Community Birth Newborn Resuscitation Toolkit

Oregon Perinatal Collaborative

Acknowledgments:

The Oregon Perinatal Collaborative (OPC) gratefully acknowledges the multidisciplinary volunteer members of the Newborn Resuscitation Workgroup who helped develop and review the content of this toolkit and the plan for implementation of the OPC Newborn Resuscitation Initiative.

We are also grateful to the participants in the Newborn Resuscitation Focus Group. These mothers, whose babies were resuscitated at birth, shared their experiences to help inform the toolkit elements and made specific recommendations for resuscitation improvement.

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Suggested Citation (V1, July 16th, 2025):
Oregon Perinatal Collaborative (2025) Oregon Perinatal Collaborative Newborn Resuscitation Toolkit

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Section I: Purpose and Background

This initiative was developed in response to input from Oregon birthing hospitals, clinicians, and other OPC partners who shared with OPC that newborn resuscitation programs could benefit from a supported project to improve resuscitation teams and practice statewide. Nurses and providers across the state expressed concern about the quality and consistency of newborn resuscitation response in their setting.

Newborn resuscitation can be a frightening, stressful, and sometimes traumatizing event for parents and family members. The unique nature of this intervention means that it requires special attention around communication and patient/family experience of care. OPC convened a newborn resuscitation focus group to learn from parent experiences with newborn resuscitation and their recommendations for improvement.

"*"It was so quiet, even though there were so many people in the room, but I was listening for his cry, and it wasn't coming and they kind of kept me informed, but it was hard."*

Newborn resuscitation focus group participant

Newborn resuscitation is a critically important, but low incidence intervention. This means that effective systems, along with regular training, drills, and simulation are needed to keep resuscitation teams prepared for high quality intervention. Clinicians who do not perform newborn resuscitation regularly often experience low confidence in their newborn resuscitation skills. Even clinicians with high self-perceived confidence struggle to initiate and achieve effective Positive Pressure Ventilation (PPV) within the 60-second time window outlined by the Neonatal Resuscitation Program (NRP) (Zujikowski et al. 2024). How we prepare for and perform newborn resuscitation remains an area with much room for improvement.

Review of the newborn resuscitation literature supports the increased use of supraglottic airways to establish and maintain an effective airway and improve respiratory support. Use of a supraglottic airway can be considered as the primary interface to administer positive-pressure ventilation instead of a face mask for newborn infants delivered at or beyond 34 weeks of gestation (Yamada et al, 2024).

This toolkit and the accompanying quality improvement initiative are scalable and can be implemented across the spectrum of sites providing newborn resuscitation care, from Level I hospitals to NICUs to freestanding birth centers and home births. Teams can use

this toolkit independently or in coordination with OPC within the initiative to improve newborn resuscitation at their site.

The timing of the release of this toolkit and the planned 12 month quality improvement initiative for hospital and community birth providers are designed to support both the American Academy of Pediatrics Neonatal Resuscitation Program (NRP) scheduled release of the 9th edition of NRP in the Fall of 2025 as well as AWHONN and the American Red Cross introduction of a new option for training through the Neonatal Advanced Life Support (NALS) program in 2025.

References

- A Needs Assessment of Labor and Delivery Nurses Performing NRP in the Delivery Room
- 2023 AHA & AAP Update on Neonatal Resuscitation

Key resources for this toolkit include:

- AAP Newborn Resuscitation Program
- Neonatal Advanced Life Support (NALS)

How to Use the Toolkit

This community birth-specific toolkit was designed to support all members of teams who perform newborn resuscitation in Oregon birth centers and planned home births.

Section II is the core toolkit for improving newborn resuscitation in community birth.

Section III provides quality improvement tools and data information.

Section IV contains questions and operational considerations for community birth practices. Use this section to help plan your newborn resuscitation improvements.

Section V contains appendices with resources and examples for each element of improving newborn resuscitation as well as the Newborn Resuscitation Focus Group Report. Use this section to find templates, sample forms and other supplemental resources.

Section II: Steps for Newborn Resuscitation Improvement

Unit/Team Readiness

Key readiness takeaway:

Readiness for newborn resuscitation requires a clearly identified and skilled team with both clinical and communication expertise. (Sawyer et al. 2018)

- Create a plan for role clarity at every newborn resuscitation
  - Ensure that birth team members have a shared understanding of roles and responsibilities
  - Identify a newborn resuscitation leader for every birth
- Support **individual** and **team** skill and competence through regular training, simulation and drills
  - Provide initial training and ongoing maintenance of competency to all birth team members
  - Perform quarterly NRP simulation as a team.
- Identify risk factors at each birth and plan for resuscitation needs
- Ensure appropriate equipment availability for full resuscitation at every birth.
- Create process and tools for pre-brief at every birth
- Use pre-briefing to communicate risk factors, address equipment and personnel needs, and confirm roles

Timely Intervention

Key timely intervention takeaway:

Close adherence to the NRP algorithm can lead a trained team through timely and effective evaluation and resuscitation of a newborn and improve outcomes. (Zaichkin et al, 2023)

- Use NRP risk assessment pre-birth questions at every birth:
  - Gestational age
  - Amniotic fluid status
  - Umbilical cord management plan
  - Additional risk factors
- Improve airway and ventilation practices:
  - Implement routine use of supraglottic airway/laryngeal mask airway
  - Establish and maintain airway using corrective actions until chest movement is seen and/or breath sounds are heard. Ventilation is the single most important and effective step. Goal is establishment within 60 seconds.
- Improve chest compression practices
- Improve identification of potential need for medication administration and/or volume replacement and prioritize early hospital transfer

Post Resuscitation Care

Key post resuscitation care takeaway:

Timely stabilization and/or transfer of ill newborns can improve outcomes.

- Provide training and create processes and tools to improve respiratory stabilization.
- Create processes and communication channels for timely transfer to hospital when needed to reduce morbidity and mortality:
    - Communication between transferring and transporting teams facilitates prompt initiation of therapies such as neuroprotective cooling.
    - Standardized processes and tools for transfer of care (hand-offs) can improve completeness and accuracy of information about the neonate's clinical status.
- Develop post-resuscitation checklist to support best care:
    - Glucose
    - Temperature

Communication During & After Resuscitation

Key communication takeaway:

Effective communication ensures team preparation and performance and improves newborn safety as well as parent/family experience of care. (Katheria et al, 2013)

- Make a plan to increase communication with parents (especially fathers and non-birthing parents) during the resuscitation itself.
- Practice team and parent communication during all newborn resuscitation simulations.
- Create a process and a tool for debrief after every newborn resuscitation.
- Create a process and a tool for a full debrief with parents/family after every newborn resuscitation.
- Create process to screen parents/family of infant who received resuscitation for need for mental health resources at 6-week postpartum visit.
- Pursue training on debrief and communication with parents/family during and after newborn resuscitation.

Systems Learning

Key systems learning takeaway:

Consistent case review of newborn resuscitation events can improve newborn safety and quality of care when areas for improvement are identified and acted on and learning is shared with community midwives.

- Create criteria, process, and tools for newborn resuscitation case reviews within the larger midwifery or birth center organization:
    - Use a case review template to ensure standardization of the review.
    - Identify adverse events, near-misses and other issues to inform practice and/or system improvements.
- Create process for sharing learning from newborn resuscitation case reviews with community midwives in Oregon to improve performance.
- Implement quality measure tracking.

Section III: Quality Improvement and Data

Quality Improvement Overview

As teams start any quality improvement project, it can be difficult to know where to begin. Each team is encouraged to review the entirety of this toolkit, including the resources in the appendices, to determine the best area(s) to address first. One specific highlight from the appendices are two self-assessment tools. These tools guide teams, in the hospital or community birth settings, in evaluating the structural components in place to support highly reliable newborn resuscitation and can help teams prioritize their work.

One important step for all improvement projects is to form a team and confirm what you are trying to improve and by how much. This helps teams stay focused on the most important parts of the project and decide what to measure to know if changes are an improvement or not.

The Institute for Healthcare Improvement (IHI) has free tools and training that may be helpful to teams as they begin, including:

- IHI Model for Improvement Overview
- IHI Quality Improvement Essentials Toolkit

Example Quality Improvement Tools

A number of validated tools are available from the Institute for Healthcare Improvement to support QI processes.

- IHI Driver Diagram
- IHI Flowchart
- IHI PDSA Worksheet
- IHI Project Planning Form

Key quality improvement resources are also listed here for easy access/ review:

- Video: An Illustrated Look at Quality Improvement in Health Care
- Video: Perinatal Quality Collaboratives
- IHI Essentials Toolkit
- IHI Forming the Team

Data Collection and Overview

As teams plan their project, they will want to consider how they will know if there is an improvement in their newborn resuscitation practices. The table below outlines the

different types of measures and examples to consider. Teams participating in the statewide quality improvement initiative with OPC will receive more information about the measures for this.

Type of Measure	Description	Example
Process	Used to monitor the adoption and implementation of evidence-based practices. *By using data to track processes of care and examining these data disaggregated by race, ethnicity, and other social and structural drivers of health, facility teams can identify areas for improvement and intervention.*	% of resuscitations where alternative airway is used
Structure	Used to assess if standardized, evidence-based systems, protocols, and materials have been established to improve patient care. *Through adoption and regular review of structures, facility teams improve their readiness to respond to a neonatal resuscitation event and provide high quality care to every patient, every time.*	Standard process in place for clinical debriefs to occur after newborn resuscitation
Outcome	Used to examine changes that occur in the health of an individual, group of people, or population that can be attributed to the adoption of clinical best practices. *Outcome measures should be disaggregated by race, ethnicity, and other social and structural drivers of health to examine inequities.*	5-minute Apgar less than 7 among newborns ≥ 35 weeks

Section IV: Operational Considerations

Midwifery organizations and each individual community birth practice will need to evaluate their resources and infrastructure to support successful implementation of this toolkit. The considerations and questions below are not meant to be exhaustive but are a prompt for teams to begin the necessary detailed discussions and generation of additional questions that will support successful implementation.

Community Birth Operational Considerations

- How can you create a reliable process for all members of your birth team to develop and maintain competency with newborn resuscitation specific skills?
- How do you identify when to initiate hospital transfer of a newborn who is being resuscitated?
- How can you communicate about the skill/experience level of individuals on the birth team during the pre-brief?
- How will you help your birth team transition to routine use of a supraglottic airway for PPV?
- Who will be responsible for regular newborn resuscitation drills and simulations with all members of your birth team?
- How can you improve communication and coordination with EMS during transfer of a newborn who is being resuscitated?
    - How can midwifery practices make plans with EMS about who will lead NRP during transfer?
- How can you improve communication and transfer process with the hospitals that would receive a newborn transfer from your practice?
- How can a midwifery or birth center organization ensure that each individual midwifery practice participates in newborn resuscitation case reviews for systems learning?

Section V: Appendices

Appendix A: Best Practice Examples/Resources

Unit/ Team Readiness Resources

- Hospital Newborn Resuscitation Self-Assessment
- Community Birth Newborn Resuscitation Self-Assessment
- Pre-brief tool with onsite NICU staff
- Pre-Brief Tool with Telehealth Team
- Resuscitation Matrix-Level 1
- Resuscitation Matrix-Level 3
- Team Role Table-Site with NICU
- Equipment Checklist
- UVC and LMA Skills Checklist
- Newborn Resuscitation Competency
- Newborn Resuscitation Skills Checklist
- Simulation Case

Timely Intervention Resources

- AAP NRP Skills Videos
- Igel Insertion Video 1
- Texas Children's Hospital Newborn Resuscitation Video Series

Post Resuscitation Care Resources

- COMING SOON: CPAP best practices
- Post Resuscitation Care Table
- Neonatal Transfer SBAR
- Sample newborn transfer protocol

Communication During & After Resuscitation Resources

- Debrief Example 1
- Debrief Example 2

Systems Learning Resources

- Chart Review Spreadsheet
- AAP Delivery Room Intervention and Evaluation (DRIVE)

Appendix B: Newborn Resuscitation Definitions

The definitions below are provided to ensure consistency in use by teams with active quality improvement work throughout the OPC initiative. There are additional definitions/ specifications provided for data/measures in a separate document for teams participating in the quality improvement initiative.

Alternative Airway

Devices used to support or provide ventilation, including laryngeal mask, supraglottic airways, and endotracheal tubes (ETT).

Drills

Practice of individual skills or portions of newborn resuscitation with individual or subset of the team.

Newborn Resuscitation

The use of Positive Pressure Ventilation (PPV) with or without the use of an advanced airway, chest compressions, or medications to treat a newborn who does not breathe after birth despite appropriate initial actions as outlined in NRP.

Pre-Brief

The action of the delivery/resuscitation team verbally providing and receiving precise and essential information to plan for a potential resuscitation.

Respiratory Support

Support provided to newborns at birth who are not breathing or require support for labored breathing. This can include CPAP, PPV and intubation.

Simulation

Multidisciplinary (all members of resuscitation team), team-based practice of newborn resuscitation that includes pre-briefing, resuscitation, and debriefing using a realistic preplanned clinical case that allows multiple aspects of the care to be practiced (technical skills, equipment, team communication, EHR, telehealth, etc). Can occur in a simulation lab or on the unit (in situ) and include low or high- fidelity newborn model.

Appendix C: OPC Newborn Resuscitation Focus Group Report

2025 OPC Newborn Resuscitation Focus Group Report

In March 2025, the Oregon Perinatal Collaborative conducted a focus group on newborn resuscitation. The focus group was for parents of a child who: was born in Oregon in a hospital, freestanding birth center, or home birth within the past 3 years; was resuscitated at birth; and was discharged from the NICU within 14 days of birth (if admitted to the NICU).

Four people participated in this 2-hour focus group facilitated by Silke Akerson, executive director of the Oregon Perinatal Collaborative. Participants lived in rural, urban, and micropolitan areas of the state. Three participants gave birth in hospitals and 1 in a freestanding birth center. All participants identified as white. Multiple participants were nurses as well as patients. Participants were given a $100 gift card for their participation.

This report is a summary of their responses for use in the program and toolkit development of the Oregon Perinatal Collaborative newborn resuscitation initiative.

Focus group participant experiences of newborn resuscitation

The focus group participants shared information about their experiences with newborn resuscitation, the care their newborn received, and their recommendations for improvement. The following are the core themes that emerged from the focus group.

Clinical and communication concerns

Participants were paying close attention to the newborn resuscitation while it happened. They noted specific concerns they had about clinical care and communication within the resuscitation team during their newborn's resuscitation.

"The initial family practice doc, his confidence, or lack thereof, I guess, it was pretty obvious to us. And I could hear in the [telemedicine neonatologist's] *voice of like, this man doesn't know what he's doing…* [He] *was obviously out of practice. They're all trained but really weren't used to the situation."*

"The communication between the labor & delivery and the NICU just wasn't there."

"Why was he never intubated?... Usually it's after, you know, a good solid 2 to 3 minutes, if you're not getting them back, and they're still limp, like why have we not gotten any type of airway in? [PPV was performed for 7 minutes. Participant was also a NICU nurse]

Trauma, stress, and chaos

Participants described the stress, overwhelm and trauma of their baby being resuscitated.

"I will never forget the way he looked when he came out. I mean he wasn't even blue. He was pale."

"So finally they're like, okay, baby's out. So the baby nurse hits the button, she's like should I call the team? And I'm screaming, yes! Yes! Where is the team? And nobody's coming and so I finally hear them come in and I just can't hear anything. I can't see anything, and I just check out. My husband's like, "you were just laying there. You didn't say anything. Your eyes were open and you were just laying there."

"I could feel the stress... I could see the chaos. There were about 20 people in our room."

"It would almost be nice to have 6 month intervals of like "hey, you went through something super traumatic. How are you? Do you need anything? Do you need a referral to a therapist?"

Fear for their baby

Focus group participants described how frightening it was to see their baby not breathing and being resuscitated. Their fear was expressed not just in words but in trembling, crying, and tone of voice as they shared their stories. They continue to be deeply impacted by the memory of being afraid for their babies.

"He came out. He wasn't crying... he came out very floppy. He was white as a sheet."

"When I heard the telemedicine doctor say, we need to put an airway in this baby, with a fair amount of urgency, that's when I started to break down and cry and it kind of became a blur after that."

"It was so quiet, even though there were so many people in the room, but I was listening for his cry, and it wasn't coming and they kind of kept me informed, but it was hard."

Separation from the baby

Participants who were separated from their baby described how challenging that experience was and were visibly shaken in describing that experience.

"It is so hard to be separated from your baby."

"I wish I had pictures of what was going on. I wish I had pictures from the first 10 minutes of his life, and I don't, I don't. The only memory I have of that first 10 minutes is seeing him being laid on my stomach for a split second and that's all I have. And then the next memory I have is him coming 20 minutes later back to me. There's nothing in there in between that I remember.

Communication with parents during resuscitation

Focus group participants described a range of experiences of communication from the resuscitation team during the resuscitation, but all participants expressed wanting more communication.

"There wasn't a whole lot of information begin relayed during. But I was also in the middle of being stitched up."

"I was not quite sure what was happening.... She kept telling me, his oxygen is fine and his heart rate is fine... and then I head the midwife tell her aid to call the ambulance and then my kind of alarm bells went on! It seemed like the midwife was so focused on what she was doing and her aide that there wasn't an opportunity to let us know what was going on."

"When the PANDA was getting him in their incubator and doing their whatever it is...the family practice doc came over and kind of talked about some things, but... I sensed he was pretty rattled too."

Experience of fathers/partners

Participants, who were all mothers, described the experience of their husbands and partners and the need for more support for them...

"My poor husband, he thinks I'm dying. He thinks our baby, well, our baby came out very floppy and he was white as a sheet."

"He was scared for both the baby and myself. My husband was afraid to go over there. He was afraid to leave me."

"There was just a lot of chaos. And I do think that communication with my husband might have been good for his sake, because he had no idea what was going on either direction. He didn't know what was going on with the baby and didn't know what was going on with me, and he was terrified. I think partners are a lot of times overlooked in emergency situations, and I think it's really important to keep them in the loop."

Debrief after resuscitation

All participants were clear that they wanted the opportunity to have a full debrief of the newborn resuscitation with a team member after the fact. Most of the participants still had open questions about the resuscitation at the time of the focus group and some realized they had additional questions or concerns in the process of talking about their experience with the other focus group participants. Only 1 of the 4 participants experienced a debrief and it made a significant difference in her experience.

"I wish I had a better understanding of actually what happened. You know, being able to verbalize... At some point, kind of slowing down and breaking it down... Maybe even in postpartum visits. Like, "Hey, I know that day was a lot... do you understand what happened? Can we break that down? Are there any gaps?" Because it is weird participating in this focus group and realizing... I don't even know now... what exactly did they do?"

"I wish there had been an opportunity for [debrief] *in a postpartum visit. It's like, you know, the gap in knowledge of like me not even knowing what type of breathing support was it? And what does that machine do? And like, how long did it go on for"*

"What was very helpful was after... our NNP she stayed and walked me through everything that had happened and ... I think that was helpful for me to like process after the fact... I mean it was still very traumatic, but not as traumatic because I was communicated with after the fact."

Relief when baby breathed

Participants expressed profound relief when their baby started to breathe.

"He was getting PPV for I think it was at least 2 minutes and then they gave him 11 minutes of CPAP and then I finally heard a little whimper and I was like, I can breathe."

"And then luckily, after saying call the ambulance,... in the next minute he started breathing on his own... And then he didn't really cry at first but he started turning pink and his tongue started moving around and everyone was like, oh great! He's breathing! he's breathing!"

Support for connection with baby post-resuscitation

Support for reconnection with the baby after the resuscitation was particularly meaningful to the focus group participants

"Once we got in there, she helped me hold him. She supported him, helped me breastfeed and really was like striving for the quality time after birth... I really appreciated that."

"Everything afterwards was wonderful in terms of like respecting the golden hour and being able to have privacy and get him on skin to skin with my husband as soon as possible while they were taking care of me."

Lasting impact/Need for mental health support

Participants described the lasting impact of newborn resuscitation on their own mental health and noted that it took them a long time after the birth to understand the magnitude of the experience.

"Mental health, for after, for both mom and dad are really important. And mental health in this area... is severely overlooked... I'm sure there's a lot of moms ...of resuscitated babies that end up with PPD or PTSD and they're just coasting because it's hardly ever asked. I mean, they ask some questions in the postpartum checkup at your 6 weeks but it's not really focused on your experience in the hospital. It's more like what you're feeling at that time. I don't know. I just feel like mental health resources and encouragement of seeking resources is really lacking."

"I 100% agree with the partner aspect and the postpartum resources. My baby... is about 6 months old and I think until recently, within the last month or two, I think I've started to actually feel my feelings. I think I shut them down for a very long time and I wonder about PTSD rates because I think it would be really interesting to know."

Unique experiences as a mother and a nurse

Multiple participants were also nurses and one was a NICU nurse with neonatal resuscitation experience. These participants shared unique perspectives on their baby's newborn resuscitation because of their healthcare background.

"It was stressful, even knowing what was happening"

"It took them I don't know how many pokes to get an IV and it was at that point that my husband and I [both nurses] *were both like, okay, I know and IO is not, you know a preferrable thing, but at that point we were like, please stop poking out baby and put in an IO since we can't get a UVC."* [the UVC had failed]

Preparation for possible resuscitation

Participants shared that they would have liked some preparation and education prenatally for the possibility of newborn resuscitation.

"I think it would have been interesting… in prenatal visits to understand a little bit more about resuscitation."

"My prenatal appointments were maybe like 5 minutes long. I think maybe taking one of those prenatal appointments and saying… here is what our resuscitation would look like. This is what a t-piece looks like. If you see this we 're just giving your baby a little few extra breaths…"

Different experience in freestanding birth center

The focus group participant who gave birth in a freestanding birth center described a different experience of newborn resuscitation than those in the hospital.

"He was born in the bath and they put him on my chest and … my midwife was there and she started doing suctions and then I think at some point, while he was still on my chest, she started doing some breaths… and then at some point she made the decision to ask her aide to get that little wedge thing so they could… put the wedge at the edge of the tub and lay him on his back on the wedge so they could get better access with better breaths. So he was right there."

Delay in transfer to higher level of care

One participant who gave birth in a rural hospital described the long delay in transfer of care to a NICU and some of the ramifications of that delay.

"There was a whole conversation about getting the PANDA team there, but the PANDA team was out. Both teams were out. So, they called LifeFlight to get him to Portland quickly… I

think it was maybe 4 hours later between when they first took him and getting him on the life flight."

"They provided PPV and then they provided breaths through the mask for hours. It was hours that one person was doing breaths, and they kept telling them like, okay, watch her right? And they never switched out. She just kept being like, oh, I'm fine. I'm fine... I don't know how many times the neonatal provider on the telemedicine was like, "okay, watch your rate on breathing""

What went well

When participants described what went well the focus was on rapid response, not being separated from their baby, and communication afterwards.

"As soon as they noticed something was going wrong, there were a lot of people in the room very quickly... nothing was delayed, he was taken care of as soon as he could be. I think that was awesome. And the debrief I got after was also great."

"I was able to be there throughout the whole thing. I was touching my baby. They left him on my chest as long as they could... they were giving him breaths while he was laying there and she was like over my head like this. And then they did put him on the wedge, but it was right next to me... so I was able to like hold his hand the hold time... The fact that they kept him as close to me as they could the whole time was really helpful."

Recommendations for improving newborn resuscitation

Focus group participants were asked for their recommendations on how newborn resuscitation and support for parents and caregivers of newborns who need resuscitation could be improved. The following is a summary of their recommendations.

Increase communication with parents

- Increase communication with parents, especially fathers/partners during newborn resuscitation
    - Assign someone specifically to communicate with parents
    - Consider taking photos to share with mother/birthing parent if separated from baby
    - Remember to communicate clearly with fathers/partners about both the mother and the baby.

  - Newborn resuscitation is often associated with a maternal emergency and fathers/partners may need reassurance about maternal safety before they can focus on baby
- Provide multiple opportunities for a full debrief of the resuscitation with the parents
  - An opportunity to debrief should be offered in the immediate postpartum as well as during a postpartum visit

Follow-up on potential trauma & need for mental health support

- Provide education about trauma and support for trauma recovery to parents after a newborn resuscitation
  - Trauma may be common among parents of newborns who were resuscitated and may not be identified until well after the birth
- Screen parents for mental health concerns during follow up visits and provider referrals to therapy and or peer support
  - Repeat screening 6 months or more after the birth

Consider prenatal education about newborn resuscitation

- Consider providing simple education about newborn resuscitation prenatally, especially in pregnancies with higher risk for newborn resuscitation (for example: patients on SSRIs)

Keep baby with mom/birthing parent whenever possible

- Examine newborn resuscitation practices and practice simulations looking for opportunities to keep moms and babies together

Report compiled by Silke Akerson.

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