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Parents as protectors: Experiences during intact cord resuscitation in the mother's bed

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ABSTRACT

Introduction: Intact cord resuscitation promotes zero separation and facilitates skin-to-skin contact, regardless of delivery mode. Therefore, this study aims to illuminate parents' experiences of intact cord resuscitation in the mother's bed.
Method: Interviews with seven mothers, one father and seven couples were analysed using Lindseth and Norberg's phenomenological hermeneutics.
Results: The analysis revealed one overarching theme, *Guardians of the neonate when the unexpected happens: Parents navigating between involvement and anxiety*. Two themes emerged: *The emotional impact* and *The necessity of ongoing communication and information.*
Conclusion: Parents in critical situations during intact cord resuscitation experienced positive outcomes by means of being able to be close to their neonate and witness the critical situation. When parents receive information in a clear and reassuring manner, it can help reduce their anxiety and increase their sense of control during a challenging period.

1. Introduction

Neonatal cardiopulmonary resuscitation is required when the neonate is born non-vigorous or preterm. However, it is still common that the neonate in need of resuscitation is immediately moved to a separate room outside the birth room at some distance from the mother to receive intensive care from neonatal healthcare professionals (NHCPs) (Madar et al., 2021; Trevisanuto et al., 2022). Separation of parents and neonates after birth takes place when it is assessed that neonatal cardiopulmonary resuscitation is required, frequently described by parents as an overwhelming experience (Sawyer et al., 2015). Receiving information together about their child's condition was important for parents' sense of being a family. When separation occurred, it prevented the parents from supporting each other as they might have done during intact cord resuscitation (ICR) and afterwards when information was provided (Brødsgaard et al., 2024).

ICR take place in the mother's bed in the first three to 5 min of life to maintain placental circulation, thereby reducing the risk of hypoxia and neonatal mortality in late preterm and term neonates (Andersson et al., 2019; Katheria et al., 2017). The practice of ICR follows established national guidelines for neonatal cardiopulmonary resuscitation (Swedish Neonatal Society, 2022) and aims to provide for immediate assessment at birth. If the neonate does not respond despite effective ventilation and chest compressions, the NHCPs may need to perform advanced resuscitation, such as intubation or medical administration. The practice of ICR fosters zero separation and facilitates skin-to-skin contact (Bergman, 2019), which is recommended regardless of birth mode (World Health Organization [WHO], 2014). Infant- and family-centred developmental care creates a nurturing environment and reduces stress for the newborn and parents, as well as improving the bonding process (WHO, 2021).

Van Veenendaal et al. (2022) studied the association of the family integrated care model with maternal mental health at hospital discharge of preterm neonates compared with standard neonatal care. The result revealed that parental participation significantly reduced maternal depression and anxiety, and improved maternal, self-efficacy and

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mother-newborn bonding. Accordingly, parents' experiences of ICR were positive because they were informed about what was going on and were able to touch their neonate immediately after birth and throughout resuscitation (Sawyer et al., 2015). Avoiding separation of the neonate from the parents at birth is significant. Therefore, it is crucial for birth and neonatal units to organize and plan the care with the goal of zero separation for all neonates (Klemming et al., 2021). ICR requires training to ensure effective collaboration between obstetric and NHCPs when planning and organizing the care in accordance with family integrated care (Madar et al., 2021).

A recent interview study that aimed to exploring NHCPs' experiences of providing ICR in the mother's bed found it can be challenging in several ways, such as emotionally due to witnessing the parents and neonate vulnerability, managing environmental circumstances as well as effective teamwork. However, NHCPs' experiences were mainly positive, and they were aware that ICR had significant benefits for the neonate, namely zero separation between the newborn and parents and better physical recovery (Bäcke et al., 2023; Patriksson et al., 2024a). To the best of our knowledge, there are few studies that describe parents' experiences of ICR for neonates. Therefore, this study highlights the unique issues associated with parents' presence during ICR and the significance of explaining and understanding parents' experiences of neonatal intensive care in the mother's bed, which may inform clinical decisions to support parents and enable them to better manage this critical situation. We conducted this qualitative study to describe parents' own experiences of ICR in the mother's bed as part of a multi-centre national research program entitled the Sustained cord circulation And Ventilation (SAVE) study aimed at implementing and evaluating ICR for all neonates in Sweden. The SAVE study seeks to identify outcomes associated with the intervention of ICR. The findings are intended to inform clinical practice and contribute to the development of evidence-based guidelines for the management of the target condition (Ekelöf et al., 2022; Isacson et al., 2021).

2. Aim

The aim was to illuminate parents' experiences of intact cord resuscitation in the mother's bed.

3. Methods

3.1. Design

A phenomenological hermeneutic approach by Lindseth and Norberg (2004, 2022) was chosen to elucidate the meaning of life-world phenomena and address the aim of the study.

3.2. Participants and settings

The participants consisted of mothers and fathers whose neonates received ICR at birth. They had consented to participate in the SAVE study either at antenatal clinics or at the birth ward. Of the interviews conducted, seven were with mothers, one with a father and on seven occasions mothers and fathers were interviewed together (Table 1). The mothers gave birth at six different birth units, all of which were included in the SAVE study. The healthcare professionals (HCP) involved in ICR consisted of neonatal nurses, midwives, physicians and assistant nurses within neonatal and obstetrical care. The SAVE procedure takes place in the mother's bed when the condition of the neonate and mother is appropriate (Ekelöf et al., 2022).

3.3. Procedures

The participants were contacted by phone and the last author (KP) gave them oral information about the interview study. If they agreed to participate written information was sent to their home address. The interviews were performed between November 2021 and April 2024. The participants could choose a physical location, digital media such as Zoom or telephone as well as a time for the interview. Of the interviews 14 were conducted via zoom and one at the neonatal unit. All interviews were conducted by KP and began with the open question: *Can you please share your experiences of when your neonate needed intact cord resuscitation in your bed/or close to you?* Further narration was encouraged by asking Who? What did you feel? What happened next? The interviews lasted from 12 to 38 (mean 24) minutes.

Table 1
Overview of demographics of the participants.

Participants	Age	Neonate GW	Neonate age (days and months)	Neonate weight	Sibling
P.1 mother	32	41 + 1	10 m	3650 g	1
P.2 mother/ father	36/ 42	39 + 0	5 m	3970 g	2
P.3 mother/ father	28/ 31	39 + 4	1 m	3746 g	1
P.4 mother	31	36 + 6	5 m	3050 g	1
P.5 mother	32	39 + 3	3.5 m	4425 g	1
P.6 mother	39	42 + 0	9 m	3665 g	3
P.7 mother	38	40 + 4	9 m	3660 g	1
P.8 mother	38	41 + 3	18 m	3728 g	0
P.9 mother	27	40 + 6	4 m	4850 g	0
P.10 mother/ father	21/ 32	40 + 2	3 m	3965 g	0
P.11 mother/ father	34/ 36	41 + 4	3.5 m	4352 g	1
P.12 father	31	40 + 2	4 m	3695 g	0
P.13 mother/ father	27/ 29	39 + 1	4 m	4484 g	1
P.14 mother/ father	29/ 35	41 + 3	2 m	3605 g	0
P.15 mother/ father	30/ 31	40 + 0	2 d	4504 g	1

3.4. Analysis

The analysis process consisted of three phases: naïve reading, structural analysis and comprehensive understanding of the transcribed text, followed by interpretation. In the naïve reading, the text was read several times to obtain a broad overview of the content and grasp its meaning as a whole. Before starting the structural analysis, the authors (MR and KP) discussed their preunderstanding based on their long experience in neonatal and maternity care. When the structural analysis began the text was read carefully with reference to the aim and similarities and differences were identified. The meaning units that emerged were grouped into subthemes that in turn were grouped into themes and finally an overarching theme (Table 2). In the comprehensive understanding the overarching theme, theme and subthemes were reflected on in relation to the research question and preunderstanding (Table 3).

5. Results

5.1. Naïve reading

Parents who witnessed the successful ICR of their neonate in the

Table 2
Example of the structural analysis.

Meaning unit	Condensation	Subtheme	Theme
We could hold hands and he could sense my heart, that he was still with his mother. It was cool that when he then stabilized and they put him on me, he became calm.	Physical calmness	Closeness	Shielding the neonate

Table 3
Themes and subthemes related to explaining about and understanding parents' experiences of intact cord resuscitation in the mother's bed.

Overarching theme	Guardians of the neonate when the unexpected happens: Parents navigating between involvement and anxiety	
Themes	The emotional impact	The necessity of ongoing communication and information
Subthemes	Shielding the neonate Sensing responsibility for the neonate	Understanding what is happening Experiencing thoughts and feelings at home

birth room described a profound sense of relief and gratitude, transforming a moment of intense fear into one of immense joy and appreciation. This positive outcome significantly shaped their perception of the entire birth experience and had a lasting impact on their emotional and psychological wellbeing.

5.2. The emotional impact

5.2.1. Shielding the neonate

The parents felt a strong closeness to their neonate during the ICR, with the mother experiencing her body as a source of protection and support. This included placing her hand on the neonate's back during the resuscitation, which fostered a sense of involvement and comfort. Parents expressed that it felt safe to witness the ICR, hearing and being close to their neonate, allowing them to follow what was happening. A father expressed; "I felt it was great to be so close. Regardless of how it had turned out and even if it had gone badly, I would have wanted to be there before taken her away" P2.

However, they also experienced worry and anxiety when the neonate did not make any sounds or cried. In these moments, the HCPs acted in silence, making it difficult for the parents to perceive the seriousness of the situation. The experience of being close to their neonate and able to touch and witness the event had a profound impact, alleviating feelings of helplessness. A mother expressed:

"I also think about the enormous sense of security when the neonate is in the womb, and then comes out to a completely unfamiliar world, and then returns to the safety of the mother's comforting chest". P8.

The parents noted that if the neonate had been separated from them, the uncertainty about the neonates' condition would have been even more challenging. Separation hindered their ability to be close and there for the neonate, as well as supporting each other in a vulnerable situation. This visibility, despite the anxiety it may cause, transformed them from passive observers into active participants in their neonate's care, which can be empowering amidst fear and uncertainty.

5.2.2. Sensing responsibility for the neonate

Even when the HCPs informed them that the critical situation was under control, the parents still experienced anxiety. This was related to motherhood and the sense of being responsible for the neonate. Some mothers felt isolated during the ICR, describing a feeling of being in a vacuum, while the father provided information afterwards. Occasionally, updates were slightly delayed due to the ongoing ICR, but when the HCPs recognized the mother's concern, they created calmness and provided information despite the stressful environment and critical situation. Some parents struggled when multiple HCPs were present, as they sometimes received different information about the neonate's condition. A mother expressed; "But then a lot of HCPs came, and did everything they could, and they came so quickly. I knew there was nothing more we could do. I could not do anything; I could only rely on them. Therefore, I felt quite calm and did not feel the anxiety that I would usually feel in such situation". P5.

When the neonate was transferred to the neonatal unit with the father, the mother, who remained in the birth room, did not receive immediate updates. This resulted in a feeling of anxiety and loneliness at being unable to take responsibility for their neonate. A mother expressed:

"I just lay there thinking that I need to get information and then I said so because they came in and checked me a little from time to time. I said I need my phone because I need to know what is going on in the neonatal unit" P6.

To gather information about the neonate, the mother relied on the ongoing updates from the father. Some mothers reported incredible fatigue after birth, which affected their receptiveness to information, leading them to trust that the HCPs were doing their best for the neonate.

5.3. The necessity of ongoing communication and information

5.3.1. Understanding what is happening

Witnessing the ICR process, while distressing, allowed parents to stay informed about their neonate's condition in real-time. Obtaining adequate and timely information was crucial for the parents during the ICR. It was essential for the parents that HCPs provide all necessary information rather than selectively sharing details. Ongoing communication was even more important when the mother could not see what was happening to her neonate. A mother expressed:

"When I begin to understand the situation that they needed to perform ICR in the birth room, I did not know how I would react to it, because I am a very sensitive person." P4.

Parents sometimes felt they had to initiate questions to receive continuous updates. They found the information credible but feared disturbing the ICR or delaying the HCPs' work. Parents' experiences of communication during the ICR are closely tied to the clarity, empathy and professionalism demonstrated by HCPs. Thus clear, timely and compassionate communication is crucial during such distressing moments. When HCPs provide concise information about what is happening, the reasons behind each action and expected outcomes, alleviated some of the overwhelming fear and ambiguity.

Calm and focused behaviour from the HCPs instilled hope and a sense of control, even in critical situations. Conversely, if communication is lacking or overly technical, parents felt isolated, anxious and uncertain about the outcomes. Signs of stress, urgency, silence, or uncertainty from the healthcare team further intensified their fear.

5.4. Experiencing thoughts and feelings at home

Seeing the neonate in critical condition during the ICR was a memory that returned when the parents were discharged from the neonatal unit. They did not regret witnessing the resuscitation, but often no one inquired about their well-being afterwards. Some parents were offered someone to talk to after birth but declined. A few of those who declined said that they did not plan to have more children. Accordingly, those who intended to have more children felt it was important to process their experiences. However, upon returning home, they reflected on the possibility that having a dialogue about the birth might have been beneficial in the birth room, but the presence of several HCPs inhibited their ability to ask questions, leaving them with unresolved concerns when they got home. Parents described an overwhelming sense of fatigue following the ICR of their neonates. While they did not feel that professional help was necessary, they experienced a delayed emotional reaction. A father expressed;" So, there were a lot of surprises for me, powerful emotions and all that" P2.

Despite this, they also felt happiness that their neonate was doing well and appreciated the professional competence demonstrated by the healthcare team during the ICR.

5.5. Comprehensive understanding

Parent's experiences of ICR in the mother's bed varied from having the opportunity to protect the neonate, to experiencing safety when they were supported by HCPs. Parents were grateful about not being separated and that the neonate was given professional care by all HCPs who collaborated during the resuscitation in the mother's bed. Being close meant a feeling of being able to protect and support the neonate. The HCPs constituted a support during the vulnerable and anxious ICR situation. The fact that there were many HCPs in the birth room during resuscitation was mainly perceived as a reassurance.

Parent's experiences of ICR in the mother's bed can be summarized in the overarching theme; *Guardians of the neonate when the unexpected happens: Parents navigating between involvement and anxiety.*

6. Discussion

In essence, the findings present successful ICR of neonates as a transformative experience for parents. It turns a moment of intense crisis into one of profound joy and appreciation. The relief and gratitude they feel towards the healthcare team, coupled with a renewed bond with their neonate, highlights the positive aspects of this critical situation. Furthermore, the ability to be close to their neonate, to touch, see and witness what is happening, can help parents maintain a sense of connection and involvement during an otherwise terrifying and disorienting experience. By being physically present and engaged, parents can feel a greater sense of control, which can be crucial for their emotional stability during the ICR. This is in line with Stewart (2019), who highlights that parents have an innate need to be present and know what is happening despite a critical and chaotic situation around them. However, witnessing the ICR can also be emotionally stressful, as it exposes parents to the full reality of the emergency. This can lead to anxiety and stress, as they are directly confronted with the uncertainty of their newborn's survival. Neonates in need of resuscitation are more often separated from their mother than healthy newborns. The fact that resuscitation is performed with an intact umbilical cord enables the mother to engage in skin-to-skin care, reducing toxic stress which according to Bergman (2019) increases when the mother is separated from her neonate. Nevertheless, the ability to stay informed and involved may also provide a form of reassurance, helping to balance their emotions. In summary, being close to their neonate during ICR can have both positive and negative effects on parents' wellbeing, providing comfort and connection, but can also intensify their emotional experience. Both verbal and non-verbal communication from HCPs is essential for shaping parents' emotional process and ability to cope with the trauma of an event such as ICR. In an interview study by Patriksson et al. (2024b) midwives described the benefits of zero separation and stated that ICR close to the mother promoted closeness between the neonates and the parents. Understanding these experiences can help HCPs to be responsive and attentive to the whole spectrum of parental emotions and the importance of clear communication throughout such pivotal situation as ICR.

There are some methodological considerations that should be considered. The interpretation of themes illustrates the degrees of abstraction at different levels. In terms of trustworthiness, the results are logical and congruent in relation to study aim. The formulated overarching theme runs through the themes and subthemes. In addition, the credibility and authenticity of the results was ensured by presenting representative quotations to illustrate each subtheme. A significant limitation of this study lies in the inherent nature of qualitative research involving lived experiences. Participants can only articulate their experiences through the lens of their own preexisting knowledge and understanding. After a two-month period or more, interviews were conducted with 13 of the 15 parents. The extended time elapsed since the ICR, may increase the likelihood of memory loss or distortion regarding their experiences. Although, this delay is unavoidable, it should be acknowledged as a limitation of this study. Similarly, researchers interpret these narratives based on their own preunderstanding.

During the interpretation the first and last authors (MR and KP) continually checked their preunderstanding of the narratives with the interview text. The research process employed a multi-faceted approach to data analysis and interpretation. The expertise was used to formulate the naïve understanding and to perform the structural analysis, as well as a critical approach to achieve a comprehensive understanding (Lindseth and Norberg, 2004, 2022). To achieve dependability, the second author (L T-L) was requested to ensure the validity of the results and associated themes *i.e.* to reach consensus. Transferability and confirmability concern an accurate and rich description of the context of the study, which includes the selection of participants. The results of the present study represent a comprehensive understanding of the experiences of the 15 parents who witnessed ICR in the mother's bed. A limitation may be that one of the interviews took place when the neonate was admitted to the neonatal unit. However, the parents expressed that it felt good to be able to talk about their neonate's need for ICR after birth. In the results, the varied and rich descriptions that emerged from the participants' different perspectives on ICR are represented, which can be considered a strength of the study.

7. Conclusions

Parents experienced positive emotions when being able to touch, see and be close to their neonate as well as witnessing the critical situation when ICR was performed. This had a profound impact, alleviating feelings of anxiety, uncertainty, isolation and helplessness. The communication between HCPs and parents was crucial for alleviating these feelings by providing clear, empathetic and continuous information. When parents received information in a clear and reassuring manner, it helped reduce their anxiety and increase their sense of control. Despite a large number of HCPs in the birth room, they felt safe knowing that the collective expertise was there for them. The situation is emotional for the parents and as some mothers were exhausted after childbirth, and they did not absorb the information provided. However, having been present when the unexpected happened helped parents support each other when the memory that their neonate needed resuscitation recured at home. It is important to recognize this because adequate support has significance for attachment to the neonate and has a long-term impact on parental well-being and their relationship with the healthcare system.

4. Ethical statement

The study design and procedures were approved by the Swedish Ethical Review Authority (Dnr, 2021–03688). Strategies to minimize participant identification consisted of using pseudonyms, careful selection of examples and citations, and omission of specific recognizable data (European Union Law, 2016/679). All participants were informed about the study and gave their written and verbal consent. They were also told that it was possible to withdraw at any time without explanation (World Medical Association [WMA], 2022).

Authors' contributions

KP, OA and LTL conceptualized the study. KP and MR were responsible for the study design. KP was responsible for the data collection. MR and KP were responsible for the analysis, contributed to the interpretation of the findings as well as the discussion and were responsible for writing the manuscript. OA and LTL contributed to the critical revision of the manuscript for important intellectual content. All authors approved the final version for publication.

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Declaration of competing interest

None.

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