# RISK FACTOR ASSESSMENT

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## EXECUTIVE SUMMARY

- Routine risk assessment improves the clinical team's readiness to respond to obstetric hemorrhage.
- Risk factors for obstetric hemorrhage should be formally assessed prenatally, on admission, and at each patient handoff through at least 24 hours postpartum.
- Identified risk factors must be clearly communicated to the clinical team caring for the woman in labor and postpartum.

## BACKGROUND AND LITERATURE REVIEW

Prevention of postpartum hemorrhage starts with preparation. Although more than half of women who hemorrhage due to uterine atony have no known risk factors, identification of associated risk factors during the antenatal and intrapartum periods can improve readiness to respond for those with known risks.[1] There is no literature identified to support when and how often to assess for risk factors during the course of pregnancy through the postpartum period. However, there are numerous studies that identify risk factors associated with hemorrhage throughout these periods.[1-3] Furthermore, certain modes of birth, including instrumented and cesarean birth are associated with increased risk for postpartum hemorrhage.

Early identification of risk factors for postpartum hemorrhage can lead to advanced planning and increased surveillance following birth that may prevent adverse outcomes. The plan of care can be individualized for each patient, based on her risk factor identification and as their condition changes. Interventions may include pre-transfusion testing (i.e. clot to blood bank, type and screen, type and crossmatch) on admission or during labor, having medications readily available at time of delivery, having scales available to weigh blood-soaked items, and notification of personnel to be available to assist if needed. The risk levels at which pre-transfusion testing is indicated may be facility dependent. The pre-transfusion testing strategy should be developed in collaboration with the blood bank recognizing local capabilities and policies: for example, in some laboratories, automated type and screen has made that test very inexpensive and feasible to collect for all obstetric admissions. For other settings testing may not be inexpensive, but the threshold for pre-transfusion testing may need to be set at a fairly low risk level if the time to cross match and blood product availability is longer. On the

other hand, some facilities with very rapid testing and access may set the threshold for pre-transfusion testing higher to conserve resources when their infrastructure allows them to do so without significant delays in obtaining blood products when needed. The strategy for risk-based pre-transfusion testing should be standardized within each obstetric service to minimize confusion and potential error.

Various studies report multiple risk factors for postpartum hemorrhage.[1-3] One study specifically examined the predictive validity of the CMQCC risk factor stratification in the original CMQCC Obstetric Hemorrhage Toolkit.[4] This study found that the risk for hemorrhage did increase across the three categories of low, medium, and high risk; BMI and macrosomia were not associated with postpartum hemorrhage risk, and inclusion of additional risk criteria did not significantly improve the sensitivity of the risk factors identified.[4] Similarly, BMI was not associated with significant risk for hemorrhage in a recent UK population-based study.[5] The literature is mixed on a number of factors including BMI, race/ethnicity, hypertension, and maternal age, which are variously reported. Thus the committee cannot make a clear recommendation about inclusion of these risk factors at this time. The committee emphasizes that risk assessment should be an ongoing process throughout labor and birth, not a static admission assessment. Our previous risk stratification (minus BMI and estimated fetal weight > 4 kg) and pre-transfusion testing strategy seems to hold for the average community hospital setting:

**Table 1: Pregnancy/Admission risk factors**

| **Low (Clot only)** | **Medium (Type and Screen)** | **High (Type and Crossmatch)** |
|---|---|---|
| No previous uterine incision | Prior cesarean birth(s) or uterine surgery | Placenta previa, low lying placenta |
| Singleton pregnancy | Multiple gestation | Suspected placenta accreta, percreta, increta |
| ≤ 4 previous vaginal births | > 4 previous vaginal births | Hematocrit < 30 AND other risk factors |
| No known bleeding disorder | Chorioamnionitis | Platelets < 100,000 |
| No history of post partum hemorrhage | History of previous post partum hemorrhage | Active bleeding (greater than show) on admit |
| | Large uterine fibroids | Known coagulopathy |

Additional **risk factors that may develop in labor** include:

- Prolonged second stage
- Prolonged oxytocin use
- Active bleeding
- Chorioamnionitis
- Magnesium Sulfate treatment

Additional **third stage/postpartum risk factors** for hemorrhage stemming from the birth process include:[1,5]

- Vacuum- or forceps-assisted birth
- Cesarean birth (especially urgent/emergent cesarean)
- Retained placenta

## RECOMMENDATIONS

1. Perform initial risk factor identification during the prenatal period and document findings in the prenatal record and have available upon admission to labor and delivery.

2. Risk factors should be reviewed from the prenatal records upon admission to labor and delivery and patient is assigned a risk category.

3. Assessment of risk factors may change during the course of labor and should be performed at least once per shift until time of delivery.

4. The next assessment should occur at the time of delivery and any modifications to the plan of care made based on risk category.

5. The final assessments should occur during the postpartum period for the first 24 hours at least once per shift.

6. Assessments can be done more frequently as patient conditions may change during the course of stay.

## EVIDENCE GRADING

**Level of Evidence: II-2 B.** Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group. Recommendations based on limited or inconsistent evidence
**Level of Evidence: III A.** Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees**.** Recommendations based on high quality and consistent evidence**.**
**Level of Evidence: III C.** Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees. Recommendations based primarily on consensus and expert opinion.

## REFERENCES

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