The following guidelines are intended only as a general educational resource for hospitals and clinicians, and are not intended to reflect or establish a standard of care or to replace individual clinician judgment and medical decision making for specific healthcare environments and patient situations.

VBAC Guidelines
Revised December 2011

This document represents collaboration among the hospitals in Vermont and New Hampshire. It outlines NNEPQIN’s collective recommendations for VBAC care, based upon thorough and thoughtful review of the literature. It incorporates ACOG guidelines, and presents a regional definition of provider's "immediate availability" based upon patient risk status. The goal is to maintain the availability of VBAC services throughout the region, while ensuring patient and provider safety. These recommendations apply to VBAC candidates only, and recognize the need to adapt care to the unique circumstances of each case.

Unit Structure:

Each hospital should develop policy and procedure guidelines that reflect the resources and ability of the delivery unit to respond to emergent situations that may develop for patients attempting VBAC. These guidelines should include a description of informed consent, notification, availability of key providers, facilities, and the typical response times for emergency cesarean section.

Each hospital needs to have a system in place for competency review and protocol verification. This can be accomplished in several ways, including but not limited to:

- periodic emergency cesarean drills for staff
- ongoing individual review of emergency cesarean section cases
- regular staff training in the interpretation of fetal heart rate monitoring

These activities will provide ongoing opportunities for quality improvement.

Definitions:

- **Labor:** Regular and painful uterine contractions that cause cervical change.
- **Active Labor:** The cervix is 4-5 cm dilated and there are regular and painful uterine contractions.
- **Adequate Labor:** Contractions every 3 minutes with a 50 torr rise above baseline or contractions every 3 minutes lasting at least 45 seconds that palpate strong.
- **Provider capable of performing a cesarean section:** An obstetrician, surgeon, or family practitioner who is credentialed to perform a cesarean delivery.
- **Admission:** Occurs when labor has been diagnosed, or when decision is made to deliver the patient. Observation to determine if the patient is in labor is not considered admission.
- **Anesthesia:** Refers to a CRNA or anesthesiologist who is privileged by the hospital.
• **OR Team:** One person competent to scrub for a cesarean section and one person competent to circulate during a cesarean section. These may be OR technicians, LNA, CNA, LPN, or RN.

**Risk Assessment:**
- Each patient should be evaluated for risk factors associated with decreased VBAC success and uterine rupture. (See tables.)
- The association of factors related to an increased risk of uterine rupture has not been able to be translated into the reliable prediction of uterine rupture (1, 2). Patients without risk factors may experience uterine rupture.
- Previous vaginal delivery is associated with higher rates of VBAC success and lower risk of uterine rupture.
- There is limited data on outcomes for women with multiple risk factors present. Some studies suggest that even when multiple risk factors are present, VBAC success rates are often at least 50% or higher (3). All patients should receive counseling about the assumed relative risk for VBAC success and uterine rupture. Management plans for these outcomes should be reviewed with the patient.

<table>
<thead>
<tr>
<th>Factors Associated With Decreased VBAC Success</th>
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<tbody>
<tr>
<td>Labor induction (3, 4)</td>
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<tr>
<td>Labor augmentation(3, 4)</td>
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<tr>
<td>Short inter-pregnancy interval (3, 4)</td>
</tr>
<tr>
<td>Birth weight &gt;4000 gm(3, 4)</td>
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<tr>
<td>Gestational age 41 weeks or greater (3, 4)</td>
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<tr>
<td>Excess maternal weight gain, variously defined (3, 4)</td>
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<tr>
<td>Maternal obesity, variously defined (3, 4)</td>
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<tr>
<td>Recurrent indication for initial cesarean delivery (3, 4)</td>
</tr>
<tr>
<td>Unfavorable cervical status at admission (3, 4)</td>
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<tr>
<td>Non-white ethnicity (3, 4)</td>
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<thead>
<tr>
<th>Factors Associated With Uterine Rupture</th>
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<tbody>
<tr>
<td>Labor induction (5, 6, 7)</td>
</tr>
<tr>
<td>Labor augmentation (8, 9, 10)</td>
</tr>
<tr>
<td>Short inter-pregnancy interval (16, 17, 18)</td>
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<table>
<thead>
<tr>
<th>Other Factors Investigated for Association with Uterine Rupture</th>
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<tbody>
<tr>
<td>Data insufficient to demonstrate consistent association.</td>
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<tr>
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<tr>
<td>Gestational age 41 weeks or greater (14, 15)</td>
</tr>
<tr>
<td>Birth weight &gt;4000 gm (11, 12, 13)</td>
</tr>
<tr>
<td>Previous single layer closure of the uterus (19, 20)</td>
</tr>
<tr>
<td>Maternal obesity, variously defined (21)</td>
</tr>
<tr>
<td>Recurrent indication for initial cesarean delivery (1)</td>
</tr>
<tr>
<td>Unfavorable cervical status at admission (1)</td>
</tr>
<tr>
<td>Non-white ethnicity (1)</td>
</tr>
<tr>
<td>3 or more prior cesarean sections (23, 24)</td>
</tr>
</tbody>
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The Maternal Fetal Medicine Unit Network recently performed a large multi-center trial evaluating VBAC. Based on the data from this study, a nomogram was created to predict VBAC success. A calculator based on this nomogram can be found at the George Washing University Biostatistics Center web site. It may be useful for individualizing the counseling given to patients about VBAC.

http://www.bsc.gwu.edu/mfmu/vagbirth.html
Low Risk Patient: Risk for uterine rupture approximately 0.3-0.7%.
- 1 or 2 prior low transverse cesarean section(s)
- Spontaneous onset labor
- No need for augmentation
- No repetitive FHR abnormalities
- Patients with a prior successful VBAC are especially low risk. However, their risk status escalates the same as other low risk patients.

Medium Risk Patient: Risk for uterine rupture is likely greater than 0.7%.
- Induction of labor
- Oxytocin augmentation
- < 18 months between prior cesarean section and current delivery.
- 3 or more prior low transverse cesarean sections.

High Risk Patient: Patients who have intra-partum signs or symptoms that may be associated with uterine rupture or failure of vaginal delivery (4).
- Recurrent clinically significant deceleration (variable, late or prolonged fetal heart rate decelerations) not responsive to clinical intervention
- Significant bleeding of uterine origin
- New onset of intense uterine pain
- 2 hours without cervical change in the active phase despite adequate labor

Prenatal Management:
- Records of prior delivery reviewed, including type of uterine incision and method of closure. Evaluate history of previous uterine surgery.
  - VBAC may be attempted in some cases where documentation of the previous uterine scar is not available, as long as there is not a high suspicion of a classical uterine incision. (4) (Level B)
  - Patients with a previous classical uterine incision, previous extensive transfundal surgery or prior uterine rupture are not candidates for VBAC. (4) (Level B)
- Appropriate patient education brochure given to patient and reviewed with patient (NNEPQIN sample available).
- Appropriate VBAC consent reviewed during prenatal care and signed (NNEPQIN sample available). Informed consent should include a discussion of the following.
  - A description of the process of risk assessment.
  - The ability of the institution to care for the patient, based on her risk level.
  - The process of transfer of care, should it become necessary based on risk factors.
  - Institutional management plans for uterine rupture.
- Anesthesia consultation/evaluation per institution guidelines.
- If the primary OB provider cannot perform a cesarean section, consultation with provider privileged to perform a cesarean section.

Basic Intra-partum Care Recommendations for all VBAC Patients:
- Review with the patient the risks/benefits of proceeding with VBAC on admission.
  Determine if the patient’s risk level has changed, or patient choice has changed. This review should be documented in the medical record.
- Lab/Blood Bank Preparation
• Type and Screen, or Type and Cross depending on the institution’s blood bank availability in off hours
• Anesthesia personnel notified of admission.
• Pediatric personnel notified of admission.
• OR Team notified of admission and plan in place if cesarean delivery needed.
  • Does not mean an OR is kept open for patients at low risk.
• In Active Labor (4-5 cm dilated).
  • Continuous Electronic Fetal Monitoring.
  • Place 18 gauge IV.
  • Provider on hospital campus who is credentialed to perform a cesarean section.
    • If the primary obstetric provider is not credentialed to perform a cesarean section, the cesarean delivery provider will be consulted.
• All patients attempting VBAC should have their labor progress monitored carefully to ensure adequate progress. Arrest of labor is associated with decreased VBAC success and uterine rupture. Patients with a macrosomic fetus (EFW > 4000 gm), especially those with no previous vaginal birth, are more likely to experience outcomes related to arrest of labor, and require careful monitoring.

**Intra-partum Management:**
Each hospital should evaluate the resources that they typically have available for the care of laboring women with prior cesarean deliveries. Women should be counseled as to their anticipated risk status and the institutional resources. Cesarean section may be recommended if a woman's risk status increases and provider services cannot be increased and maintained until delivery.

ACOG states: “Respect for patient autonomy supports the concept that patients should be allowed to accept increased levels of risk, however, patients should be clearly informed of such potential increase in risk and management alternatives…In settings where the staff needed for emergency cesarean section are not immediately available, the process for gathering needed staff when emergencies arise should be clear, and all centers should have a plan for managing uterine rupture.” (4) (Level C)

**Low Risk Patient:**
• No additional interventions other than those listed above.
• Cesarean delivery provider may have other acute patient care responsibilities.

**Medium Risk Patient:**
• Cesarean delivery provider in the hospital during the active phase of labor. Cesarean delivery provider may have other acute patient care responsibilities.
• An open and staffed operating room is available or there is a plan in place if immediate delivery is required. This may be a room where there is adequate lighting, instruments, and general anesthesia can be administered if needed.
• An anesthesia provider is present in the hospital during the active phase of labor.
• Anesthesia staff may have other acute patient care responsibilities.
• There is an established back up protocol for anesthesia services during busy times.

**High Risk Patient:**
• The cesarean delivery provider is present in the hospital and does not have other acute patient care responsibilities
- Anesthesia staff is present and does not have other acute patient care responsibilities.
- An open and staffed operating room is available.

**Caveats:**
- Misoprostil is associated with a high rate of uterine rupture and should not be used when a living fetus is still in-utero (4) (Level A). It may be used after delivery for uterine atony.
- There are limited data regarding the safety of a trial of labor in women with more than 2 prior cesarean sections. The degree of increase in risk of uterine rupture is unclear.
- Single layer closure of the uterus with an interlocking chromic type suture has been reported to be associated with an increased risk of uterine rupture. Operative records should be reviewed for the method of closure.
- Transfer during the active phase of labor typically holds little benefit for the patient as access to timely delivery is not present during transport.
- Attempting VBAC with twin gestation carries a similar risk as for those women with singleton pregnancies. Women without other risk factors, who have twins and are candidates for vaginal delivery, may be considered candidates for attempting VBAC. (4) (Level B)
- Women may present to hospitals that have chosen not to offer VBAC services. Transfer to a hospital providing VBAC services necessitates evaluation of the patient, to determine safety, and must comply with federal and state law. Hospitals not offering VBAC services should meet the following standards:
  - Protocol in place for women with prior cesarean sections who present in labor
  - Institution complies with ACOG Guidelines for Prenatal Care and JACHO Standards for Obstetrical Care.
  - Referral and counseling practices established so that women desiring VBAC may be referred to an appropriate center based upon their risk status.
  - Meets NRP Guidelines for infant care.

**Proposed Performance Measure:**
The percentage of patients for whom there is documented risk status at the time of admission, and documented change in risk status during labor, should that occur.
### Complication Rates Associated With VBAC and Planned Cesarean Birth
(Includes preterm and term births). (22)

<table>
<thead>
<tr>
<th>Complication</th>
<th>VBAC Attempt</th>
<th>Planned Cesarean Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uterine Rupture</td>
<td>468/100,000</td>
<td>26/100,000</td>
</tr>
<tr>
<td>Maternal Death</td>
<td>4/100,000</td>
<td>13/100,000</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Blood Transfusion</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Maternal Infection</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Infant Infection</td>
<td>Insufficient information</td>
<td>Insufficient information</td>
</tr>
<tr>
<td>Infant Bag and Mask Ventilation Required</td>
<td>5,400/100,000</td>
<td>2,500/100,000</td>
</tr>
<tr>
<td>Transient Tachypnea of the Newborn (TTN)</td>
<td>3,600/100,000</td>
<td>4,200/100,000</td>
</tr>
<tr>
<td>Infant with Brain Injury (HIE)</td>
<td>Insufficient Information</td>
<td>Insufficient Information</td>
</tr>
<tr>
<td>Infant death in pregnancy or within 7 of birth (Perinatal Death Rate)</td>
<td>130/100,000</td>
<td>50/100,000</td>
</tr>
<tr>
<td>Infant death within 30 days of birth (Neonatal Death Rate)</td>
<td>110/100,000</td>
<td>60/100,000</td>
</tr>
</tbody>
</table>


### References:


Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventative Services Task Force

I Evidence obtained from at least one properly designed randomized controlled trial.

II–1 Evidence obtained from well–designed controlled trials without randomization.

II–2 Evidence obtained from well–designed cohort or case–control analytic studies, preferably from more than one center or research group.

II–3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A—Recommendations are based on good and consistent scientific evidence.

Level B—Recommendations are based on limited or inconsistent scientific evidence.

Level C—Recommendations are based primarily on consensus and expert opinion.