Three Principles Informing Simulation-Based Continuing Education to Promote Effective Interprofessional Collaboration: Reorganizing, Reframing, and Recontextualizing

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**Introduction:** Shoulder dystocia is a complex birth emergency where patient outcomes remain a concern. This article investigates the detailed processes of simulation-based continuing education in a hospital where evidence over 10 years demonstrates improvements in practitioner knowledge, enacted practices, and maternal and child outcomes. **Methods:** Data were collected by video recording teams participating in a shoulder dystocia simulation and debrief. Analysis combined grounded thematic development with purposive coding of enactments of a relevant protocol (the ALSO HELPER). **Results:** Three themes were identified (three Rs) that capture how effective interprofessional collaboration is promoted through collectively oriented reflection: Reorganizing roles and responsibilities between team members; Reframing the problem of shoulder dystocia from individuals correctly following a protocol, to a team of professionals who need to attune to, respond to, and support one another; and Recontextualizing by collectively "commingling" theoretical knowledge with practical experience to reflect on actions and judgements. **Discussion:** The three Rs are relevant to diverse clinical settings and address gaps in knowledge relating to the process of interprofessional simulation. Together, they constitute a set of principles to inform the design and conduct of continuing education for interprofessional practice through simulation. **Keywords:** simulation, interprofessional collaborative practice, obstetrics, emergency, shoulder dystocia

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**BACKGROUND**

Safety and interprofessional collaboration are two linked aspects of quality that are a common focus of continuing education (CE).1,2 Research is especially needed to inform CE in care where risks to patients are high, and multiprofessional teams need to collaborate in pressured environments. This is the case in shoulder dystocia—a complex birth emergency demanding a team of professionals to perform physically difficult actions amid serious risks to the mother and baby.3,4

Patient outcomes are a concern, often associated with maternal or foetal injury, and linked litigation against care providers.5 This article explores simulation-based CE in a hospital where evidence over 10 years demonstrates improvements in practitioner knowledge, enacted team practices, and maternal and child outcomes.6

The importance of conducting interprofessional education and training in teams is widely recognized.6–11 Single-profession approaches hamper the development of shared mental models, common language, and clarity around other’s roles.12 Educators can use the interprofessional demands of health care practice to create conditions for effective team training.10 Evidence is strong that simulation-based CE can promote effective interprofessional practice, especially if communication is explicitly addressed.1,2,13–15

However, there are gaps in understanding how best to conduct simulation to promote interprofessional practice. The interprofessional is often overlooked in debriefing, which has been found to favor individual actions and medical aspects.16,17 Researchers have also critiqued the limited strategies available to promote interprofessional practice,12 noting the challenges this presents to educators.10 These challenges include addressing relational dynamics, accommodating different professional identities, and levels of experience in debriefing.8,10 Effective debriefing also needs to make strong connections between the simulation and clinical practice.2 Research is needed to elucidate the processes of interprofessional simulation and debriefing.19

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Approval of the study was obtained from the Regional Ethical Review Board in Linköping (Dnr 2016/177–31). Written informed consent was obtained from the health care professionals involved in the study.

Note on translation of the provided ethics form: The above named has received a supplement on 31 May 2016. The application was approved with the condition that the research participant information be supplemented with a statement that participation/nonparticipation does not affect the research person’s employment or status at the klinikum.

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This article addresses these gaps in knowledge by focusing on what happens during simulation and debrief, and tracing how this can scaffold interprofessional practice. It does so in a clinical context—shoulder dystocia—where research is critically needed. The importance of interprofessional practice in dealing with shoulder dystocia is widely recognized. Protocols to standardize safe practice have been developed, and there have been widespread responses to calls for CE focusing on shoulder dystocia. Despite this, changes in practices and improvements in patient outcomes remain elusive in many settings. Thematic competency frameworks for interprofessional collaboration point at important aspects of this. Clarification of roles and responsibilities, values and ethics, communication, and team function are some important knowledge domains identified. Although many studies have looked at short-term outcomes of educational programs, few have explored processes in CE contexts where longer-term outcomes have been empirically demonstrated. This article focuses on an interprofessional simulation CE program, delivered since 2008 in a Swedish hospital, called Practical Obstetric Team Training (PROBE).

PROBE explicitly addresses interprofessional practices in diverse obstetric contexts, including shoulder dystocia. Although practitioner knowledge and confidence, and the application of preferred management techniques are important indicators of successful training for shoulder dystocia, patient outcomes are regarded as the “gold standard” measure. Evidence linked to PROBE spans all these domains, over a 10-year period, from preimplementation (2004-2007) to 2015. Over this time, the number of diagnosed shoulder dystocias increased from 0.1% to 2.5% of births, but brachial plexus injuries reduced from 73% to 17%, and fractures to foetus’ clavicle and humerus also dropped. Documentation of actual practices in delivery improved from 63% to 93% of cases. A questionnaire found staff confidence in handling shoulder dystocia increased from 48% to 62%. PROBE thus constitutes a valuable site at which to investigate simulation-based CE. This article offers an in-depth analysis of what happens in PROBE scenario and debriefs, focusing on how simulated action and debriefing support participants’ learning to work together interprofessionally.

Shoulder Dystocia

Shoulder dystocia, when a baby’s shoulder jams against the mother’s symphys pubis after the head has birthed, constitutes a serious emergency. It can result in maternal or neonatal injury, paralysis, or death. It is unpreventable and tends to occur without warning and is a major cause of anxiety in obstetric practice. Associated injuries often lead to litigation and compensation claims.

Shoulder dystocia requires “rapid and well-coordinated intervention by the health care team, some of whom may not have worked together before.” It is common enough to threaten patient safety, but not frequent enough that practitioners develop confidence in dealing with it through routine practice. As in many clinical contexts, protocols have been developed to guide and standardize practice.

The ALSO HELPER protocol was developed as part of the Advanced Life Support in Obstetrics course in the United States and now often features in practice guidelines. It combines a memory aid (the mnemonic “HELPERR”) with a specific sequence of maneuvers that avoid ineffective or dangerous practices (such as applying fundal pressure), increase the functional space in the pelvis, and rotate the baby to resolve the dystocia. Table 1 summarizes the mnemonic and what each letter stands for. The maneuvers are not unique to HELPER—the protocol emphasizes the sequence of them, including the anterior shoulder being addressed before the posterior one because the latter is generally regarded as harder to perform.

There is often need to attempt the second E and first R several times, and again if the mother is rolled onto all fours (second R). Practitioners frequently have to switch who performs the internal maneuvers, and guidelines often state the need to note elapsed time since the dystocia was noticed.

PROBE uses the HELPER protocol in training for shoulder dystocia. Analysis of the practices documented in the hospital where PROBE was implemented found increased practices aligning with HELPER. In light of this evidence, the analysis presented here includes a focus on how PROBE participants actually enacted HELPER, as well as on the debrief discussions that followed.

**Shoulder Dystocia and CE**

Multiple reviews have found practitioners struggling to perform the maneuvers and being unable to coordinate actions among the team. Regular CE for shoulder dystocia is therefore widely recommended, and simulation has been popular as an approach. Evidence from programs in the United States and United Kingdom suggests simulation can reduce harmful actions and increase safe actions, including as prescribed in HELPER; improve knowledge in obstetric

<p>| <strong>TABLE 1.</strong> Summary of the ALSO HELPER |</p>
<table>
<thead>
<tr>
<th><strong>Letter</strong></th>
<th><strong>Detail</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>Call for help (eg, senior midwife, obstetrician, anaesthetist, pediatrician, and scribe)</td>
</tr>
<tr>
<td>E</td>
<td>Evaluate for episiotomy (consider a cut to avoid injuries to the mother provide additional room when carrying out internal maneuvers)</td>
</tr>
<tr>
<td>L</td>
<td>Legs into McRoberts’ position (flex mother’s legs against abdomen and knees toward ears)</td>
</tr>
<tr>
<td>P</td>
<td>Pressure (apply external suprapubic pressure known as Rubin I; avoid fundal pressure)</td>
</tr>
<tr>
<td>E</td>
<td>Enter (internal rotary maneuvers performed by inserting fingers past baby’s head; three named maneuvers can be tried repeatedly with recommendation to change after 30 seconds: Rubin II, Woods Screw, and Reverse Woods Screw)</td>
</tr>
<tr>
<td>R</td>
<td>Remove posterior arm (flex baby’s elbow, sweep forearm across chest, and deliver arm)</td>
</tr>
<tr>
<td>R</td>
<td>Roll the mother onto her hands and knees</td>
</tr>
</tbody>
</table>

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emergency management\textsuperscript{24}; reduce neonatal injury; and improve patient outcomes.\textsuperscript{5,18,24,35} However, outcomes are not universally strong or positive.\textsuperscript{7,23,24} There is a growing view that to improve outcomes, CE needs to better address interprofessional and team-related aspects.\textsuperscript{4,23,24,26}

Although training for shoulder dystocia typically focuses on the individual skills of the accoucheur (a person who assists during childbirth, often an obstetrician), effective multiprofessional team working remains essential. Training individuals, rather than teams, may lead to the omission of critical steps.\textsuperscript{23, p.3}

**Methodology**

PROBE was introduced for staff at the University Hospital in Linköping, Sweden in 2008. It is run six times per year at the clinical training center (Clinicum). The facilitators are midwives and obstetricians and have completed an ALSO course in Obstetrics, as well as training in simulation debriefing provided within the hospital. All facilitators have been involved since its inception.

Obstetricians, midwives, and nurse assistants have to attend PROBE once every 1.5 years. Each session lasts 3 hours, comprising 2 simulation scenarios and one practical skills training station. One of the scenarios always involves a shoulder dystocia. A debrief follows each simulation scenario, following three stages, all of which fold patient outcomes and team collaboration together, rather than addressing them separately.\textsuperscript{2}

The stages are as follows:

1. **Description**: retelling what happened in the scenario, with the facilitator referring to notes made during the scenario;
2. **Analysis**: clarification of what the team had done well and should continue to do;
3. **Application**: formulation of what has been learned and what to bring to clinical practice.

This staged approach is similar to Steinwachs\textsuperscript{36} model but has been adapted in PROBE to foreground interprofessional teamwork. Steinwachs\textsuperscript{36} model is based on the same broad approach (description, analysis, and application), but the debrief in PROBE is more explicitly oriented toward working as a team.

Addressing gaps in knowledge about the processes of interprofessional simulation and debriefing requires data that capture how different professionals act and reflect in relation to interprofessional scenarios. To meet these needs, data were collected through video recording simulation scenario and debriefs. Three cameras provided multiple lines of sight. Given the shoulder dystocia itself is typically resolved within a few minutes, it was important to have video rather than handwritten observation notes, enabling the researchers to pause and replay during analysis and consider the same issue from multiple standpoints.\textsuperscript{37}

**Recruitment and Sampling**

In June 2018, all three PROBE shoulder dystocia scenarios and debriefs were video recorded at the Clinicum. One of the six days on which PROBE runs each year had been picked at random, and all clinicians completing the simulations that day were asked by a third party for their consent. None declined.

Ten clinicians participated, one team of four and two teams of three. Each team comprised two midwives and an obstetrician; some also involved a nursing assistant.

The two facilitators also gave their informed consent. The lead facilitator was a senior consultant in obstetrics, and the second facilitator was a midwife (these roles are reversed in other scenarios). The former’s role was to observe the simulation and clinical information (heart beats, etc), make notes, and take the lead in facilitating the debrief. The latter held the simulated foetus (ensuring there was a dystocia) and played the voice of the mother in the simulation; she supported her colleague in facilitating the debrief. No coaching or feedback was provided during the scenario, but clinical information that could not be observed in the available equipment was provided verbally.

Ethics approval limited video recording to three teams/one day to minimize disruption to the PROBE program. Findings were presented to other PROBE facilitators, and they indicated that the recorded sessions were typical of how PROBE simulations and debriefs are conducted, and that the findings apply to the program more generally.

**METHOD**

The scenarios involved the use of a pelvic mannequin, a doll to simulate the foetus/baby, and a range of equipment that would be found in a delivery suite (drip, heart monitors, forceps, vacuum extractor, needles, foetal assessment machines, etc). On the day in question, participants completed two other sessions, one practical skills training focused on breech and twin deliveries, and one simulation session on postpartum hemorrhage. Participants were not told in advance that any of the sessions would involve a shoulder dystocia, nor given any reminders relating to HELPERR. Three shoulder dystocia simulation scenarios and debriefs were video recorded. Spoken interactions were transcribed verbatim and translated into English, with additional notes documenting relevant physical actions.

**Data Analysis**

The analytical process used purposive constant comparison methods,\textsuperscript{38} iteratively combining a priori and grounded elements.\textsuperscript{39} A priori aspects included investigation of how HELPERR was enacted in scenarios and discussed in debriefs. Grounded elements involved the identification and verification of three emergent themes, presented below. These themes were specified in a codebook through a systematic approach to team-based qualitative analysis, using lay and technical definitions, and inclusion/exclusion criteria.\textsuperscript{40} The codebook was developed by three authors and qualitatively validated by the fourth who sought clarification of definitions and application of the themes to the data, resulting in minor modifications to the thematic descriptors.

**RESULTS**

The analysis found three key practices drove professionals’ learning how to collaborate effectively in managing shoulder dystocia. Reorganizing roles and responsibilities between members of the birthing team; Reframing the problem of shoulder dystocia from performing correct actions to attuning
to and supporting others while working together; and Recontextualizing by collectively “commingling” theoretical knowledge with practical experience to reflect on actions and judgements.

Shoulder dystocia requires teams to redefine who does what, in what order, and with what tools arise. This was conceptualized through the analysis as reorganizing. PROBE provided opportunities to experience dynamic roles and responsibilities in practice and to reflect on these through debriefing. In the simulation, as soon as the head retracted, the teams reorganized their actions in line with HELPERR, shown in Table 2.

Once HELPERR was initiated, roles and responsibilities shifted as different team members took turns attempting the maneuvers:

Midwife 1: I'll try to resolve the shoulder. Come on! Push!
(to Obstetrician)
Obstetrician: How is it working? Let me know when it's time to rotate
Midwife 1: No, it's not loosening, turn it, see if I can get the arm.
No. (to Midwife 2) Will you try?
Midwife 2: (to Obstetrician) Will you try?
Obstetrician: Should we roll her over? I will try once.
Midwife 2: (Moves in) Let's try again then. Good it's coming, I have loosened the shoulder.

In moments like these, practice was reorganized as participants switched in and out of trying elements of HELPERR. They also changed their roles in terms of focusing on available clinical information (heartbeats etc.), and interacting with the mother. Rather than remaining with stable roles associated with particular professions, the participants enacted fluid roles associated with the changing demands of the clinical emergency.

In the debrief, facilitators prompted participants to reflect on such reorganization as key to dealing with dystocia as a team:

Facilitator 1: You should give it more time (before switching roles)
Midwife 1: Yes, it was way too short. I asked Midwife 2, and then you asked the Obstetrician
Midwife 2: I was thinking, someone more experienced than me.
Facilitator 2: You can go round the whole team, it is terribly hard work. It takes time. You have to rotate, you take responsibility for 1 minute.

The facilitators helped participants reflect on why switching roles was important, and how all members of the team need to be ready to step in and take responsibility for the maneuvers. This informed participants’ commitments to future actions in practice in the third phase of debrief, reinforced by the facilitators making connections to patient safety:

Midwife 1: I will absolutely do maneuver one for longer. I was done way too quickly. I was so stressed.
Facilitator 1: Just giving each maneuver a little longer, not going for the back shoulder because that is where we get plexus injuries. So stay on the first one a bit longer.

The teams also discussed reorganization in terms of changing responsibility for taking the lead and making decisions. The facilitators highlighted participants’ individual and collective contributions, which helped them reflect on lessons learned for future practice:

Midwife 2: You made correct decisions. It is so fucking insecure in a room when everybody is waiting for everyone else. It's terrible.
Facilitator 1: Watching you work, there was no doubt you shifted who took the lead, sometimes Midwife 1, sometimes Obstetrician. And there was no doubt who had the role. When that person says something, we work accordingly.
Obstetrician: It doesn’t necessarily have to be the doctor taking the lead. We collaborate together. It’s not about prestige. That is something I take with me [for future practice].

The second key finding concerned the way shoulder dystocia became a question not simply of implementing a protocol, but one of a collective, interprofessional accomplishment. This was conceptualized in the analysis as reframing. Shoulder dystocia was reframed from a problem requiring “me” to remember a sequence and then perform relevant actions, to a problem requiring interactions, anticipation, and commentary to enable the team to work together.

In the first phase of debrief, the facilitators prompted participants to recount a web of connected actions, such that they described the simulation scenario in a relational way. This reframing was performed by linking one person’s account to another’s: “Before you [x] got there, what did you [y] say? You [y] did something before she [x] did that.”

This provided a basis for further learning in the second, analytical phase. Rather than reflecting on individual performances, the teams reflected on how they had worked together, prompted by facilitators asking questions such as “What did we do well?” In one team, participants focused on communication: “We all communicated well with each other.” Often a facilitator stepped in to reframe an individual action in terms of its significance for the team.

### TABLE 2.

**Reorganizing Practice When Shoulder Dystocia Is Noticed**

<table>
<thead>
<tr>
<th>Team 1</th>
<th>Team 2</th>
<th>Team 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwife 1: Push, push! Everything you can give</td>
<td>Midwife 2: It's sucked back</td>
<td>Midwife 1: No it’s stuck, it feels like it is retracting</td>
</tr>
<tr>
<td>Obstetrician: Yes, it’s sucked back</td>
<td>Midwife 2: Switch off the drip, lower the mother's head</td>
<td>Midwives 1 and 2: Yes</td>
</tr>
<tr>
<td>Midwife 2: We turn off the drip</td>
<td>Midwife 1 completes</td>
<td>Midwife 2: Then we turn off the drip</td>
</tr>
<tr>
<td>Obstetrician: Up with the legs</td>
<td>Midwife 2: The legs are up, now you press</td>
<td>Midwife 1: I Turn off the drip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Midwife 2: Is it H now?</td>
</tr>
</tbody>
</table>

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Obstetrician: To be calm, take it easy. I think I did that well. You do get stressed, but realistically, you do have some time to understand what we are dealing with.

Facilitator: Which contributed to calmness in the whole room. That gives you all the chance to stop and think where you are.

The analysis also found that PROBE helped participants commingle theoretical understanding and practical experience. This was conceptualized as recontextualization—the use of specialist knowledge in conjunction with professional experience to discern salient features of what is happening. In PROBE, this was a collective process, in which the teams pooled knowledge and experience in their reflections. The commingling was performed together with a view to understanding collaborative practice rather than individual actions or judgements.

Practical experience of how shoulder dystocia can vary was commingled with knowledge of HELPER, anatomy, and patient safety. This produced new collective understandings of why particular actions were significant. For example, there was discussion of why those performing suprapubic pressure and internal maneuvers needed to speak aloud what they were doing: “It is not always the case that you can see, when it’s crowded, you do not see.” Participants drew on past experiences of crowded dystocias to enrich understandings of verbalization as a part of interprofessional collaborative practice.

Recontextualization also supported participants’ commitments to future actions. When asked what their key learning was for the future, the importance of noting elapsed time was raised by a nursing assistant: “You should watch the clock. I didn’t realise the importance before.” A facilitator offered further recontextualization by making further connections to other shoulder dystocias and to nonemergency births:

Facilitator 1: You can always do that. It can happen in an ordinary case as well. If the head is out and the contraction ends, I always glance at the clock. You can say if it’s only one contraction, I can wait for the next one.

Thus, the experience of simulation was commingled with knowledge of normal births to arrive at commitments to future practice. This recontextualization contributed to planned future actions that would promote patient safety in dystocia and other births.

**DISCUSSION**

**Reorganizing, Reframing, and Recontextualizing in Other Settings**

The three Rs emerged through the analysis as ways to capture how PROBE simulations unfolded, and how the challenges of interprofessional debriefing were met. The authors re-examined the literature for evidence that these practices are not confined to PROBE. To do this, eight studies in different clinical, educational, and international settings were examined. Details are provided in Table 3, which shows that the three Rs are indeed relevant to diverse simulation-based CE contexts, although they have not been explicitly foregrounded or conceptualized in this way. Together, the three Rs capture important features of CE aiming to promote interprofessional collaborative practice: the need to address fluid roles and responsibilities (reorganize), help professionals expand from an individual to a collective focus (reframe), and collectively commingle knowledge and experience (recontextualize).

**New Ideas for Interprofessional CE**

These findings offer distinctive insights into how simulation can be used to strengthen CE for interprofessional collaborative practice. As Figure 1 shows they are not used in a linear sequence, each creates opportunities for the others.

Each R has implications for the design and conduct of CE for interprofessional practice through simulation; however, the greatest value arguably lies in their use in combination, as happens in PROBE. The fact that existing literature suggests each R can be found in practices elsewhere (Table 3), and that PROBE is based on a well-recognized approach to debriefing suggest that the three Rs might be implemented without significant disruption. A key lesson from PROBE concerns how the three Rs connect to and support each other, as shown in Figure 1. Their intentional use together can help facilitators enrich the interprofessional aspects of debriefing.

The three Rs address a lack of attention to interprofessional matters that have been noted in many debriefing practices. These findings stem from fine-grained study of the process of simulation and debriefing involving interprofessional teams—as has been called for in the literature. The three Rs reveal how the shift from individual to team-based CE can be accomplished in simulation and offer insights that are much needed, given the challenges recognized in conducting debriefing with interprofessional groups.

The three Rs can help professionals give qualitative accounts not only of their practice, but also of their changing understanding of and commitments to working interprofessionally.

Reorganizing points to the importance of constructing scenarios in a way that requires participants to enact the rapidly changing roles and responsibilities that agile interprofessional collaborative practice involves. This will help practitioners meet the demand of flexible roles required in collaborative teamwork. Once educators have designed scenarios that prompt reorganizing, it is helpful to explicitly highlight this in the debrief, so that participants can understand the importance of agile working and reflect on their own shifting roles and responsibilities. One way this can be achieved, as in PROBE, is to begin the debrief with a connective recounting of what happened, rather than a set of role-by-role descriptions. This focuses instead on unpicking the significance of changing ways of responding to and supporting one another, rather than evaluating actions within fixed roles. This extends previous findings that responsibility for action is a fertile focus in debriefs aiming to promote team—rather than individually oriented reflection.

Reframing highlights the importance of CE enabling practitioners to approach complex patient care in a different way. Instead of focusing on their own practice, attention is directed to the challenge of working with others. Participants may need to be guided because instincts may often be to focus on themselves and avoid what they feel might be criticism of others. This can be performed in debriefing by highlighting how particular actions were consequential for others. Facilitators can encourage this by individuals to reflect on how their actions helped others, or asking the group to comment on the value of what a participant did from their perspective in a different role. Doing so importantly goes beyond communication to incorporate mutual understanding of one another's roles.
Recontextualizing reminds us that simulation-based CE can be resourced by encouraging participants to make connections with other situations. However, this needs to be carefully supported as a reflective process of collectively commingling theory and experience to address issues of collaboration. This can then strengthen professionals’ capacity to envision future actions and make commitments in their own practice to improve care and enhance patient safety. Research in interprofessional simulation has found that supporting reflection on alternative practices (ie, different to those performed in the simulation) can strengthen connections between simulation and clinical practice. Recontextualization can be accomplished by referring to participants’ previous experience, as well as what they might do (differently) in future. Although it may be common for participants to refer to “real” practice during simulation debriefs, the recontextualizing that worked so effectively in PROBE had a particular quality: it addressed interprofessional work and connections between practitioners, rather than individual performances in themselves. Expressed differently, this can come down to a shift from “What should I do in future?” to “What should we do in future?” or “What should I do in future as part of an interprofessional team?” Facilitators can encourage insights from clinical practice from all participants, regardless of their professional role or clinical seniority, and thereby use recontextualization as a means to address challenges in interprofessional debriefing of entrenched professional hierarchies and diverse clinical seniority.

Recontextualizing foregrounds what happens in clinical practice, rather than specific individual’s knowledge or status.

**Limitations**

This study is limited through its focus on one particular setting. The PROBE approach to debriefing, while informed by a commonly used model, is also distinctive. Debriefing informed by the three Rs might vary from other approaches, for example, feedback would not necessarily follow the “bandwidth” approach favored in human factors informed practices, where feedback is limited to instances where participants deviate from

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**TABLE 3. Evidence of the Three Rs From Other Published Studies**

<table>
<thead>
<tr>
<th>Study details</th>
<th>Relevant findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reorganizing</td>
<td>Roles in relation to others and the change in responsibilities that happens in response to emergencies (code blue) were found to be a key outcome in terms of increased participant confidence after teamwork education programs. Reorganization of which interprofessional team member is responsible for implementing each sepsis guideline step was a key learning objective; results found participants demonstrated greater appreciation for roles of others, suggesting increased responsibility for guideline implementation should be given to nurses and respiratory therapists, less to physicians.</td>
</tr>
<tr>
<td>Physicians, nurses, and pharmacists surveyed pre/post training to become facilitators in interprofessional education (Canada)</td>
<td>Participants noted that alongside communication and interprofessional relationships, learning to reorganize practices as part of collaboration was important, eg, shifting relationships between nurses and pharmacists in drug management</td>
</tr>
<tr>
<td>Ethnographic study of interprofessional team collaboration in a spinal cord rehabilitation ward (Sweden)</td>
<td>Depending on patient needs, medical doctors, nurses, occupational therapists, and physiotherapists reorganized the way they worked together; in some cases, collaboration unfolded through chains of linked actions, in other cases through development of joint understandings and plans for action.</td>
</tr>
<tr>
<td>Reframing</td>
<td>Discussions between student nurses and student medical doctors involved considering how to approach the problem of practice differently, shifting from a focus on individual actions, to thinking about how their actions influenced others and contributed to teamwork, eg, in relation to oral reports</td>
</tr>
<tr>
<td>Video recordings of 10 simulation sessions with nursing and medical students using high-fidelity manikin; part of 1-day training in two simulation centers (Sweden)</td>
<td>Based on synthesis of multiple analyses from the same study, the authors recommended a change to pedagogical approaches was needed. The suggestion was that participants need to understand why they acted and reflected in particular ways, and this requires them to reframe their discussion to orient around a shared problem of mutually understanding reasons.</td>
</tr>
<tr>
<td>Nursing and medical students in interprofessional simulation.</td>
<td>Synthesis of multiple publications from the study mentioned above</td>
</tr>
<tr>
<td>Interviews and surveys with experienced simulation educators reinfluence of their role on health care (Sweden)</td>
<td>Strong evidence that simulation educators enhance both their clinical practice and their work facilitating CE by commingling theoretical knowledge, experience of clinical practice, and experience of multiple simulation scenarios.</td>
</tr>
<tr>
<td>Interviews with senior midwife, obstetrician, and obstetric anaesthetists about simulation-based CE in multidisciplinary obstetric emergencies (UK)</td>
<td>The simulation “transfer of learning to clinical practice” involved participants commingling theoretical knowledge, past practical experience, and experience from the simulation in the production of “to-do lists” that framed. Commitments to future actions in clinical practice.</td>
</tr>
<tr>
<td>Simulations in paediatric rehabilitation clinics focused on culturally sensitive communication (Canada)</td>
<td>Through discussion, simulated practice, and feedback, participants broadened the context informing their understanding and practice. By commingling the perspectives of different professionals, they were able to identify a wider range of approaches to culturally sensitive communication</td>
</tr>
</tbody>
</table>

CE indicates continuing education.
desired performance. PROBE facilitators often supported discussion of what the team did well, developing insights into the collaborative practices through which this was accomplished and promoting understandings of how particular actions contribute to patient safety. In this way, feedback was as much oriented to securing repeated performance of effective practice as it was to correcting simulated actions for the future.

CONCLUSION

Examining PROBE has been useful to uncover how interprofessional teamwork can be promoted around the use of a standardized protocol in shoulder dystocia. Although there is evidence the practices that were found are present elsewhere, further research would be needed to demonstrate that the three Rs function similarly as means to scaffold teamwork in other emergency situations, or in the use of other protocols.

PROBE exemplifies an innovative, change-oriented approach to CE, backed by robust evidence of quality improvement, professional learning, and enhanced patient safety. The three Rs can inform the design and delivering of CE promoting effective interprofessional collaborative practice across diverse health care contexts.

Lessons for Practice

- The simulation enabled health professionals to learn to use a protocol collaboratively to effectively treat shoulder dystocia.
- Interprofessional collaborative practice was highlighted through a specific approach to debriefing that focused on how individual actions contributed to effective, fluid work as a team.
- Findings from analysis of video data suggest reorganizing, reframing, and recontextualizing may be useful principles for simulation educators to adopt and adapt in debriefing aiming to enhance interprofessional collaborative practice.

REFERENCES