**Purpose of the tool:** This tool describes the key perinatal safety elements that support safe umbilical cord prolapse management. The key safety elements are presented within the framework of the Comprehensive Unit-based Safety Program (CUSP).

**Who should use this tool:** Nurses, physicians, midwives, anesthesiology providers, neonatal providers, and other labor and delivery (L&D) staff responsible for intrapartum care and managing deliveries that may be complicated by cord prolapse.

**How to use this tool:** Review the key perinatal safety elements with L&D leadership and relevant unit staff to determine how the elements will be implemented at your hospital. Consider any existing hospital procedures, policies, or processes related to cord prolapse management.

# Key Perinatal Safety Elements

***Standardize When Possible (CUSP Science of Safety)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Use a predetermined approach to management of a cord prolapse approved by unit leadership. | Unit-established approach to managing and documenting cord prolapse episodes. This approach can include—   * staff who identify a possible prolapse and clearly state the concern * communication to others for assistance to put plan for safe delivery into place * appropriate clinical interventions * recording time of prolapse identification and time of interventions performed * designating role of staff (e.g., recorder, patient/family communicator) * episode documentation elements |
| Standardize communication of information during episode. | * Staff call out concern for or diagnosis of cord prolapse, reducing error through an anticipated and coordinated approach. * Team members—   + Use callouts with fetal condition per National Institute for Child Health and Human |

***Standardize When Possible (CUSP Science of Safety) (continued)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Standardize communication of information during episode. (continued) | Development electronic fetal monitoring nomenclature at standard intervals.[1](#_ENREF_1)   * + Use callouts as each clinical intervention is applied.   + Use callouts for number of minutes that have passed since diagnosis. |

***Create Independent Checks (CUSP Science of Safety)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Assess appropriateness of procedures that increase risk for cord prolapse. | Cognitive aids and checklists that list indications, contraindications, and maternal and fetal criteria for procedures that increase risk for prolapse such as[2](#_ENREF_2)—   * amniotomy * intrauterine pressure catheter or fetal scalp electrode placement * manual rotation * placement of cervical balloon catheter * external cephalic version * amnioinfusion * placement of forceps or vacuum |
| Use cognitive aids such as checklists, algorithms, or protocols to guide a systematic approach to management and documentation of cord prolapse. | Cognitive aids such as checklists, algorithms, or protocols may improve team response and management of cord prolapse. Such aids can provide clinical teams with an independent check on steps for facilitating a safe delivery by offering logic and a clear focus during what can often be a chaotic event.  A sample checklist that operationalizes key safety elements is provided in the Appendix of this document; units can modify it based on unit preferences.  Other samples are available from health care and government organizations or reviews[3-5](#_ENREF_3):  <http://kemh.health.wa.gov.au/development/manuals/O&G_guidelines/>  Select: Section B, Chapter 11-Emergency Procedures  <http://contemporaryobgyn.modernmedicine.com/>  Publish Date Sept 1, 2013. Search “Umbilical Cord Prolapse”  <http://www.perinatalservicesbc.ca/health-professionals/guidelines-standards/standards/core-competencies-for-management-of-labour>  Select: Decision Support Tool 8A-Obstetrical Emergencies Cord Prolapse |

***Learn From Defects (CUSP Module)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Debrief and analyze near misses and adverse events related to cord prolapse. | * A unit can decide its approach to debriefing events based on seriousness of event, expertise available, and data monitoring and tracking capabilities.   + Informal debriefings by clinical team immediately following the event using an approach that does not shame or blame individuals. This allows for understanding of what went well, what could have gone better, and what could be done differently next time.   + Regular forum with a multidisciplinary team for learning from defects and sensemaking using the following tools:     - Discovery form     - Root cause analysis     - Eindhoven model     - Failure mode and effects analysis     - Probabilistic risk assessment     - Causal tree worksheet     - Interdisciplinary case reviews |
| Have a process in place to review severe maternal or neonatal morbidity and mortality events. | A unit can decide its approach to reviewing cases of severe maternal or neonatal morbidity or mortality. This might include an existing medical peer-review process or review by a perinatal safety or quality committee.  A sample process and forms for a committee review are available at the Council on Patient Safety in Women’s Health Care,  [http://www.safehealthcareforeverywoman.org](http://www.safehealthcareforeverywoman.org/).  Select: “Get SMM Forms” menu. |
| Share outcomes or process improvements from the informal (debriefing) and formal analysis with staff to achieve transparency and organizational learning. | Sites can decide how often this information will be shared, how much will be shared, and with whom, and whether this is specified in a unit policy or is handled more informally. |

***Simulation (SPPC Program Pillar)***

| **Key Perinatal Safety Elements** | **Examples/Customizable Components** |
| --- | --- |
| Sample scenario:   * Cord prolapse | * Team training can reduce the diagnosis to delivery interval for cord prolapse.[6](#_ENREF_6) A sample scenario available through the AHRQ Safety Program for Perinatal Care can be used to train teams on the key perinatal safety elements related to a team approach to cord prolapse. This scenario reinforces teamwork and communication  related to—   + situational awareness,   + ability to get additional help quickly,   + use of cognitive aids (e.g., checklists, protocols) for guiding clinical management and documentation,   + communication with rapid responders,   + communication with patient/family, and   + use of briefings, huddles, and debriefings.   Several professional organizations, initiatives, or commercial entities also offer sample simulations scenarios or “drills” related to cord prolapse; many of these focus on technical/clinical skills of assisted vaginal delivery and may require a mannequin or high-fidelity birthing simulator. Several commercially available birthing simulators are available, including  CAEFidelis™ Maternal Fetal Simulator (CAE Healthcare)  <http://www.caehealthcare.com/patient-simulators/maternal-fetal-childbirth-simulator>  NOELLE® (Gaumard)  <http://www.gaumard.com/s551>  MamaNatalie® Birthing Simulator (Laerdal)  <http://www.laerdal.com/us/mamaNatalie>  PROMPT Birthing Simulator (Laerdal)  <http://www.laerdal.com/us/doc/224/PROMPT-Birthing-Simulator>  Various Birthing Simulators (Klinger Medical)  <http://www.klingermedical.com/Simulators-Trainers/ob-gyn-simulators-teaching-manikins/birthing-simulators> |

***Teamwork Training (TeamSTEPPS®)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Have situational awareness. | Situational awareness refers to all staff caring for the patient—   * knowing what the patient’s plan is through briefings and team management, * being aware of what is going on and what is likely to happen next, * verifying and checking back on information, and * providing ongoing updates.   In the context of cord prolapse, this includes risk awareness, timely recognition of a cord prolapse diagnosis, awareness and monitoring of time since diagnosis, and discussing next steps in the event of fetal deterioration. |
| Use SBAR (**S**ituation, **B**ackground, **A**ssessment, and **R**ecommendation), callouts, huddles, and closed-loop communication techniques. | * Use SBAR, callouts, huddles, and closed-loop communication among team members. In the context of a cord prolapse, these techniques are particularly useful—   + for communicating a sense of urgency when requesting other unit personnel and provider for help responding to a hemorrhage,   + for communicating changes in maternal or fetal status,   + when giving and receiving new orders to manage the hemorrhage,   + when briefing new care team members who arrive to support a rapid response, and   + when regrouping to discuss plan of care if patient fails to respond to initial measures. |
| Communicate during transitions of care. | Use of transition communication techniques assures a shared mental model of plan of care and perceived risks between shifts, between units, and between care teams within a unit. This includes communication between primary team and rapid responders, or between rapid responders and the operating room or OR team. |

***Teamwork Training (TeamSTEPPS®) (continued)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Have high-reliability teams:   * Anyone can sound an alarm, request help, or challenge the status quo. * Hierarchy is minimized. * Communication is continuous, valued, and expected. | * Team members protect one another from work overload, place requests or offers for assistance in the context of patient safety. It is expected that assistance will be actively sought and offered. * Team members will advocate for the patient when one person’s viewpoint does not coincide with another’s.   + Assert a corrective action in a firm and respectful manner.   + Use CUS language: “I am **c**oncerned. I am **u**ncomfortable. This is a **s**afety issue.”   + Use the "two-challenge" rule, repeating concern, and asking whether you have been heard.   + Use a predetermined “stop the line” phrase. * Team members manage conflict using a constructive positive approach to emphasize “what is right, not who is right”:   + **D:** Describe the specific behavior or situation.   + **E:** Express how the situation makes you feel or concerns you.   + **S:** Suggest other alternatives.   + **C:** Consequences stated in terms of team goals, not punishment. |

***Patient and Family Engagement (CUSP Module)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Communicate with patient and family during episode. | * Patient and family are part of the team.   + Ensure a shared mental model with patient and family as well as the clinical team.   + Provider/RN speaks to patient and partner or delegates staff to do so regarding the urgency of the cord prolapse and what they need the patient to do.   + Provide reassurance continuously. |

***Patient and Family Engagement (CUSP Module) (continued)***

| **Key Perinatal Safety Elements** | **Examples** |
| --- | --- |
| Disclose any unintended outcomes. | Unit-established process for disclosing unintended outcomes. This may include the following:   * Prompt, compassionate, and honest communication with the patient and family * Investigation * Ongoing communication with the patient and family * Apology and remediation * System and process improvement * Measurement and evaluation * Education and training |

# References

1. Macones GA, Hankins GD, Spong CY, et al. The 2008 National Institute of Child Health and Human Development workshop report on electronic fetal monitoring: update on definitions, interpretation, and research guidelines. J Obstet Gynecol Neonatal Nurs. 2008 Sep-Oct;37(5):510-5. PMID: 18761565.
2. Holbrook BD, Phelan ST. Umbilical cord prolapse. Obstet Gynecol Clin North Am. 2013 Mar;40(1):1-14. PMID: 23466132.
3. Phelan ST, Holbrook BD. Umbilical cord prolapse: a plan for an OB emergency. Contemp OB/GYN. 2013 Sept 1. <http://contemporaryobgyn.modernmedicine.com/contemporary-obgyn/news/umbilical-cord-prolapse?page=full>. Accessed May 2, 2016.
4. Government of Western Australia, Department of Health. Obstetric and Gynaecology Clinical Guidelines Section B. Obstetrics and Midwifery Care, Section b11.3.2 Umbilical Cord Prolapse. January 2015 <http://kemh.health.wa.gov.au/development/manuals/O&G_guidelines/sectionb/index.htm#11>. Accessed July 4, 2016.
5. Perinatal Services BC. Core Competencies--Management of Labor, Decision Support Tool 8A--Obstetrical Emergencies Cord Prolapse. 2014 April 14. <http://www.perinatalservicesbc.ca/health-professionals/guidelines-standards/standards/core-competencies-for-management-of-labour>. Accessed May 2, 2016.
6. Siassakos D, Hasafa Z, Sibanda T, et al. Retrospective cohort study of diagnosis-delivery interval with umbilical cord prolapse: the effect of team training. BJOG. 2009 Jul;116(8):1089-96. PMID: 19438496.

Appendix

*Every effort was made to ensure the accuracy and completeness of this resource. However, the U.S. Department of Health and Human Services makes no warranties regarding errors or omissions and assumes no responsibility or liability for loss or damage resulting from the use of information contained within.*

**Sample Cord Prolapse Management Checklist**

**Communicate the diagnosis to key staff.**

**Identify prolapse/cord pulsations *[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***

Communicate diagnosis to—

Patient/family members

Maternity care provider (physician or midwife)

Charge nurse

Nursing staff

Pediatric provider

Anesthesiology provider

**Designate one team member as recorder.**

**Designate one team member as communicator.**

**Protect the cord.**

* Minimize manipulation of the cord.
* If cord is protruding from vagina, cover with sterile towel saturated with warm saline

If fetal heart rate abnormality is detected, consider taking the following actions:

* Minimize exposure to cold environment (i.e., room temperature). Retaining as much of the cord intravaginally as possible is recommended.

***[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***

* Funic decompression--examiner’s hand is placed vaginally and gently elevates the fetal head or presenting part. ***[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***
* Consider Trendelenburg positioning, knee-chest position, or gentle suprapubic elevation. ***[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***
* Funic reduction (manual replacement of the cord)--This is a controversial practice. Earlier studies, prior to the advent of continuous fetal monitoring, showed association with increased risks of fetal hypoxia and death. Later but smaller series have shown success, particularly if cesarean section must be delayed, or if only a short segment of cord is prolapsed and vaginal delivery is imminent.

***[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***

**Stop oxytocin infusion (if receiving)**

**Assess indications for expectant management:**

* lethal fetal anomalies
* previable gestational age
* fetal demise

**Assess likelihood of safe vaginal birth within 15 minutes of elapsed time from diagnosis.**

* Cervix is fully dilated, presenting part engaged, and station is low enough for an assisted or spontaneous vaginal delivery within 15 minutes🡪 proceed with vaginal delivery.

***[Call time of decision to proceed with vaginal delivery] [hh:mm:ss] \_\_\_\_:\_\_\_\_:\_\_\_\_***

* Safe vaginal birth NOT likely within 15 minutes🡪 proceed with cesarean section.

***[Call time of decision to proceed with cesarean section] [hh:mm:ss] \_\_\_\_:\_\_\_\_:\_\_\_\_***

* Obtain verbal consent from patient for cesarean section.

***[Call Time] [hh:mm:ss] \_\_\_\_:\_\_\_\_:\_\_\_\_\_***

**If appropriate, administer oxygen by face mask at 8–10 liter/min.**

***[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***

**If delay with proceeding to cesarean section:**

* Consider retrofilling the bladder with 500–700 mL of normal saline. This MUST be drained prior to cesarean delivery.

***[Call Time] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***

* Consider tocolytics.

**Prepare for neonatal resuscitation.**

**Deliver baby.**

***[Call time of delivery of presenting part] [hh:mm:ss] \_\_\_:\_\_\_\_:\_\_\_***

* Obtain umbilical cord blood for blood gas analysis.

**Debrief with all team members.**

**Document** **key times, decisions, and interventions.**

* Exam findings (e.g., cord pulsations) indicating prolapse and time of exam
* Time of provider and team notification and arrival
* Time of decision to proceed with vaginal delivery and rationale –OR– time of decision to proceed with cesarean section and rationale
* Maneuvers used (positioning, bladder fill, oxygen, funic decompression and/or reduction), including sequencing, timing, and fetal response
* Delivery description (vaginal, assisted vaginal, cesarean)
* Time of delivery and length between identification of prolapse and delivery
* Staff present

Maternity care provider(s)

Nursing staff

Anesthesia provider

Pediatric provider

Other

* Neonatal status

Birth weight (grams) \_\_\_\_\_\_\_

Outcome: deceased or live birth

Apgars: 1 min/5 min/10 min, if applicable

Blood gases: sent or not sent

Arterial: pH and base deficit: Venous: pH and base deficit:

Infant location after birth: remained in room with mother, transferred to NICU, transferred to newborn nursery

* Maternal status after delivery

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