# VANTAGEPOINT®

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## Perinatal Care: Creating and Maintaining a High-reliability Unit

At the root of most sentinel events involving perinatal injury and death is a flawed delivery system, lacking such critical components as shared communication protocols, dedicated care teams, standardized treatment parameters and built-in clinical decision aids.[1] The human and financial toll of substandard obstetrical care has led to the widespread adoption of perinatal safety initiatives designed to create a highly reliable care environment.

High-reliability perinatal units are rooted in an enterprise-wide culture of safety and a systemic understanding of human dynamics and accident causation – principles that have reduced risk in the aviation industry and other complex, high-risk settings.[2] These general concepts are embodied in the following attitudes and practices:

- strong and responsive leadership
- multi-disciplinary team interaction

- adherence to principles of evidence-based medicine
- standardized policies and procedures for clinical operations
- common terminology to describe fetal well-being
- timely communication of medical information
- high degree of emergency readiness

This edition of *Vantage Point*® outlines the essential components of a high-reliability perinatal unit and offers strategies to help incorporate these defining features into everyday clinical and operational activities. By creating a dedicated oversight team comprising executive leaders, physicians, advanced practice providers and nurses, organizations can enhance their delivery of care, protect mothers and newborns, and decrease obstetrical liability exposure.

1 The Joint Commission, "Preventing Infant Death and Injury During Delivery." *Sentinel Event Alert*, Issue 30, July 21, 2004. Available at **http://www.jointcommission.org/SentinelEvents/SentinelEventAlert/ sea_30.htm**.
2 Knox, G.E., et al. "High Reliability Perinatal Units: Further Observations and a Suggested Plan for Action." *Journal of Healthcare Risk Management*, Fall 2003, Volume 23:4, pp. 17-21. Available to members of the American Society for Healthcare Risk Management (ASHRM) at **http://www.ashrm.org/ashrm/education/ development/journal/index.shtml**.

A RISK MANAGEMENT RESOURCE FOR HOSPITALS AND HEALTH SYSTEMS

*By endorsing and implementing 'care bundles,' perinatal units establish a common pathway for addressing high-risk presentations.*

## STANDARDIZING PROTOCOLS

Standardized protocols – i.e., a uniform set of standing orders that reflect national professional standards of care – are an essential element of a solid clinical infrastructure. To encourage standardization of key clinical interventions, the Institute for Healthcare Improvement (IHI) has developed "perinatal care bundles" for three common and relatively high-risk procedures: elective induction, augmentation and vacuum extraction. These process-related guidelines are designed to aid obstetrical teams in delivering the appropriate care at the right time.

Each bundle reflects evidence-based science and a consensus among physicians regarding clinically indicated elements of care. By endorsing and implementing care bundles, perinatal units establish a common pathway for addressing high-risk presentations. For more information on perinatal care bundles, data collection and measurement tools, visit **http://www.ihi.org/IHI/Topics/Perinatal Care/PerinatalCareGeneral/EmergingContent/#Tools.**

*Risk Management Intervention: Improve compliance with standardized treatment protocols by building decision aids and reminders into scheduling processes, order sets and electronic charting systems for the following high-risk conditions:*

- *vaginal birth after a Cesarean section*
- *uterine tachysystole*
- *induction*
- *occurrence of shoulder dystocia*
- *augmentation*
- *vacuum extraction*

*For examples of automatic reminders, see "Sample Protocol Decision Aids," page 3.*

*Sample Protocol Decision Aids*

## SAMPLE 1: VACUUM BUNDLE ELECTRONIC RECORD REMINDER

Vacuum extraction

Patient's name: _____

- Alternative labor strategies considered?
- Informed consent obtained by the physician?
- Estimated fetal weight documented?
- Rapid Response Team on standby?
- Fetal position and station verified?

Total time: _____ Number of vacuum detachments: _____

## SAMPLE 2: CROSS-CHECK OF BUNDLE ELEMENTS

Induction

Patient's name: _____

- Induction date and time scheduled and verified?
- Indication for induction noted?
- Informed consent obtained by the physician?
- Medication calculated and ordered by the physician?
- Fetal heart rate assessment documented?
- Fetal weight recorded?
- Gestational age noted?
- Cervical assessment documented?

## SAMPLE 3: ELECTRONIC RECORD POP-UP

Protocol alert!

Has a baseline fetal monitor tracing been obtained for 20 minutes before starting pitocin/oxytocin?

**CONSULT OB**          **YES**

## ADOPTING CONSISTENT TERMINOLOGY

Inconsistent use of obstetrical terms to describe maternal and fetal well-being during patient handoffs, emergencies and other critical periods can lead to confusion among staff and potentially compromise care to the mother and baby. To improve communication, ensure that obstetric and perinatal physicians, midwives and nurses use a standard terminology with shared definitions of critical words and phrases, such as

- labor
- parity
- precipitate labor
- premature rupture of membranes
- primary postpartum hemorrhage
- primiparity
- secondary postpartum hemorrhage
- term
- viability age

Staff also should use standardized terms to describe changes in electronic fetal heart rate (FHR) tracings, such as those developed by the National Institute of Child Health and Human Development (NICHD).[3] Consistent use of the NICHD nomenclature, supported by a shared and precise understanding of its associated physical criteria, can help clarify the treatment plan and enhance communication between patients, providers and staff. (For an overview of NICHD nomenclature, see "Objective Terminology for Fetal Heart Rate Characteristics," page 5.)

*Risk Management Intervention: Require all physicians and nurses in the perinatal setting to demonstrate proficiency in electronic fetal monitoring through certification from a nationally recognized organization. In addition, offer joint training sessions on the interpretation of FHR tracings and emergency management of fetal and maternal conditions.*

## STRUCTURING COMMUNICATION

By adopting a universal communication format – such as SBAR or PURE® – hospitals can help reduce errors in information transfer, thus increasing both safety and efficiency.[4] The following diagram illustrates how use of either method can result in more direct, complete and concise communication:

| SBAR | PURE® |
|---|---|
| **S**ituation<br>Why am I calling? | **P**urposeful, prepared and productive<br>What needs to get done? |
| **B**ackground<br>What will the provider need to know? | **U**nambiguous<br>Is the problem relayed in common terms and an assertive manner? |
| **A**ssessment<br>What is the patient's current status? | **R**espectful<br>Is the flow of information unimpeded by disruptive/intimidating behavior? |
| **R**equest<br>What is needed from the physician? | **E**ffective<br>Are communication techniques such as repetition, cross-checking, and addressing questions/conflict used to ensure accuracy? |

Written policy should emphasize the use of structured communication formats when questioning a medical order, seeking a second opinion or addressing the following situations, among others:

- non-reassuring fetal heart rate
- eclamptic seizures
- hyperstimulation during oxytocin administration
- shoulder dystocia
- emergency Cesarean section
- postpartum hemorrhage
- disruptive or unsafe clinician
- triage conversation regarding an acute condition
- noncompliant patient

Reinforce physicians' and nurses' utilization of the selected format via mock scenarios and other educational tools that highlight the problems caused by ambiguity.

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3 In September 2008, NICHD published its consensus guidelines on electronic fetal heart rate monitoring. See Macones, G.A., 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." *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, August 29, 2008, Volume 37:5, pp. 510-515. Available at **http://www3.interscience.wiley.com/journal/121391997/abstract?CRETRY =1&SRETRY=0**.

4 For more information on PURE®, see Veltman, L. and Larison, K. "PURE Conversations: Enhancing Communication and Teamwork." *Journal of Healthcare Risk Management*, Spring 2007, Volume 27:2, pp. 41-44. Abstract available at **http://www3.interscience.wiley.com/journal/122521076/abstract**. For information about perinatal SBAR tools, visit IHI at **http://www.ihi.org/IHI/Topics/PerinatalCare/ PerinatalCareGeneral/EmergingContent/PerinatalSBARTools.htm**.

## Objective Terminology for Fetal Heart Rate Characteristics

| TERM | DEFINITION |
|------|------------|
| Baseline rate mean | Fetal heart rate (FHR) rounded to increments of 5 beats per minute (BPM) during a 10-minute segment, excluding periodic or episodic changes, periods of marked variability and segments of baseline that differ by >25 BPM. Duration must be ≥2 minutes. |
| Bradycardia | Baseline rate of <110 BPM for >10 minutes. |
| Tachycardia | Baseline rate of >160 BPM for >10 minutes. |
| Variability | Fluctuations in the baseline FHR of 2 cycles per minute or greater. Visually quantitated as the amplitude of the peak to trough in BPM, as described below:<br>- absent variability: amplitude from peak to trough undetectable<br>- minimal variability: amplitude from peak to trough >undetectable and ≤5 BPM<br>- moderate variability: amplitude from peak to trough 6-25 BPM<br>- marked variability: amplitude from peak to trough >25 BPM |
| Acceleration | Visually apparent abrupt increase (onset to peak is <30 seconds) of FHR above baseline. Peak is ≥15 BPM and duration is <2 minutes. In gestations of <32 weeks, a peak of 10 BPM lasting 10 seconds qualifies as acceleration. |
| Prolonged acceleration | Acceleration >2 minutes' and <10 minutes' duration. |
| Early deceleration | Visually apparent gradual decrease (onset to nadir is ≥30 seconds) of FHR below baseline. Return to baseline associated with a uterine contraction. Nadir of deceleration occurs at the same time as the peak of the contraction. Generally, the onset, nadir and recovery of the deceleration occur at the same time as the onset, peak and recovery of the contraction. |
| Late deceleration | Visually apparent gradual decrease (onset to nadir is ≥30 seconds) of FHR below baseline. Return to baseline associated with a uterine contraction. Nadir of deceleration occurs after the peak of the contraction. Generally, the onset, nadir and recovery of the deceleration occur after same amount of time as the onset, peak and recovery of the contraction. |
| Variable deceleration | Visually apparent abrupt decrease (onset to nadir is <30 seconds) in FHR below baseline. Decrease is ≥15 BPM. Duration is ≥15 seconds and <2 minutes. |
| Prolonged deceleration | Visually apparent abrupt decrease (onset to nadir is <30 seconds) in FHR below baseline. Decrease is ≥15 BPM. Duration is ≥2 minutes but <10 minutes. |

Source: National Institute of Child Health and Human Development, at **http://www.nichd.nih.gov/**.

Effective communication also requires the use of "assertiveness" techniques when the situation demands timely response. Such phrases as "*I need to clarify …,*" "*I need to speak with a senior physician*" or "*I request that you …*" can result in swifter action. In addition, if a patient is in jeopardy, staff members must know how to quickly escalate an issue to the next level. Finally, staff members must be aware that interpersonal conflict is always a possibility in a high-stress clinical environment, and be trained in managing and containing potentially disruptive encounters. (For more information on conflict management, see the CNA HealthPro *Vantage Point®* 2008 – Issue 1, "Defusing Conflict, Minimizing Risk," available at **www.cna.com**.)

*Risk Management Intervention: Reinforce use of the approved communication format by inserting reminders into the electronic record system and distributing printed stickers and pocket guides. For a sample, see "SBAR Report Format," page 7.*

*Frequent situational briefings can promote a shared model of care and assist caregivers in anticipating other team members' needs.*

## DEVELOPING TEAMS

Well-integrated care teams are at the center of high-reliability perinatal units and are often the vehicle through which unit policy and procedure are developed and revised. By combining professionals from a variety of clinical disciplines – including obstetrics, perinatology, maternal-fetal medicine, midwifery and advanced nurse practice – into a high-performing unit, organizations can foster a safety-focused, collaborative atmosphere that minimizes the likelihood of error.

To improve team functioning, members should engage in frequent situational briefings. This practice can help maintain safe parameters of care for individual patients and increase awareness of critical information, such as

- current situation
- plan of treatment
- relevant history
- potential risks
- monitoring needs

Held at the start of a shift, during staff rotations, upon patient transfer or as emergency circumstances arise, briefings promote a shared model of care and assist caregivers in anticipating other team members' needs.

To learn more about teamwork-building programs, visit the Agency for Healthcare Research and Quality TeamSTEPPS® Tool Web site at **http://teamstepps.ahrq.gov/abouttoolsmaterials.htm#Additional Materials**. In addition, perinatal teams can measure their degree of teamwork and safety awareness by using a survey instrument, such as the perinatal version of the Safety Attitudes Questionnaire.[5]

*Risk Management Intervention: Create documentation tools to support the team briefing process, including procedural safeguards such as the "two-person challenge" rule and check-back protocols. For helpful pointers, see "Sample Form: Situational Briefing Format," page 9.*

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5 Developed at the University of Texas Center of Excellence for Patient Safety Research and Practice, the questionnaire is available at **http://www.uth.tmc.edu/schools/med/imed/patient_safety/documents/Survey-SAQ-Labor-Delivery-2003.pdf**.

## SBAR Report Format

| | OBSTETRIC PATIENT | NOTES |
|---|---|---|
| **S**ituation | - Give name and location.<br>- Note patient's name, admitting diagnosis and reason for call.<br>- Relay concerns – e.g., fetal heart rate, contraction pattern, elevated blood pressure, vaginal bleeding. | |
| **B**ackground | - Provide history:<br>  - gravida__ para___<br>  - gestational age<br>  - attending obstetrician<br>  - significant obstetrical/medical history<br>  - problems with current pregnancy<br>- Relay patient complaints and pain level. | |
| **A**ssessment | - Report on vital signs – e.g., blood pressure, fetal heart rate, contraction pattern and significant lab values.<br>- Include intra-uterine resuscitative measures.<br>- Express clinical impressions and concerns (e.g., "I'm concerned about …," "I need to clarify that …"). | |
| **R**equest | - Ask for desired action (e.g., "What I need from you is …").<br>- Be specific about time frame.<br>- Suggest tests and treatments.<br>- Clarify all orders.<br>- Note time for call-back report. | |

## IMPROVING EMERGENCY READINESS

By deploying a team specifically trained to handle obstetrical emergencies – such as maternal hemorrhage and intra-uterine fetal distress – hospitals can help prevent and mitigate potential errors in life-or-death situations.

The composition of the obstetrical emergency team will vary according to the facility's size and staff resources, but it will generally include a physician hospitalist, designated laborist or midwife. All members should be trained and certified in the fundamentals of emergency care, including, but not limited to, advanced cardiac life support, pediatric advanced life support, emergency childbirth training and basic disaster training. (For more information on assembling and managing a critical events team, see CNA HealthPro's *Vantage Point*® 2007 – Issue 2, "Rapid Response Teams: Saving Lives Through Immediate Intervention," available at **www.cna.com**.)

Regularly scheduled drills can help staff members maintain emergency skill competencies, while enabling administrators to review organizational response protocols and group dynamics. Drills should involve staff from all relevant disciplines, including obstetrics/gynecology, anesthesiology, other perinatal specialties and nursing. Mock obstetrical emergencies that realistically imitate common distress symptoms and treatment responses can be especially useful. Simulation drills should focus on clinical scenarios that are associated with the greatest risk to patients, such as massive obstetric hemorrhage, shoulder dystocia, cord prolapse, eclampsia, maternal cardiopulmonary collapse, emergency Cesarean section and neonatal resuscitation.

*Risk Management Intervention: The following tips are intended to enhance the effectiveness of emergency simulation drills:*

- *Create pocket "cue cards" for participants based on established clinical algorithms for intra-uterine resuscitation, shoulder dystocia, emergent Cesarean birth, neonatal resuscitation and postpartum hemorrhage.*
- *Focus on team communication and overall system functioning when planning drills.*
- *Use a video camera to record each participant's actions for retrospective review.*
- *Conduct an interdisciplinary discussion following each emergency drill to evaluate potential areas for improvement.*
- *Prepare a list of action items to be addressed, based upon drill outcomes and discussions.*

*For a downloadable "e-book" of obstetric emergency drills and supporting information, visit* **http://download-book.net/ob-emergency-drills-pdf.html***.*

*Drills should involve staff from all relevant disciplines, and should realistically imitate common distress symptoms and treatment responses.*

*Sample Form: Situational Briefing Format*

Date: _____ Patient's name: _____

Description of situation: _____
_____

Team members present: _____
_____

### LIST APPLICABLE POLICY AND PROCEDURE NUMBERS
_____
_____

### SPECIFY DESIRED RESULTS
_____
_____

### IDENTIFY RESOURCES
Personnel needs and limitations: _____
_____

Equipment needs and limitations: _____
_____

### NOTE SAFETY CONCERNS
_____
_____

### SET PERFORMANCE EXPECTATIONS
Member: _____ Task: _____
Member: _____ Task: _____
Member: _____ Task: _____
Member: _____ Task: _____

### SET PROCEDURAL EXPECTATIONS
Clinical outcome: _____
Debrief date and time: _____
Problems identified: _____
Action plan: _____
Follow-up steps: _____

## REVIEW OUTCOMES

Retrospective review of perinatal outcomes is critical to the success of high-performance perinatal units. Data sources should include randomly selected records and fetal heart tracings of elective induction, augmentation and other high-risk delivery patients, as well as results of drill debriefings and analysis of system errors. A qualified panel – representing such areas as obstetrics, maternal-fetal medicine, genetics, midwifery, nursing, maternal education, diagnostic services, nutrition and social work – should review these data on a weekly basis.

Using a report format, the review panel should document the following findings, among others:

- trends in maternal, fetal and neonatal deaths
- occurrence of maternal and neonatal transports
- unanticipated maternal return to the OR or admission to the ICU
- awareness and application of required elements of perinatal care bundles
- compliance with standardized treatment protocols
- viability of low-birth-weight infants
- action plan addressing identified problems

Findings should be shared with executive leadership and governance. They also should be included in the credentialing, privileging and peer-review processes for obstetricians, midwives and other medical perinatal providers.

*Risk Management Intervention: Utilize a "trigger" tool to identify adverse events during manual reviews of randomly selected records. For a sample perinatal trigger tool, visit the IHI Web site at http://www.ihi.org/NR/rdonlyres/FE43B4BB-F046-426E-A243-DA81A2FB2F97/3525/PerinatalTriggerToolJuly2008.pdf.*

Well-coordinated teamwork, consistent protocol application and sound communication practices are essential to achieve safe and reliable perinatal care. The recommendations outlined here can help hospitals empower perinatal care providers to save lives and reduce exposure by responding to maternal-fetal distress in a timely and effective manner.

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## RESOURCES

- American Academy of Pediatrics (AAP) Section on Perinatal Practice, at **www.aap.org/perinatal**

- American College of Nurse-Midwives (ACNM), at **www.acnm.org**

- American Congress of Obstetricians and Gynecologists (ACOG), at **www.acog.org**

- Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), at **www.awhonn.org**

- Institute for Healthcare Improvement (IHI), at **www.ihi.org**

- National Institute of Child Health and Human Development (NICHD), at **www.nichd.nih.gov/**

- National Perinatal Association (NPA), at **www.nationalperinatal.org/**


- Miller, L.A. "Patient Safety and Teamwork in Perinatal Care: Resources for Clinicians." *Journal of Perinatal & Neonatal Nursing*, January-March 2005, Volume 19:1, pp. 46-51. Abstract available at **http://www.ncbi.nlm.nih.gov/pubmed/15796424.**

## CNA Risk Control Services

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