Instructor's Guide:
The Delivery Room Communication Checklist

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RESOURCE TYPE: The Delivery Room Communication Checklist is a tool that may be used for education, assessment, patient care and/or quality improvement.

RESOURCE FILES:

1) Delivery Room Communication Checklist

The main resource file is the Delivery Room Communication Checklist, a tool comprised of 23 vital communication items and behaviors that should be communicated and performed during infant deliveries involving the Obstetric and Pediatric teams. The checklist may also be appropriate for healthcare providers on the Obstetric Anesthesiology and Emergency Medicine teams if they are involved.

2) User's Guide

Accompanying the checklist is the User's Guide, which may serve different functions (study aid, teaching tool, and/or assessment tool), depending on the person who accesses it. For medical and nursing students, residents and fellows who are preparing for clinical rotations, the User's Guide may be used as a study aid to better understand the types of vital information that should be communicated during deliveries. For medical and nursing healthcare professionals who provide either maternal or newborn care during deliveries, the User's Guide may be a communication reference tool to aid recall of vital information to exchange between teams. Finally, educators may use the User's Guide as either a teaching aid or assessment tool for student and staff training. The User's Guide provides a detailed description of the 4 sections of the checklist, an explanation for each of the 23 checklist items, and examples of dialogue for each section of the checklist.

3) Instructor's Guide

The Instructor's Guide is intended for educators who will use the checklist as a teaching tool. It provides background information on the development of the tool, additional resources for reference, and advice on how to incorporate the checklist into training sessions.

PURPOSE OF THE RESOURCE:

Effective communication between Obstetric and Pediatric providers in the delivery room is crucial to providing safe patient care to women and their newborn infants. The Joint Commission reports that 70% of perinatal sentinel events resulting in infant mortality or permanent disability are associated with communication breakdown.[1] The unavailability of prenatal information, failure to clearly define

problems, and inadequate counseling of patients and families are some examples of the different types of communication failures known to occur.[2-4]

The use of checklists can be a simple and effective method to standardize handoff communication between Obstetric and Pediatric teams during deliveries. We present the Delivery Room Communication Checklist as a resource that consists of vital information that should be exchanged between Obstetric providers, Pediatric providers and family members during infant deliveries. The checklist may be used in education as either a study guide or assessment tool, in patient care as a tool to assist with recall, and in quality improvement to track compliance for initiatives to improve delivery room communication.

GOALS:

The Delivery Room Communication Checklist will be used to:

1) Improve student and provider knowledge, communication skills and behavior during infant deliveries.
2) Standardize communication between Obstetric teams, Pediatric teams and families during infant deliveries.

EDUCATIONAL OBJECTIVES:

After successful review of the Delivery Room Communication Checklist, learners should be able to:

1) List the different time points before, during and after a delivery when communication of vital information among Obstetric providers, Pediatric providers and family members should occur.
2) Identify specific elements of maternal and fetal history that are important to the resuscitation and stabilization of the newborn.
3) Explain the importance of different communication items during a delivery.
4) Demonstrate effective communication during a simulated or actual delivery as either an Obstetric or Pediatric provider, using the checklist as a guide.

ACGME COMPETENCIES ASSESSED:

Medical knowledge
Interpersonal and Communication Skills

INTENDED LEARNER AUDIENCE:

The target population that would benefit most from using the checklist includes any individual who participates in the care of either the maternal or newborn patient during deliveries. These individuals may include, but are not limited to, the following groups of healthcare professionals:

- Medical students – Medical students on clinical rotations
- Residents – Obstetric, Pediatric, Emergency Medicine, Family Medicine and Anesthesiology
- Fellows – Maternal-Fetal Medicine, Neonatal-Perinatal and Obstetric Anesthesiology
- Attending physicians – Obstetric, Pediatric, Family Medicine and Anesthesiology
- Nursing students – Nursing students enrolled in clinical courses
- Nurses – Obstetric and Neonatal
- Nurse practitioners – Obstetric, Pediatric and Neonatal
- Physician assistants – Obstetric, Pediatric and Neonatal
- Midwives

DEVELOPMENT AND VALIDATION OF THE RESOURCE:

This is a checklist that was developed based on the results of a needs assessment on communication practices between Obstetric and Pediatric teams during high-risk deliveries at the University of Rochester Medical Center. It underwent pilot testing, iterative review and revisions with the input of maternal-fetal-medicine specialists, neonatologists, and experts in education and quality improvement.[5] Specific methods used to best support the 5 categories of construct validity, per guidelines from the *Standards for Educational and Psychological Testing*[6], are provided below and have been described elsewhere.[5]

1) Content:
   - Identified from a literature review, expert experience, and the results of an institutional needs assessment that showed the need to improve team communication during deliveries. [1-5,7]
   - Underwent iterative review and revision by an interprofessional and interdisciplinary team consisting of 7 experts from maternal-fetal medicine, obstetrics, neonatology, pediatric critical care, and quality improvement. Content experts have affirmed that checklist items are reasonable and representative of the communication domains encountered during deliveries. Content experts chose not to weight checklist items according to potential relative importance during clinical practice.
   - Linked content to learning objectives of a simulation-based team training program.
   - Adhered to evidence-based principles of effective checklist development.[8-9] Checklist items were edited and formatted for clarity.[10-11]

2) Response Process:
   - Asked raters' to share their thought processes as they used the checklist to review videos of team communication during pilot delivery room simulations.
   - Assured uniform use of checklist through training and written instructions (see User's Guide).
   - Standardized delivery room scenarios when using the checklist as a team assessment tool during simulated deliveries. Conditions of simulations were controlled, including the following: ensured use of properly functioning equipment and mannequins, scheduled provider participation so that there was a balanced mix of medical and nursing providers, oriented staff to goals of training, etc.
   - Secured videos of simulated deliveries in a password-protected computer located in the simulation center accessible only to program faculty with swipe access.

3) Internal Structure / Reliability:
   - Tested inter-rater reliability of checklist scores obtained independently by 2-4 raters when reviewing videos of team communication during a total of 47 simulated deliveries over a 3-year period. The overall intraclass correlation coefficient (and 95% confidence interval) was 0.96 (0.91 - 0.97).[5]

4) Relationship to Other Variables:
   - The majority of well-evidenced obstetric and pediatric team communication tools focus on teamwork behaviors (e.g., situational awareness, closed-loop communication, etc.).[12-14] There is also a non-validated handoff tool described in the literature to improve obstetric-to-neonatal nursing communication about potential deliveries.[15] While the constructs of these tools do not match that of the checklist, their similarities may lend themselves for testing relationships in the future.

5) Consequences:
   - Used results as a formative assessment tool to provide team feedback during educational programs and facilitated debriefings after acute clinical patient events. Low performing teams given opportunity to practice communication skills during training. Continuing staff education resulted in improved team communication during both simulated deliveries (from median score of 6 to 11 items with IQR of 4 and 6, respectively, over a 3-year period; $P < 0.001$) and actual deliveries (from median of 9 to 11 items with IQR of 4 and 5, respectively, over a 2-year period; $P = 0.005$).[5,16-17]
   - Also used results to guide specific learning objectives for future team training sessions.

SUCCESS IN RESOURCE DEPLOYMENT:
The checklist has been implemented in our institution as a teaching tool, visual aid during patient care, and assessment tool, as described below.

FOR EDUCATION
In our institution, the checklist has been used as an educational tool for medical and nursing providers who participate in simulation-based team training programs focused on improving delivery room communication. Prior to training sessions, learners receive a copy of the checklist for review, so that they may better utilize their time participating in the simulated delivery room scenario by practicing and demonstrating communication of the checklist items. Immediately after the simulation, learners then participate in a team debriefing session facilitated by educators to discuss how learners exhibited their communication skills during the simulation. To enhance learning during these sessions, educators may also ask learners to rate the communication of participating teams as a self-assessment tool.

Sections of the checklist have also been used in institutional courses that train medical and nursing providers on neonatal resuscitation. During these courses, emphasis is placed on communication of maternal and fetal information that should be conveyed prior to the delivery.

FOR PATIENT CARE
The checklist has been included in our Neonatal Intensive Care Unit's "Housestaff Manual", a document that provides guidelines for patient care. Since incorporating the checklist into neonatal resuscitation and team training courses, we have noticed that Obstetric nurses have been using parts of the checklist as a visual recall tool during patient care, when communicating with Pediatric providers during deliveries. To enhance communication recall between teams, copies of the checklist have been posted close to infant warmers. We have found that communication of checklist items during clinical patient care usually takes approximately 30 seconds for each section of the checklist and is not an onerous process during deliveries. Teams may also use the checklist to communicate in advance of both routine and potential high-risk deliveries (e.g., during an interdisciplinary huddle) to further enhance communication between teams. In our institution, the checklist has not been incorporated into the patients' medical records.

FOR ASSESSMENT
The checklist has been used as an assessment tool to help educators and quality improvement specialists identify areas for improvement in delivery room communication. Assessments may be performed either by directly observing team communication during simulated or actual deliveries, or by reviewing videos of team communication. These areas for improvement are communicated back to teams and can be used to guide development of appropriate learning objectives for future educational

programs. Using the checklist, we have demonstrated improvement in team communication during simulated deliveries over a 3-year assessment period, as well as during high-risk deliveries over a 2-year period.[5,16-17]

PRACTICAL IMPLEMENTATION ADVICE:

During Education and Assessment:

- The checklist and User's Guide may be reviewed by learners during self-study to learn about delivery room communication, or it may be incorporated for teaching during a team training program.
- If using the checklist to assess team communication, it may be helpful for educators to review the User's Guide and perform a few evaluations together to standardize practice before performing independent assessments.

During Patient Care:

- The checklist may be posted in delivery rooms by infant warmers to assist teams with recall of checklist items during vaginal and cesarean deliveries.
- In the event of an emergency cesarean section when an infant needs to be delivered within a few minutes, it may not be possible for teams to communicate all the items in the second section of the checklist (i.e., information exchanged between the Obstetric and Pediatric teams when the pediatric team arrives at the delivery) prior to the delivery. In this instance, teams may need to modify their use of the checklist by initially conveying only the information that is absolutely crucial to know at that moment to prepare for the imminent delivery (i.e., infant's gestational age, reason why the pediatric team is needed and presence of meconium). After the infant is delivered and stabilized, teams may then regroup to communicate other relevant information on the checklist (e.g., maternal risk factors, maternal medications, etc.).
- When possible, communication between teams should allow for redundancy so that there would ultimately be better coordination of maternal and newborn care at deliveries. To achieve this, the checklist may be used in advance of potential or known scheduled deliveries. For example, Obstetric and Pediatric nurse leaders may huddle each morning to discuss all the pregnant women admitted with high-risk deliveries. The pediatric nurse leader can then convey this information to the rest of the pediatric team to optimize situational awareness of potential deliveries and allow for adequate preparation, especially prior to complex deliveries. If there are any questions or concerns, the pediatrician can connect with the obstetrician to discuss circumstances. As the delivery becomes more imminent, the Obstetric team may alert the Pediatric team with more details.

LIMITATIONS OF THE RESOURCE:

The checklist may help providers recall types of information that are important to communicate during deliveries, but the tool cannot assess for accuracy of information communicated between providers in clinical practice. Also, communication items have not been weighted according to their relative importance nor assessed for their potential impact on patient care. These options can be explored in the future to strengthen the checklist as an assessment tool.

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