

Using the providers' perspective on video review of neonatal procedures to create a roadmap: a qualitative study

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ABSTRACT

Objective To examine the providers' perceptions and experiences on implementation of video review (VR) of procedures in the neonatal intensive care unit (NICU).

Design Qualitative study using semi-structured interviews with neonatal care providers about their experiences with VR. Interviews were audio-recorded, transcribed and thematically analysed using the data analysis software Atlas.ti V.22.2.

Setting Providers working in the NICU of the Leiden University Medical Center were interviewed during implementation of VR.

Results In total, 28 NICU staff members were interviewed. The interviewed providers appreciated VR and valued the focus on a safe learning environment. Five overarching themes were identified: (1) added value: providers reported that VR is a powerful tool for reflection on daily practice and serves as a magnifying glass on practice, provides a helicopter view and VR with nursing and medical staff together led to new insights and was seen as highly valuable; (2) preconditions and considerations: the existing culture of trust on the NICU positively influenced providers' perception; (3) adjustment: it was recommended to first let providers attend a VR session, before being recorded; (4) experiences with VR: suggestions were made by the providers regarding the preparation and organisation of VR and the role of the chair; (5) embedding VR: providers considered how to embed VR on the long-term while maintaining a safe learning environment and provided suggestions for expanding.

Conclusion Neonatal care providers appreciated the use of VR and provided viewpoints on how to implement VR successfully, which were used to develop a roadmap with recommendations.

INTRODUCTION

Video review (VR) is an effective method for improving quality of care as it visualises the setting and context in which care is provided.^{1–5} This is especially valuable in fast-paced and dynamic work environments, such as the neonatal intensive care unit (NICU), where it is difficult to reflect on the provided care.^{6–7} Yet, acceptance of VR can be hindered by feelings of embarrassment or anxiety for receiving negative feedback when someone is recorded.^{1–8–10} Previous studies showed that acceptance of video recording is based on educational usefulness and on the manner in which the VR conferences are conducted.^{8–11}

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Video review using real-time video recording in healthcare is not general practice, which may be partially explained by feelings of embarrassment, anxiety or concerns regarding video review.
- ⇒ Team acceptance of video recording is based on educational usefulness and on the way the video review conferences are conducted.

WHAT THIS STUDY ADDS

- ⇒ Neonatal care providers appreciated video review of neonatal procedures and recognised its added value.
- ⇒ They provided several viewpoints on how to implement video review sessions with regard to a safe learning environment, which were used to develop a roadmap with recommendations.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ The roadmap with recommendations can help provide direction for future use of video review and for implementation of video review in other emergency or intensive care settings.

VR has been implemented in the NICU of the Leiden University Medical Center (LUMC) in 2014, traditionally focusing on technical aspects of neonatal stabilisation at birth, with mostly medical staff attending.⁴ From 2021 onwards, VR has been expanded with audio and room-view recording of the delivery room to enable assessment of communication and teamwork. Additionally, procedures in the NICU environment were recorded as well. We extended VR to include all who were involved in hands-on care, putting emphasis on engaging the nursing staff in the sessions. This expanded way of VR might also influence the perception of the providers. In this study, we aimed to gain an understanding in providers' perceptions and experiences of VR.

METHODS

Setting

This prospective qualitative study was conducted at the NICU of the LUMC, a tertiary level perinatal centre with an average of 850 admissions per year. Neonatal procedures (i.e., stabilisation



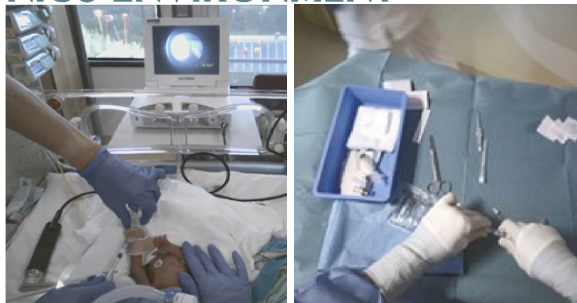
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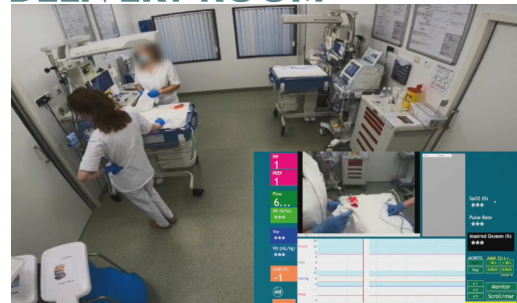
1. RECORD



NICU ENVIRONMENT



DELIVERY ROOM



2. PREVIEW WITH PROVIDERS WHO WERE RECORDED



3. VIDEO REVIEW

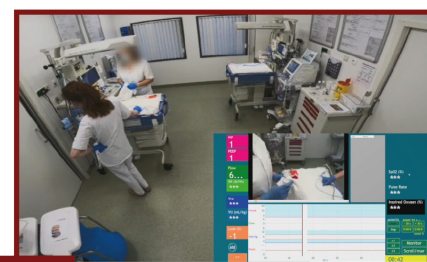


Figure 1 (1) Procedures are recorded in the delivery room with two fixed cameras and in the neonatal intensive care unit (NICU) environment with eye-tracking glasses. (2) Videos are previewed with the recorded providers. After consent from providers, the video review session is prepared together with these providers. (3) Video review session, called *Neoflix*. Medical and nursing staff are invited.

in the delivery room, endotracheal intubation, surfactant administration and sterile line insertion) were audio-visually recorded (figure 1, online supplemental file 1). Recordings were part of the medical record of the patient and/or solely used for quality improvement, so no patient consent was asked. Parents were given the opportunity to view recordings with a staff member and to request a copy. If parents were visible in the recording, consent for usage of the video in VR was obtained.

Consent from providers was obtained before recording and use of the recording in VR. Providers had to manually turn recording equipment on. Our set-up was focused on preparing the session together with the recorded providers

and the decision to use a recording in VR was emphasised to be voluntary. Sessions were called *Neoflix* sessions, for the positive connotation and lasted 30 min. VR was organised once every 2 weeks and all providers were invited to participate. A safe learning environment during VR was emphasised by having a dedicated chair who guided over the discussion. We trained five experienced members of the medical and nursing staff, who alternately chaired the sessions. After each VR session, the role of the chair was evaluated. In addition, 'Feedback rules' were set out and used during the session: (1) be specific and to the point, (2) describe the situation without judgement and, (3) focus on behavioural aspects, not on personal aspects.

Box 1 Reflexivity statement

Interviews were conducted by VH, who was a PhD student, doing research on video review (VR) in the neonatal intensive care unit (NICU). She had a medical background but was not involved in hands-on care on the NICU. However, she was a member of the VR team. It was noted that, on the one hand, some providers might be reluctant to be critical because of the researcher position, but on the other hand, a familiar face also facilitates rapport with providers. This pitfall was managed by asking participants specifically to speak freely about all perspectives on VR, especially concerns. Throughout the research process, VH was supervised by RSW and ABtP, both senior medical providers who have worked in the NICU for over 15 years, and had experience in qualitative research. In addition, researcher triangulation²² was used to verify the analysis during consensus meetings with the VR study group (consisting of members of the medical staff, nursing staff, a physician assistant and a member from the quality and patient safety department). The VR study group has been created to represent all disciplines in the NICU.

Data collection

During the study period, providers were (face-to-face) approached to participate in an interview, using a semi-structured interview guide with open-ended questions (online supplemental file 2). The interview guide was pilot tested before start of the study. Topics discussed included experiences with being recorded, participating in VR, practical aspects, learning from VR and future perspectives. All providers consented to study participation. Reflexivity on how the research team may have affected the research process is presented in box 1. To achieve maximum variation in the study sample, providers were selected through purposive sampling to cover a range of potentially relevant perspectives, until thematic saturation was achieved.¹² All interviews were performed by VH. Interviews were audio recorded, manually transcribed and deidentified. Observational memos were written after each interview, describing the interviewer's impression of the main themes and context.

Analysis

Thematic analysis was used to identify patterns in the data.^{13 14} First, observational memos were used as a starting point for data analysis. All interviews were thoroughly read, and a brief abstract of the key storylines and conceptual interview scheme was written. Concepts were compared within interviews and across interviews. VH and RSW discussed the concepts, and a list of initial codes was generated. After discussing the codes, VH and RSW coded five interviews independently. Any discrepancies between coding were discussed and agreed on to ensure consistent coding. Subsequently, all remaining interviews were coded by VH using the qualitative data analysis software program Atlas.ti V.22.2. This tool was used for coding, recoding and the creation of a framework showing how codes and themes interact, to support interpretation of data. After review of initial codes in consensus meetings with the VR study group, codes were grouped by themes. The list of emerged themes and subthemes was confirmed during a final consensus meeting.

RESULTS

From December 2021 until September 2022, 18 VR sessions were organised. In this period, six sessions focused on videos of neonatal resuscitation, six on line insertion and six on

Table 1 Baseline characteristics

	N
Providers who were interviewed	28
Male (%)	6 (21)
Age mean (range)	41 (23–63)
Years of experience in NICU mean (range)	14 (1–37)
Experience with being recorded	
Participated in video review sessions but has not been recorded (%)	7 (25)
Has been recorded in actual care and participated in video review sessions (%)	21 (75)
Staff members	
Consultant neonatologist (%)	7 (25)
Neonatal fellow (%)	2 (7)
Physician assistant (%)	2 (7)
Registered nurse (%)	9 (32)
Nurse in training (%)	2 (7)
Paediatric resident (%)	6 (21)

Categorical data are presented as n (%).
NICU, neonatal intensive care unit.

endotracheal intubation/surfactant administration. During the study period, the NICU team consisted of about 125 members of the medical and nursing staff in total, of which 101/125 (81%) attended at least one or more *Neoflix* sessions. A total of 28 NICU staff members were interviewed, including consultant neonatologists (7), fellows (2), physician assistants (2), registered nurses (9), nurses in training (2) and paediatric residents (6) (table 1). Interviews lasted on average 20 min (range 12–43 min).

All interviewed providers appreciated VR and valued the focus on the safe learning environment. Five overarching themes were identified: (1) added value of VR, (2) preconditions and considerations, (3) adjustment to VR, (4) experiences with VR and, (5) embedding VR. Themes and illustrative quotes are presented in table 2.

Added value of VR

Interviewed providers reported that VR is a powerful tool for reflection, as it served as a magnifying glass on practice. Through VR, providers obtained an overview on procedures. They could see what they did unknowingly, how they interacted with each other or the context of the situation. Some providers commented that VR gave them a more realistic sense of time. This 'helicopter view' added a new dimension to reflection on practice. Providers described how VR visualised variety that occurred in practice, which, consequently, led to competence enhancement. Some of the respondents took little tips and tricks from each session or applied findings in their clinical practice immediately. Providers expressed that they valued the interaction between members of the medical and nursing staff during VR. The sessions transformed into a 'platform' where they could discuss with all providers involved in hands-on care, which led to new insights, such as differences in use of equipment or how providers are trained to perform the medical procedures. Providers considered regular VR sessions as beneficial for the work environment.

Preconditions and considerations

Interviewed providers identified several factors to be considered before implementing VR. Providers expressed that within their NICU team there was an already existing culture where they

Table 2 Themes, subthemes and illustrative quotes

Themes	Subthemes	Illustrative quotes
Added value	Magnifying glass	"When it comes to a specific procedure, there appears to be a lot of variation in how the procedure is performed. Even though I have worked here for quite a while, when I see other colleagues working, I still learn new tricks". Physician Assistant (P8)
	Competence enhancement	"I still remember, after that Neoflix, I assisted during a stabilization and then I said, 'Okay, what do you expect from me? Should I do this?' And then I thought, 'Yes! I applied it in practice'". Nurse in training (P9)
	Overview	"There is more overview [during video review], whereas normally your view is restricted to what you remember. There is also more sense of time, because you can see how long the video takes. In my opinion, you always think things take longer than they do in real life". Consultant neonatologist (P7)
	More openness	"In my opinion, a team improves in a way that is not measurable. Through video review, openness within a team is created. Here you can give feedback to each other, which leads to better teamwork". Consultant neonatologist (P17)
	Learning from other disciplines; nursing staff	"Sometimes I don't have a clear understanding of what medical staff pays attention to when inserting an umbilical line, because I think, 'well that's their thing'. But then, I experienced that it is beneficial to learn more about how their actions work, the discussions about why they do certain things etc". Registered nurse (P22)
	Learning from other disciplines; medical staff	"You always work together with the nurses, so you have to look at these things [videos] together because the issues or things we notice may be seen slightly differently by them". Paediatric resident (P24)
Preconditions and considerations	Existing culture	"I believe that within the team, there is a sense of community. That you praise each other and you are there for each other when things are not going well ... This is a safe way of reflecting, as it stays within the team". Consultant neonatologist (P18)
	No hierarchy	"It does not feel like there is a difference between personnel. Maybe you notice that doctors ask different questions as opposed to nurses, but they also play a different role. You don't really notice a difference in hierarchy. From what I've seen, everyone is respectful". Registered nurse (P28)
	Effect of camera on providers	"In the beginning, I was aware for a moment that I was being recorded. But I actually lost that feeling during the procedure, as you are in your role anyway. You don't have time to think about being recorded because you have to pay attention to what you are doing". Registered nurse (P20)
	Audio	"I think audio is essential, otherwise you would miss half of it. But it has to be safe for everyone". Consultant neonatologist (P26)
Adjusting to video review	Let providers experience video review	"I did find it difficult in the beginning, when the project was announced. However, now that I have attended the review sessions, I have changed my mind. Because I see the added value and it makes sense to reflect in a situation like that. You can learn from it". Registered nurse (P12)
	Recording procedures takes time	"Yes, it takes a little more time. If you're really in an emergency situation then you won't remember or it is not a priority. So that is a barrier". Fellow (P16)
	Maintaining safety	"It is the next step, of course. That makes it even more important to maintain a safe learning environment within the team you are reviewing the video with. It must be safely stored, but also discussed in a safe way". Physician assistant (P8)
	Consideration of individual factors	"Recording has little effect on me. Not in a good or bad way. I still have so much to learn that I am very conscious of the things I do. And people are usually already present and watching [during a procedure]. So it feels kind of normal". Paediatric resident (P3)
Experiences with conduct of video review	Preparation	"Those who put themselves in a vulnerable position, by making a video that is reviewed by others, should at least be given the time to learn as much as possible from it. So it will contribute to that person and their personal learning. I also think it is nice if you're there [at the review session] yourself. That adds value, also for context, and you can learn from it together". Paediatric resident (P3)
	Organisation	"I think [the organization of video review] is pretty good as is. In terms of time as well, you notice that when the sessions take longer, it becomes tedious. And in terms of preparation I also like it. That you take a moment to see the video and afterwards, you give input". Registered nurse (P28)
	Chair	"That one time there was a heated discussion, and I felt like, 'wow', but neither of them seemed bothered by it so that made a difference. Like today, it was very relaxed and I felt invited to contribute to the discussion". Registered nurse (P7)
Embedding video review	Expanding	"I would like for us to continue with video review, that it becomes embedded. There are so many good things about it and it contributes to the whole learning environment. I think on the long term it will be even more beneficial". Registered nurse (P27)
	Driving improvement	"Some [providers] see things in a binary way, when actually, something is a tip or variation in care. Only if something is really an adjustment should it be added to the protocol. If it is just a tip, you can send it via email or make a poster". Consultant neonatologist (P1)
	Safe learning environment	"I think the longer you do this, the more comfortable people will feel and the less people will pay attention to safety. It could become a kind of thing where you can say anything to each other, even though not everyone feels safe when being recorded. So I think the longer you do this, the more you have to be cautious with regards to safety". Consulting neonatologist (P5)

felt safe and trusted each other, which applied to both nursing and medical staff. This culture contributed to the experienced safe learning environment during VR, and made it easier for providers to give consent to record a procedure. Some providers reported feeling proud for being able to do VR with their team. Several success factors were noted, such as how VR included everyone on the NICU team and experiencing no hierarchy during sessions.

However, providers expressed concerns about striving for perfection of procedures performed in VR. They noted that the focus should instead be more on learning together from the procedure and the specific context in which it was performed. The way in which healthcare providers were affected by the camera varied. Some did not mind being recorded or even considered it could have a positive influence, whereas others reported to feel nervous initially. Nevertheless, all providers noted that awareness of the camera faded as soon they focused on their task during the procedure. They agreed that the expansion of VR with audio-visual, identifiable recordings was beneficial as

it gives a more comprehensive view on what occurred during a procedure, provided that consent is given beforehand and a safe learning environment during VR is ensured. No legal concerns or concerns regarding privacy were reported by the interviewed providers.

Adjusting to VR

Not all procedures are recorded by providers on the NICU. Providers reported that the reason for not recording a procedure was often limited time for preparation, that it was forgotten or technical illiteracy. It took less time to prepare with the fixed cameras in the delivery room as these cameras only had to be switched on, whereas the eye-tracking glasses had to be retrieved and brought to a NICU room before they could be used.

Feelings of trust, especially among nursing staff, were enhanced by allowing providers to first attend some sessions and experience VR, before being recorded. Providers who were recorded multiple times felt no distress to be recorded again

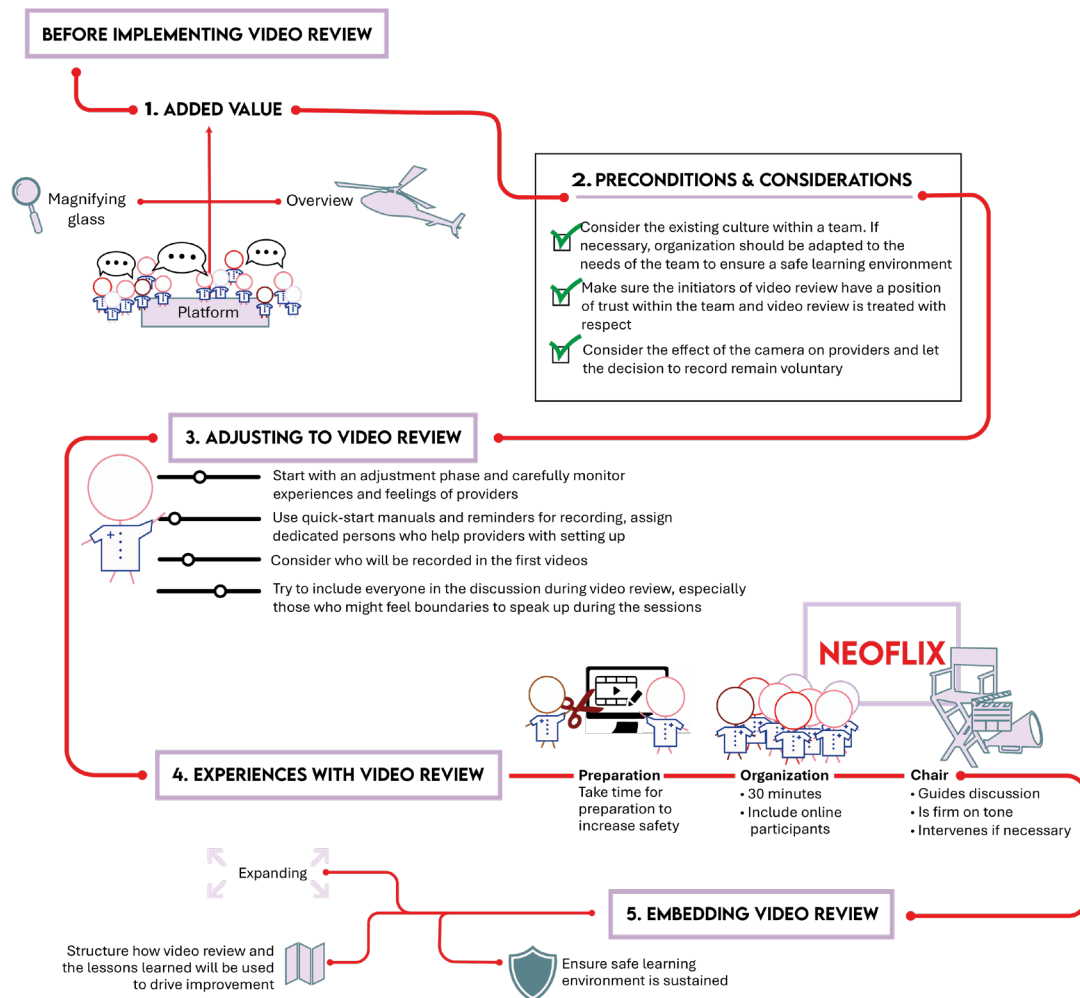


Figure 2 Roadmap with recommendations.

or for their video to be reviewed. The neonatal care providers noted that VR is valuable, and the next step in reflecting on care. It was deemed important to emphasise that videos are viewed in a safe learning environment and not shown elsewhere. Denying consent should always remain possible. Consultants cautioned for recording residents, who were still in training. However, the interviewed residents in training considered VR as an extra learning opportunity.

Experiences with conduct of VR

Previewing the video was highly appreciated by interviewed providers, as well as having a choice whether the video would be used for VR or not. Preparing the session with the recorded providers and them being present during the plenary session to give necessary context, contributed to feelings of safety. Providers appreciated how sessions were structured with a chair guiding the session and a set time frame. Some providers suggested giving more guidance on what to focus on during VR. Although organising VR in a hybrid way allowed extra providers to attend the session online, engagement was difficult for the online providers and non-verbal communication was missed.

Providers felt that the main task of the chair was to ensure a safe environment, in which everyone would treat each other respectfully. For this, feedback rules were considered essential. In addition, some providers stated that they appreciated the (non-) verbal invitation of the chair to contribute to the discussion. It

was noted that not everyone has the courage to say something during a session and might need extra invitation. Providers expressed that the chair should be firm on the tone of the discussion and intervene where necessary, which was considered not to inhibit providers to participate.

Embedding VR

Interviewed providers regarded VR as a valuable tool for quality improvement. Providers gave input on how they would expand VR to other procedures, for example, by recording thoracic drain placement or lumbar puncture, or using the nurse's perspective to record with eye-tracking glasses. Some expressed that videos could be used for training or as educational material. Providers suggested using parents' viewpoints on videos as input for VR sessions, for instance, by providing insight into how parents are involved during neonatal resuscitation and how communication to parents during procedures can be improved. Providers agreed that tips and tricks coming from VR should be communicated via a newsletter or poster. For findings that prompted changes in practice, it was suggested to first obtain consensus in staff meetings. Providers stressed that when VR becomes embedded on a department, it is important to maintain monitoring a safe learning environment.

DISCUSSION

In this study, we evaluated the experience of providers during implementation of an expanded way of VR of neonatal

procedures. The interviewed providers considered VR to be of added value and provided several viewpoints on how to implement VR while maintaining a safe learning environment. Using these viewpoints, we developed a roadmap for implementing VR with recommendations (figure 2). VR brought together the different disciplines working on the NICU and empowered them to evaluate and improve care together, which was highly appreciated by interviewed providers.

In concordance with previous studies, VR was seen as a valuable method for reflection.^{15–17} Our results demonstrate that implementation of VR can be divided into different phases. Our findings confirm other reports emphasising the importance of explaining to providers the necessity of VR and to build a sense of safety before implementation.^{1 18} In our study, providers' feelings of trust were enhanced when they were allowed to experience a review session first, before they were recorded. Previous research showed that recording can improve clinical performances and increase anxiety.^{9 16 19–21} In our study, not every interviewed provider was initially influenced by the camera in the same way. All providers reported that awareness of the camera faded as soon as the procedure began, which could be attributed to the emergent nature of the recorded procedures. Nevertheless, personal characteristics or preferences should be taken into account when conducting the first review sessions.

Interviewed providers valued the double consent for both recording and reviewing procedures. This probably contributed to the fact that they were not concerned about showing their recording in the plenary VR session, which is in contrast to findings in previous studies.^{8 10} Our set-up was focused on preparing the session together with the recorded providers and that the decision to record and review was emphasised to be voluntary. Although this was considered beneficial for the feeling of safety, it was also more time-consuming. Similar to previous studies,^{10 15} providers stressed that preconditions for a safe learning should be met, also on the long term, when VR becomes embedded.

As providers were already used to being recorded in our NICU, they may have been less apprehensive about VR.¹⁵ However, the usage of identifiable videos and discussing these with members of the medical and nursing staff together was new to all providers. Strengths of this study include that data were collected prospectively during implementation, reducing the risk of recall bias. Providers were selected through purposive sampling for interview, and no one declined participation. It is possible that researcher bias may have occurred. However, providers shared both positive and critical notes on VR and we put emphasis on including a variation in perspectives and characteristics of providers in the study. Our study did not demonstrate any legal concerns or concerns regarding privacy, which could be explained by the exposure to VR since 2014 without having encountered any medicolegal issues. Acceptability of VR is highly dependent on specific characteristics of a department and VR set-up.^{10 15 21} Therefore, future studies are necessary to determine if our approach and recommendations are applicable to other units as well.

CONCLUSION

VR of neonatal procedures on a multidisciplinary level is considered to be of added value and empowered providers to improve care together. Providers provided several viewpoints on how to implement VR sessions with regard to a safe learning environment, which were used to develop a roadmap with recommendations.

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Patient consent for publication Consent obtained directly from patient(s).

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REFERENCES

- Lloyd A, Lowe DJ, Edgar S, et al. Video recording in the emergency department: a pathway to success. *Emerg Med J* 2017;34:628–30.
- Iedema R. Creating safety by strengthening clinicians' capacity for reflexivity. *BMJ Quality & Safety* 2011;20(Suppl 1):i83–6.
- Skäre C, Boldingh AM, Kramer-Johansen J, et al. Video performance-debriefings and ventilation-refreshers improve quality of neonatal resuscitation. *Resuscitation* 2018;132:140–6.
- den Boer MC, Martherus T, Houtlosser M, et al. Improving the Quality of Provided Care: Lessons Learned From Auditing Neonatal Stabilization. *Front Pediatr* 2020;8:560.
- Makary MA, Xu T, Pawlik TM. Can video recording revolutionise medical quality? *BMJ* 2015;351:h5169.
- Simma B, den Boer M, Nakstad B, et al. Video recording in the delivery room: current status, implications and implementation. *Pediatr Res* 2021;2021:1–6.
- Yamada NK, Kamlin COF, Halamek LP. Optimal human and system performance during neonatal resuscitation. *Semin Fetal Neonatal Med* 2018;23:306–11.
- Davis L, Johnson L, Allen SR, et al. Practitioner Perceptions of Trauma Video Review. *J Trauma Nurs* 2013;20:150–4.
- Parish SJ, Weber CM, Steiner-Grossman P, et al. Teaching clinical skills through videotape review: A randomized trial of group versus individual reviews. *Teach Learn Med* 2006;18:92–8.
- Rosvig LH, Lou S, Hvidman L, et al. Healthcare providers' perceptions and expectations of video-assisted debriefing of real-life obstetrical emergencies: a qualitative study from Denmark. *BMJ Open* 2023;13:e062950.
- Douglas SL, McRae A, Calder L, et al. Ethical, legal and administrative implications of the use of video and audio recording in an emergency department in Ontario, Canada. *BMJ Innov* 2021;7:224–30.
- Malterud K. Qualitative research: standards, challenges, and guidelines. *Lancet* 2001;358:483–8.
- Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006;3:77–101.
- Dierckx de Casterlé B, Gastmans C, Bryon E, et al. QUAGOL: A guide for qualitative data analysis. *Int J Nurs Stud* 2012;49:360–71.
- den Boer MC, Houtlosser M, Foglia EE, et al. Benefits of recording and reviewing neonatal resuscitation: the providers' perspective. *Arch Dis Child Fetal Neonatal Ed* 2019;104:F528–34.
- O'Donnell CPF, Kamlin COF, Davis PG, et al. Ethical and legal aspects of video recording neonatal resuscitation. *Arch Dis Child Fetal Neonatal Ed* 2008;93:F82–4.
- Dumas RP, Vella MA, Hatchimonji JS, et al. Trauma video review utilization: A survey of practice in the United States. *Am J Surg* 2020;219:49–53.
- Lloyd A, Dewar A, Edgar S, et al. How to implement live video recording in the clinical environment: A practical guide for clinical services. *Int J Clin Pract* 2017;71.

- 19 Carbine DN, Finer NN, Knodel E, *et al.* Video recording as a means of evaluating neonatal resuscitation performance. *Pediatrics* 2000;106:654–8.
- 20 Lowe DJ, Dewar A, Lloyd A, *et al.* Optimising clinical performance during resuscitation using video evaluation. *Postgrad Med J* 2017;93:449–53.
- 21 Davis L, Johnson L, Allen SR, *et al.* Practitioner perceptions of trauma video review. *J Trauma Nurs* 2013;20:150–4.
- 22 Boeije HR. Analysis in qualitative research. *Analysis in Qualitative Research*;2009:1–240.