety, loss of confidence, sleeping difficulties, and reduced job satisfaction.^{6,7} Yet, near-misses can elicit a similar second victim response,^{8,9} though they are rarely reported and may not prompt institutional support or education.²

Potential consequences include burnout, distress, and depression among residents.^{10,11} These risks persist among fully-trained anesthesiologists¹² and may have secondary effects on patient safety.¹³ A survey to assess the impact of pediatric near-miss perioperative events found that 52% of anesthesia residents had a second victim response following their pediatric anesthesia rotation, with the added stress of these events occurring in healthy children. They identified peer discussion as the most desirable support option.¹⁴

Better REsident Wellness (BREW) rounds are a weekly facilitated peer discussion for anesthesia residents on their pediatric rotation. The objective of evaluating this initiative was to investigate whether residents considered BREW a beneficial support resource for their training. Secondary objectives included investigating whether BREW rounds impacted second victim response and seeking feedback to tailor the program to residents' needs.

Methods

Study design

We evaluated the support intervention (BREW rounds) via a pre-/post-intervention survey, including the Second Victim Experience and Support Tool (SVEST)⁹ and feedback on residents' experiences. BREW was approved by the University of British Columbia (UBC) Residency Program Committee and Anesthesia Residency Program Director. The UBC Children's & Women's Health Centre of BC Research Ethics Board deemed the evaluation to be quality improvement and exempt from ethical review under Canadian Tri-Council Policy Statement Article 2.5 (confirmed 29/Sep/2021).¹⁵ This report follows SQUIRE-EDU guidelines.¹⁶

Setting

We conducted this study at BC Children's Hospital (BCCH), a tertiary care centre in Vancouver, Canada. UBC operates a five-year residency accredited by the Royal College of

Physicians and Surgeons of Canada. Residents typically rotate through BCCH during two junior (R2/R3) four-week pediatric anesthesia blocks and two senior (R4/R5) four-week blocks; these blocks can run consecutively, so residents may be at BCCH for four or eight weeks.

Sample size and sampling methods

Since Jul/2021, R2-R5 anesthesia residents undertaking their pediatric anesthesia rotation have been invited to BREW rounds. We planned to evaluate BREW for 12-18 months with no pre-determined sample size. A pre-/post-intervention survey was implemented in Oct/2021.

Intervention: BREW rounds

All anesthesia residents are excused from clinical duties for an hour each week for a facilitated peer discussion. This design was based on our previous survey of anesthesia residents, which identified discussion with peer (90% of respondents), discussion with supervisor (80%), and time away (73%) as the most desirable support options.¹⁴

BREW rounds are in addition to other resident educational activities. They are held in-person, on-site at the hospital away from the Anesthesia Department, at 3-4pm on Thursday afternoons. Attendance is voluntary; all residents on site, except those who are post-call, typically attend the rounds. Snacks and drinks are provided. BREW rounds are typically facilitated by a registered clinical psychologist who has responsibility for People Experience & Workplace Wellness within the Health Authority (author TN). Occasionally, sessions have been facilitated by other non-Anesthesia hospital staff or have run without a facilitator.

BREW rounds focus on the experiential aspects of anesthesia care. The discussion is confidential, led by a professional with expertise in the principles of creating a psychologically healthy and safe workplace. The 'agenda' is open-ended and participant-driven. Common themes include communication challenges, moral distress, responses to provider-provider and provider-patient interactions, team/clinic/procedure dynamics, and the impact of near misses and critical events. Operational improvement issues can arise and, with group consensus, these are shared outside the group.

Evaluation: BREW survey

An evaluation survey invite was e-mailed to all R2-R5 anesthesia residents at the start of their pediatric rotation. It summarized the project, explained risks/benefits, and offered a \$25 gift card for completing both pre- and post-surveys, with consent implied by survey completion. If the initial survey was completed, a follow-up was automatically

scheduled four weeks later and another four weeks later in the case of consecutive blocks.

We developed and administered the survey using Research Electronic Data Capture (REDCap).^{17,18} Eligible participants each received a unique survey link, so that respondents could participate only once at each timepoint. Non-respondents received reminder emails two days later and again two days after that.

Outcome measures

The evaluation included three components. The initial survey included components (1) and (2) and the follow-up surveys included (2) and (3). **(1) Demographics**, year of residency and number of junior/senior pediatric anesthesia blocks completed. **(2) Second Victim Experience and Support Tool (SVEST)**,⁹ respondents evaluated their experiences with patient safety (including near-miss) incidents, in the previous four weeks, by rating 29 statements across seven dimensions (*psychological distress, physical distress, colleague support, supervisor support, institutional support, non-work-related support, professional self-efficacy*) and two outcomes (*turnover intentions, absenteeism*) on a 5-point scale (1=*strongly disagree* to 5=*strongly agree*). **(3) Feedback**, including free-text comments and 5-point Likert responses to six evaluative statements: a) I found the Better REsident Wellness (BREW) rounds helpful; b) I felt safe sharing during the BREW rounds; c) I felt validated in the BREW rounds; d) The BREW rounds improved my morale; e) My clinical care has benefited from attending the BREW rounds; f) I would recommend future residents to participate in the BREW rounds.

Data analysis

Completed surveys were downloaded, summarized in Excel (Microsoft, Redmond, WA), and analyzed statistically in R 4.3.2 (Foundation for Statistical Computing, Vienna, Austria). If a resident completed follow-up surveys at both four and eight weeks, we included only the 4-week in our quantitative analysis, so that each participant counted only once, but qualitative analysis included free-text comments from both.

SVEST scores were processed following Burlison *et al.*;⁹ specifically, we converted SVEST questions identified as 'reverse-worded' by subtracting the numeric Likert response from 6 (5 converted to 1, 4 to 2, etc.), then computed, for each participant, mean response scores for the set of questions associated with each dimension and each outcome. We calculated the number of response means, across all dimensions and outcomes, which are

deemed to represent a second victim response (i.e., score ≥ 4) in both pre- and post-surveys. We compared the overall incidence of these second victim responses using Fishers exact test, and the mean scores across each dimension/outcome using paired Wilcoxon signed-rank test.

Free-text comments were thematically analyzed in NVivo (Lumivero, Denver, CO) with an inductive or 'bottom-up' approach.¹⁹ One author (JL) used an open coding framework and created a preliminary descriptive list of thematic labels.²⁰ Two authors (JL, NW) iteratively discussed and categorized codes into main themes and subthemes.

Results

Survey invites were sent to 48 anesthesia residents during Oct/2021-Feb/2023: 37/48 (77%) responded to the initial survey; 33/48 (69%) responded to the 4-week follow-up or the 8-week follow-up or both. Two junior and two senior residents responded to the initial survey, but did not provide follow-up. Participants included both junior (R2, $n = 14$; R3, $n = 6$) and senior (R4, $n = 11$; R5, $n = 2$) residents.

Resident feedback indicated: 32/33 (97%) respondents considered BREW rounds helpful, safe, and would recommend to future residents; 30/33 (91%) thought BREW had improved their morale; and 23/33 (70%) felt that their clinical care had benefitted. Further details of our SVEST analysis are available on request.

The noted benefits that emerged from free-text comments included: discussing shared experiences, bonding with colleagues, having an open/safe space, feeling validated by colleagues, and having a proficient, trained, and external facilitator. Suggestions for improvement included: addressing session timing and availability, ensuring other anesthesia staff respect protected time for BREW rounds, and expanding the program to other hospital sites (Figure 1). Some residents expressed a desire for specific discussion topics/talking points, to ensure a positive discussion with a focus on clinical cases or specific issues experienced by the BREW attendees, rather than wider issues related to the hospital or residency program.

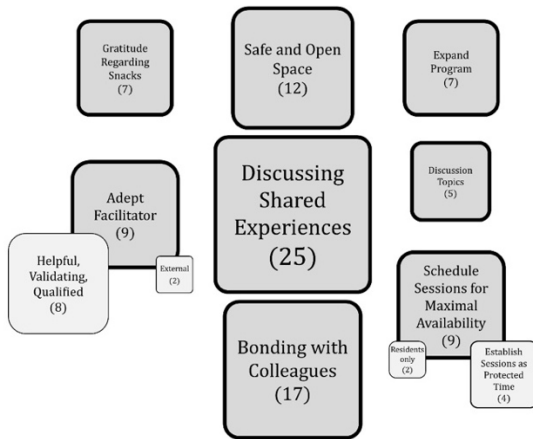


Figure 1. Themes from free-text feedback in follow-up surveys on Better Resident Wellness (BREW) rounds. The main themes are outlined in bold with subthemes on a lighter background. Number of identified

Discussion

A weekly one-hour facilitated peer discussion (BREW rounds) to improve anesthesia resident wellness at our pediatric centre was evaluated with a pre- and post-intervention survey, which indicated that BREW rounds are a desirable and beneficial resource for anesthesia residents. Residents' comments suggested these sessions are valuable because they provide an open and safe space to discuss shared experiences that permits positive validation from peers and a trained facilitator, and an opportunity to bond with peers across residency cohorts.

In a systematic review of resident wellness interventions, 4/18 (22%) studies involved facilitated discussion groups,²¹ though only one demonstrated an improvement in wellness measures (decreased depression, burnout, and exhaustion).²² SVEST has not previously been used to evaluate a resident wellness initiative despite recognition that the second victim response is an important issue in anesthesia^{7,8} that has prompted support initiatives.²³ Using SVEST as the primary tool to evaluate our intervention allowed comparison with our previous study,¹⁴ which had guided the development of BREW rounds. We actually found limited evidence that BREW rounds impacted specific SVEST scores: only one dimension showed reduced concerns (about professional self-efficacy). This may suggest that pre- and post-intervention quantitative assessment over a short period may not be the best approach to demonstrate the impact of a wellness program or that we are not using the appropriate measure. Eskander *et al.* identified 27 different wellness measures across 18 studies and concluded that researchers need to develop a consensus on wellness instruments with appropriate evidence of validity.²¹

Our SVEST data did indicate that the number of residents demonstrating a second victim response was reduced in the post-survey compared to the pre-survey. Combined with the positive feedback from residents, this finding provides some evidence that facilitated peer discussion is a beneficial addition to anesthesia resident training. Directors of residency programs may benefit from recognizing its potential positive impact on the learning environment. There may be implementation issues to consider; for example, it may be challenging to integrate another element into existing clinical and educational residency schedules. A randomized controlled trial investigating the effect of a facilitated discussion group on burnout among first-year internal medicine residents identified this factor²⁴ and nine of our participants noted scheduling issues, including the importance of protected time (Figure 1). Nonetheless, it has proved feasible at our institution, and we are examining the best approach to extending this initiative to other hospital sites. We have incorporated resident feedback; for example, we stopped inviting clinical fellows to join BREW, as that had made some residents feel uncomfortable. Other issues to consider include seeking opportunities to partner with wellness initiatives at the residents' training institutions, as well as the need to identify experienced and unbiased facilitators to moderate sessions and guide discussion. Further research may contribute to a more comprehensive understanding of the important attributes of this initiative.

Limitations

We report results from a limited sample of residents in a single training program at a single institution; the response rate was reasonable (69% overall), but we have limited data on the characteristics of respondents vs. non-respondents and acknowledge a potential voluntary response bias. To optimize feasibility, the survey did not include detailed follow-up questions; free-text comments provided preliminary suggestions of BREW's benefits, but we anticipate a qualitative study will provide deeper insight. Finally, we have no data on long-term follow-up with trainees, nor the possible impact of this intervention on patients' experiences or outcomes.

Conclusion

BREW rounds, a facilitated peer discussion group, offer a desirable and beneficial support resource for anesthesia residents. Despite a small sample at a single institution with limited evidence of impact on specific second victim response scores, the positive feedback suggests other anesthesia residency programs should consider integrating

facilitated peer discussion into their curriculum. Future work will involve semi-structured interviews with a sample of residents to better understand the program's benefits, its important characteristics, and potential for ongoing quality improvement.

Conflicts of Interest: The authors have no conflicts of interest to declare.

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