

ORIGINAL RESEARCH

Facilitating in-situ simulations in an acute care environment: A qualitative study

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ABSTRACT

Background and objective: Clinical Educators frequently use in-situ simulation-based experiences (SBE) to improve the skill and competency of healthcare professionals. The aim of the experience is to improve the quality of patient care and, ultimately, patient outcomes. The facilitator plays a key role in the in-situ SBE as they provide structure, guidance, and support, to help learners achieve the educational outcomes. However, they often face barriers concerning preparation for their role, time release from clinical duties, time to facilitate an effective debrief, and space constraints. The aim of this research was to gain insights into the opportunities and barriers educators face when facilitating in-situ simulations.

Methods: A qualitative descriptive design utilising semi-structured interviews with twelve clinical educators who had facilitated in-situ SBE's in the acute care environment within a hospital facility. Interview data was analysed utilising a general inductive approach to determine themes.

Results: The facilitators valued in-situ SBE as a teaching and learning strategy however they faced challenges related to time constraints, resourcing, 'buy in' and competing priorities for themselves and the learners.

Conclusions: Sustaining an in-situ SBE programme long term requires a departmental culture that normalises SBE as routine practice, a simulation design appropriate to the in-situ environment, and opportunities to engage in a community of practice.

Key Words: In-situ, Simulation, Hospital, Healthcare educators, Acute care, Facilitators

1. INTRODUCTION

In-situ SBE refers to a simulation-based experience (SBE) facilitated in the learner's place of work.^[1] In-situ SBE is expected to be recommended for all healthcare professionals in the future^[2] as they offer health professionals a chance to practise clinical skills, communication, and teamwork without patient harm.^[3] Particular benefits of in-situ SBE include opportunities for latent safety risk identification (LSRI)^[4] and testing of hospital processes.^[5]

The facilitator plays a key role in the in-situ SBE as they provide structure, guidance, and support, to help learners

achieve the educational outcomes.^[6] However, they often face barriers concerning the use of technology; time and space constraints; preparation for their role; and providing participants feedback on their performance.^[7] The aim of this study was to explore the experiences of in-situ SBE facilitators to gain a more in depth understanding of the opportunities and barriers healthcare educators may face when undertaking in-situ SBE in their clinical areas.

Background

Facilitation of an in-situ SBE is multifaceted, complex and unique for each group of learners.^[8] The facilitator considers

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the desired learning outcomes for the participants; prepares the simulation; provides the right cues; and leads the debriefing session to support learners to achieve the expected outcomes.^[6] The facilitator also considers the personal and cognitive load of the SBE for both themselves and the learners.^[9] To manage these complexities, several authors recommend using a systematic approach to the training of SBE facilitators, which includes access to endorsed courses, and checklists to avoid missing key aspects of the learning experience.^[9–11] Mentoring, observing experts, facilitating in-situ simulations with a peer, and sharing resources and experiences is also recommended.^[5, 12] While these recommendations are useful, research has shown that accessing training to develop expertise in simulation facilitation is challenging. For example, a South African survey revealed that only 10% of 79 nurse educators believed they were competent or expert in SBE facilitation.^[8] Another study found that thirty-two percent (18/56) of paediatric emergency physicians received informal SBE training only.^[10] These authors concluded that to optimize the learning experience, more attention to the needs of the facilitator is required.

Facilitators new to this teaching and learning approach may face a number of challenges. For example, the large amount of work required,^[8, 10] accessing appropriate equipment to accomplish pre-determined objectives,^[9] lacking the skills to create a realistic SBE,^[8] and feeling anxious about the simulation technology^[8–10] especially if they are unfamiliar with the equipment.^[13] In addition, providing constructive feedback in the debriefing session may be stressful for facilitators^[10, 12] especially if the feedback needs to be directed to someone more senior or a very experienced participant.^[11] In the acute care hospital environment, SBE facilitators face specific challenges such as finding a suitable space^[9] (which might explain the reported cancellation rate of 28% of planned in-situ SBEs in one study^[14]), busy clinical workloads for the healthcare staff, and lack of protected time to prepare and facilitate the experience.^[8–10] Moreover, in-situ SBE often removes the facilitator and participants from their clinical workloads and as a result, time to effectively debrief may be lacking.^[7] It is therefore crucial that learners receive good quality facilitation and feedback so both facilitator and participant time is not wasted.^[11, 14]

Despite these challenges, facilitating an SBE in the acute health care environment offers particular advantages in that the learners are in close connection to the real physical environment offering the chance to identify quality improvement initiatives.^[15] In addition, a separate educational facility is not required, and staff can attend a session without having to commit to a full study day which may decrease the cost of the learning experience.^[12] However, as identified, in-situ

SBE requires substantial planning and carries complexities in regard to accessing resources or training, and busy workloads for the educators and learners. Therefore, even if an educator is interested in the benefits of SBE, they may be reluctant to engage, threatening the sustainability of the in-situ simulation programme. This study seeks to understand the experiences of those who have facilitated SBE in an acute care environment. The study setting is a hospital who commenced an in-situ simulation programme three years earlier. Capturing the experiences of educators embarking on this journey could offer insights about possible discomforts facilitators may face, and strategies to overcome these for an improved facilitation experience and positive outcomes for all stakeholders. This study may also contribute to effective resource utilisation for this education modality by building on what is already known.

2. METHODS

This research aimed to gain an understanding of opportunities and barriers educators may face when they facilitate in-situ SBE. The research question was ‘what are the experiences of clinical educators who facilitate in-situ SBE within acute healthcare environments?’ A qualitative descriptive design using semi-structured interviews was adopted as the study was exploratory in nature, concerned with examining peoples’ experiences to identify meaning.

The study participants were clinical educators who had facilitated at least three in-situ SBE’s in the acute care environment within a hospital facility. The study setting was a District Health Board (DHB) in New Zealand, which employed 4,500 staff. To recruit participants, the lead researcher presented information about the study at a Clinical Educators meeting and individually to the managers of the clinical areas. E-mail invitations were also sent to members of the local simulation interest group. If a potential participant contacted the researcher, they were sent an information sheet and consent form and a suitable time for an interview was scheduled.

The lead researcher facilitated each interview, which ranged from 30 to 50 minutes. All interviews took place in a private room at the hospital. The interview included a collection of participant demographics and open-ended questions about the participants’ experiences of facilitating in-situ SBE (see Table 1).

The transcribed interview data was analysed using a general inductive approach.^[16] The lead researcher commenced analysis by coding the interview data according to the meaning she ascribed to the text. These codes (23 initially), included words or short phrases which were remodelled with the addition of new data. All three researchers refined and reduced

the codes by discussing similarities, links and relationships. The codes were then prioritised, and repeated segments of text removed. The result was ten categories, which were organised into themes and subthemes to show interconnectedness between the whole and parts of the data.^[16]

To promote trustworthiness in the findings, all three re-

searchers discussed the codes, categories and themes throughout data analysis. Two of the three researchers regularly facilitate simulation. However, they did not supervise any of the study participants. Three participants received a summary of the themes for member checking. Verbatim quotes from the participants were assigned to the themes to support confirmability.

Table 1. Interview questions

Interview Guide
Demographics ethnicity; age; profession; highest educational qualification; highest teaching qualification; time working in their current area; number of in-situ simulations facilitated; frequency of facilitating SBE; exposure to simulation in their undergraduate education.
Questions 1) How would you define in-situ simulation? 2) Tell me about your experiences of facilitating in-situ simulation? 3) Tell me about your experiences of setting up the in-situ simulation? 4) Can you share your experiences of using technology in the in-situ simulation? 5) What are your thoughts about opportunities and barriers associated with facilitating in-situ simulation? 6) Tell me about your experiences of facilitating the debriefing session? 7) Any other comments?

Ethics approval for the study was obtained from the university (reference: H19/039e) and the hospital in which the participants worked (project ID 01546).

3. RESULTS

Of the twelve participants, seven were female and five were male ranging in age from 36 to 61 years old (mean 47.5 years). Seven participants were nurses, the other participants were from the medical profession ($n = 4$) and allied health ($n = 1$) - all were of European descent. One participant had a master's in clinical education and another a post-graduate diploma in medical teaching. The others had no formal teaching qualification. No participants had experienced SBE during their undergraduate training. The study participants interviewed all had clinical education or practice roles and in-situ simulation facilitation was something extra they undertook within these roles. Table 2 shows the number of SBEs each participant had facilitated.

Table 2. Number of SBEs facilitated

Number of SBEs facilitated	
< 5	3 participants
5-30	5 participants
31-50	1 participant
51-100	1 participant
100+	2 participants (1 medical, 1 nursing)

All facilitators valued in-situ SBE as a teaching and learning strategy however they faced challenges related to time con-

straints, competing priorities (for themselves and the learners), availability of bed spaces and learner 'buy in'. Support to develop expertise in the skill and 'art' of facilitation and engaging in a community of practice may help sustain a SBE programme long term. These findings are presented in three themes; (i) designing a simulation appropriate to the in-situ environment (ii) developing the expertise of the facilitator (iii) engaging in a community of practice.

3.1 Designing a simulation appropriate to the in-situ environment

For the facilitators, there was widespread recognition that establishing an in-situ SBE programme provided numerous benefits for learners. Benefits discussed included the potential to increase a learner's confidence, improve their understanding of how to manage clinical situations, and prepare them for critical events. Jess captured this in the following example:

It is a good way of practicing difficult scenarios, which you will have to face in a patient at some point. Better that you face it with a manikin than you come across it in a ward one day.

Suzy spoke about the ability of an in-situ SBE to highlight gaps in the "grey" areas of clinical practice (uncertainty within clinical practice). Whina talked about LSRI:

It has the ability to pick up problems with systems and processes. It keeps people's minds

looking for things that can go wrong.

John spoke about being able to “play where you work”. However, the downside to this benefit was that finding an appropriate space in the busy clinical environment was often problematic. Kim explained she had experienced “two or three changes” of available bed space in one day.

Several facilitators said time and space constraints influenced the design of the in-situ SBE. For example, Jane said the SBE needed to be “short, sharp and fairly precise” and John explained that he “wanted to get in, get out, and be done” because everyone was busy. Suzy scheduled her SBE’s around bed space availability and quieter weekdays:

I have worked it around knowing what space might be available and where I can get space

The facilitators identified time to plan, set up and run the SBE as particularly challenging. For the learners, it was time release from heavy clinical workloads. When Whina was asked about barriers, she sighed and said, “time, time, time”. A challenge specific to in-situ SBE is patient care must take priority over clinical education. The result for some facilitators was being unable to offer SBE’s as often as they would like or having to cancel their planned SBE at short notice. Kim gave this example:

It just highlights how difficult it is to arrange one and then go ahead with the plan and do it... it's been one of the disappointments, that we haven't been able to keep the programme going

The facilitators commonly spoke about the importance of debriefing in simulation and many expressed concerns about the impact of time constraints in the clinical environment (typically about 15-30 minutes). For Jane, time constraints meant she had to “let go of the expectations” and focus on “one take home message”. Suzy and Whina both believed that limited time to debrief was a potential safety concern as learners might leave the session with an incorrect message. They explained it like this:

Participants can... learn the wrong thing... we need to be careful about that... it's probably got a lot to do with your facilitation... and... having enough time to unpack everything and make sure that people (participants in the simulation) have gone away with the appropriate messaging [Suzy]

Because the sim went over (time), we had 5 minutes for the debriefing. [Only]one of the major

issues was covered... It felt very unsafe to leave it like that, but it (the debrief) was wrapped up and people were walking out the door and I was like ‘argh’ [Whina]

The facilitators also talked about challenges related to using computerised manikins and a network connection. One facilitator spoke about confusion in one SBE because the controller and vital sign monitor failed to connect. Others talked about needing extra time to familiarise themselves with the simulation technology. Sam gave this example:

If I had more time with the technical equipment and was really au fait with it, I would not see it as a disadvantage but at the moment, I see it as a disadvantage.

For Ana, technology challenges meant she preferred using a basic manikin instead of Sim-Man (advanced technology). For Sally, it meant avoiding the purchase of a wirelessly connected device. Epere decided it might be better to design an SBE that did not need Wi-Fi.:

So I tend to hard wire just to stop that derailing (of) a simulation mid-sim... And then I know I have got a 100% reliable connection.

For Ana and Matai, the result of these challenges was a belief that in-situ SBE’s needed to be “easy”, otherwise, facilitators and learners might not engage:

I think it has to be easy; otherwise people will not do it [Ana]

From a participant point of view, it should be reasonably easy [Matai]

Understanding these opportunities and challenges related to the in-situ environment and how it differed from more formal simulation education in the context of a simulation centre, highlighted how the facilitator needs to develop their expertise to fit with this environment.

3.2 Developing the expertise of the facilitator

The facilitators spoke about managing an array of complexities in the SBE and the uncertainty of the learners’ response. For example, Josh explained that he facilitated the same SBE three times and all had different responses from the learners. Suzy said the facilitator role was “busy” and “quite challenging”. Jane explained:

You have these lovely learning objectives, and they just go off on a tangent, and they have learnt something completely different from what you have set out... So you never know what people will throw at you.

Several facilitators spoke about being flexible and adaptable as a facilitator. Josh believed adaptability was especially important when technology failed:

It [technology] fails, continuously, so you need to be agile again, to salvage your sim ... It does not usually completely abort the teaching session, you just need to adapt.

Jane described adaptability as thinking “on your feet” and gave an example of being flexible:

We put gauze up the dummies nose, because we thought they would do intra-nasal or buccal but no, they ran away and got the IO (intra-osseous). It is like ‘oh’ [we] had not quite planned on that. So, luckily [the co-facilitator] said, ‘here put it in this’ and he grabbed a glove box.

Other facilitators spoke about the strategies they used if the SBE took an unexpected tangent. Whina said a confederate (another facilitator who takes on an SBE role) guiding the participants was important. Epere believed establishing the boundaries of the SBE in the pre-briefing helped keep the SBE on track:

It is always a challenge to stop people doing things to the manikin that you do not want them to do, like cannulating your electronic arm... you learn with experience to anticipate those things in advance in your pre-brief.

John shared an analogy of SBE being like a playground where the facilitator sets the boundaries. In other words, facilitators could try to maintain control of their SBE or consciously relinquish control until the debriefing session. Suzy also mentioned this approach:

And maybe you don't need to control it... Whatever you have prescribed, the learner will take the learning that they will take.

For many facilitators, being flexible and adaptable was particularly important during the debriefing as the learner’s response might be unexpected. Several said they felt responsible to get debriefing right as this is where most learning occurred. The facilitators also spoke about providing feedback on the learners’ performance and for many, this was not easy. Specific difficulties raised included addressing a poor performance, asking the right questions, using the right words when giving feedback, and ensuring all learners had opportunities to speak during the debrief. Jess and Sally captured these sentiments:

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It is about being brave enough to say, ‘so tell me what your thoughts were’ ... It is really difficult to say, ‘actually you should have done something else’ [Jess]

You always want to word it correctly if you are the one giving feedback... So, it is a challenge... you never feel that you have enough time to grapple and get everybody to speak... [Sally]

Josh and Epere both spoke about the art of debriefing. For Josh, it was developing a “lexicon of debriefing” to draw on and for Epere, debriefing was a practised art:

I think it (debriefing) is a very much learned and practised art [Epere]

I think you can improve your skill level and expertise, but I think there is an artistry to it as well, where a few people can get to [Josh]

Other facilitators said you need at least two people to facilitate. For Epere, having multiple facilitators provided “two or three sets of eyes... so you can give adequate feedback”. Sam explained:

It's quite good if you have got a few people involved... When you are just the person running it, you are quite focused on what's happening next... if you are really in the moment, you may not see those things.

The complex nature of facilitating in-situ simulation where unexpected challenges and opportunities may arise requires expertise and flexibility from the facilitator. To enable quality facilitation of in-situ simulation, the facilitators valued support from others who understood the role and with whom they could share learning – this engagement in a community of practice is described in the next theme.

3.3 Engaging in a community of practice

The facilitators spoke about their simulation community as a valued resource because it offered collegiality and support to navigate the challenges they faced. Connections meant they could learn from each other, share resources, and discuss their facilitation experiences. Collaboration with other facilitators provided a morale boost especially if they worked in isolation. Epere explained:

I work more in isolation, it's good for me to work in groups and bring that stuff back and have a recharge ... That's the best way to learn

Several facilitators expressed their frustration at a lack of learner ‘buy in’ (willingness to be involved in SBE). Jess gave this example:

How do we get them (learners) involved more and interested... I would like to see more acceptance of it, more welcoming of it, and more people joining in.

The facilitators suggested various reasons as to why learners might be reluctant to engage with in-situ SBEs. For example, anxiety related to peer observation, fear of judgement, and a feeling of being tested. Kim gave this example:

They feel uncomfortable. They do not want to feel humiliated maybe. Not many people put their hand up to do it.

The facilitators also spoke about a number of strategies they used to reduce learner discomfort in SBE. Examples included having senior staff role model participation, providing learners with extra scenario information, and offering learners relevant skill training prior to the SBE. Jane said that she had discovered that “people don’t like to be watched” therefore, she did not have observers in her SBEs. In contrast, other facilitators said observing SBE’s offered opportunities to learn from others. For Whina, decisions about the number of observers in an SBE was complex.

To encourage learner ‘buy in’, several facilitators believed there was a need to normalise SBE as part of the departmental culture. For Epere, normalisation meant participating in SBE’s should be expected practice in all departments. Whina believed that “the importance (of SBE) [should] outweigh the fact that people don’t like it”. Sally and Epere suggested that learners might engage more if SBEs became a regular occurrence:

It’s easier now that we’ve been doing it a while, people accept it as a way of teaching ... They see that as the way forward [Sally]

Do it anyway... work with your champions and hopefully, the others will see what an amazing thing it is, they will hear people talking about it and they will eventually be won over [Epere]

For Suzy, ‘buy in’ from departmental managers was crucial:

In terms of higher up the chain, valuing and re-sourcing SBE. There are barriers with the planning, implementation and the support for this type of learning.

A concern for some facilitators was that the responsibility of SBE usually fell on a select few which threatened the sustainability of an SBE programme. For example, Jane said if her team were absent, “it tends to almost fall over”. Josh explained that “your enthusiasm carries you for so long, then you need systems and processes so you can sustain them in this department”. Josh had created an expectation in his department, that every Senior Medical Officer will run a SBE.

Ultimately, being situated within a simulation community offered the facilitators governance, networking, and opportunities to share resources. It could also increase morale and develop facilitator expertise. An incidental benefit discussed by one facilitator was that she observed learners who came to know the skills of other professions and subsequently, recognised that health professional roles “overlap a little bit”.

4. DISCUSSION

This study identified several benefits of implementing an in-situ programme for both the learners and the organisation. For the facilitators, the most important benefit was that in-situ SBE offers opportunities for LSRI and to highlight gaps in clinical practice. This finding reflects other studies that report latent safety risk identification, to inform quality improvement initiatives, as a key benefit of in-situ SBE,^[3,4,15] and that this can motivate educators to establish an in-situ SBE programme.^[12] However, the facilitators in our study expressed concern that a few enthusiasts could not sustain an in-situ programme, and that without learner ‘buy in’, in-situ simulations would be difficult to continue long term because in the clinical context, patient care takes priority over education. This reveals a tension - should learners tend to their patients’ care or increase their clinical skills through attending in-situ SBE? In the current environment of healthcare staff shortages, the likelihood is that patient care will be prioritised over the longer-term benefits of improved training. The facilitators in this study also suggested anxiety related to peer observation was a significant threat to learner ‘buy in’. However, the complexity of the findings is evident in that the benefits noted included the potential to increase a learner’s confidence, improve their understanding of how to manage clinical situations, and prepare them for critical events. To encourage ‘buy in’ and the opportunity to achieve these positive outcomes, the facilitators believed that normalising in-situ SBE as part of the departmental culture was crucial. Undertaking simulation on a regular basis with peers in an educational environment is supportive of normalising in-situ SBE as learning, rather than judgemental of ability.

Departmental leadership support is one of the greatest con-

tributors to the sustainability of an in-situ SBE programme.^[5] Such support is required to release staff from clinical duties and provide cover for patient care so learners can attend^[9] as SBEs are more likely to be cancelled at short notice if staff are unable to attend in moments of clinical busyness. With the current healthcare staff shortage, the challenges for management in releasing clinical staff, or prioritising 'back-filling' for staff to undertake in-situ SBE, threatens sustainability. However, a commitment by both the manager, and the clinical staff to being released for in-situ SBE, is important for patient safety.

In this study, time constraints were another significant challenge when facilitating SBE in the in-situ environment. This is consistent with other studies that showed time constraints need to be considered when conducting in-situ SBE.^[8, 10] The facilitators in this study were particularly concerned about insufficient time in the debriefing session to address unsafe practice. This is a significant concern because if learners do not know they made a mistake, patient safety could be compromised. However, a particular advantage of in-situ SBE is that facilitators and learners may work together, so opportunities may be found for further discussions, which is especially important if educators identify safety concerns in the in-situ SBE.

Due to time constraints, the facilitators suggested limiting the debriefing to one or two learning points. This supports the argument by Krogh, et. al., that the facilitator may not have time to discuss key learning points if the SBE has too many learning outcomes to be met and later discussed.^[17] Another challenge raised in this study was that in the in-situ environment, adhering to recommended debriefing frameworks may not be possible due to time constraints. This finding suggests facilitators may need to adapt structured debriefing guides such as the advocacy-inquiry approach- a framework to help facilitators probe deeper into a learner's actions^[18] to meet the specific demands of the in-situ environment. Some facilitators talked about relinquishing control of the SBE by prioritising learning over planned educational outcomes. This finding aligns with the argument that facilitators need to be flexible and have the ability to 'think on their feet'.^[17] A part of relinquishing control could mean using a blended approach that includes the facilitators own style of debriefing with relevant aspects of a debriefing framework. It is therefore not surprising, that our findings revealed that developing the expertise of the facilitator and opportunities to engage in a community of practice with other SBE enthusiasts was essential.

Our study highlighted the need to account for time and space constraints in the design of in-situ SBE, which reflects best

practice standards that the context should determine the choice of modality.^[2] The facilitators suggested simplicity in design was important because of these aforementioned clinical constraints. This finding aligns with reports in the literature that facilitators often discover through trial and error, a simulation design that suits their department's constraints.^[13] It also raises a question as to whether educators are inadvertently trying to shift a SBE designed for a controlled education environment to in-situ SBE in the unpredictable healthcare setting, and in trying to emulate what is best practice in the controlled and sometimes more complex simulation environment, are losing the benefits of in-situ SBE.

4.1 Implications and recommendations

This study highlights that sustainability of an in-situ SBE programme requires departmental and learner 'buy in' and that educators who facilitate and design SBE's need opportunities to develop their expertise, collaborate with others, and share resources. There is a need for those in governance to value and promote SBE's as an effective strategy to identify latent risks for the organisation and improve patient outcomes through education. It is vital that organisations acknowledge the role SBE can play in quality improvement to meet identified health quality and safety targets.

Ownership at departmental level to prioritise and normalise SBE as part of the patient safety culture is also required. Management support to enable facilitators and learners to participate, and adequate resourcing, are essential. A useful strategy could be to institute an SBE team who holds overall responsibility for the simulation programme in the organisation. This team could role model expert facilitation and provide alternative staff should clinical demand call a facilitator away. This team could also develop a repository of SBEs and assist facilitators to address challenges such as learner or department 'buy in'. The authors recommend that educators who design in-situ SBEs include a follow-up plan to discuss unsafe practice, should this be required. Finally, the implication of debriefing in a clinical environment with specific time pressures warrants further investigation. In particular, whether recommended debriefing frameworks need to be adapted to meet the demands of the in-situ context.

4.2 Limitations

This study highlighted the voices of those who facilitate in-situ SBE in an acute care clinical context, which limits generalisation to other settings. However, the commonalities across the experiences of our participants suggest the findings may have relevance to other educators who facilitate in-situ SBE. To remain open to the data and add rigour to

the study, all three researchers were involved throughout the research process. A more culturally diverse sample may have added a broader perspective.

5. CONCLUSION

Overall, the benefits of establishing an in-situ SBE programme outweighed the challenges the facilitators in this study faced. Based on these facilitators' experiences, to sustain an in-situ SBE programme long term, healthcare ed-

ucators require departmental support by way of resourcing, training in SBE facilitation, and opportunities to join a simulation community. Learner 'buy in', a simulation design appropriate for the in-situ environment, and a departmental culture that normalises SBE as expected practice may also assist with sustainability of the programme.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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