PREPAREDNESS CONSIDERATIONS FOR SMALL AND RURAL HOSPITALS

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EXECUTIVE SUMMARY

- Considerations for birth at a tertiary hospital should be discussed for women with prenatal conditions that put them at high risk for hemorrhage.
- Communication and collaboration between departments and between disciplines are essential to providing optimal hemorrhage care.
- Smaller and more rural hospitals may face special challenges in preparing for and responding to obstetric hemorrhage.
- Deliberate processes need to be in place for communicating with the entire team when emergencies occur during labor and birth.
- All staff need a clear picture of response times, and teams should be mobilized early for high risk situations.
- Blood product availability and time to obtain blood products should be clearly communicated to all members of the birth team.

Multidisciplinary and multi-departmental collaboration are critical to facilitating the highest quality of care for women undergoing a postpartum hemorrhage. During a hemorrhage, availability of resources such as personnel, equipment, and blood products may pose unique challenges for smaller hospitals.[1] These hospitals should proactively identify challenges and modify processes to optimize outcomes for their patients. A massive hemorrhage should be considered an emergency similar to a respiratory or cardiac arrest and elicit the same hospital emergency response and resources.

Women with high-risk conditions such as a placenta previa with a prior cesarean section, multiple prior cesarean sections, or a history of postpartum hemorrhage should be considered for delivery at a tertiary hospital where the appropriate resources are immediately available. The hospital should identify transfer resources and options including a possible transfer agreement with a tertiary hospital.

Many smaller and critical access hospitals are located in rural areas and may be prone to severe weather conditions. Adjustments to processes should be made to account for delays related to distance and weather, and these facilities may wish to consider including non-pneumatic anti-shock garments[2] in their emergency supplies and training for postpartum hemorrhage. Small hospitals planning to deliver women with known high-risk

conditions or have women present with high-risk conditions should develop a multidisciplinary plan of care.

Planned delivery of women at high risk for a postpartum hemorrhage at tertiary hospitals will not prevent all postpartum hemorrhages from occurring at small hospitals. Women will present with active bleeding to the closest hospital and some women with no identified risk factors, will develop a postpartum hemorrhage. Emergency scenarios should be discussed and a plan developed in order to facilitate an optimal response.

Communication

Early and frequent communication throughout the birth process is essential to facilitate the best care for a woman during a postpartum hemorrhage emergency. Risk factors should be identified early in the pregnancy and hospital admission. Risk assessments should be performed on admission and at patient handoffs, and communicated to the entire birth team even if they are not physically present in the hospital. Offsite providers will need to be notified of evolving high-risk situations in order to actively participate in the development of a plan of care.

The entire birth team should have a shared mental model of the emergency resources available within the hospital. Dialogue regarding time frames needed for mobilization of equipment and personnel should occur prior to an emergency situation. Communication related to available resources can be accomplished by developing unit specific plans, performing multidisciplinary drills, and huddles.

Personnel

There may be limited nursing resources available in the labor and delivery suite, operating room, and general hospital emergency personnel. Operating room personnel may not be in house at all times especially during nights, weekends and holidays. There should be an expectation that operating room personnel and staff home on call will be called in early in the event of a hemorrhage and for high risk situations, not just when an emergency is well in progress.

Consider all hospital staff when mobilizing resources during a hemorrhage emergency. A nursing supervisor or administrator may be able to assist with mobilizing personnel from other areas of the hospital or from home. A nursing supervisor may facilitate space in the operating room, post anesthesia care unit or a bed in the intensive care unit. Nurses from the emergency room and intensive care unit have critical care skills that are helpful during a hemorrhage emergency. Medical surgical nurses may be able to care for postpartum patients during an emergency or be a scribe during a hemorrhage emergency.

Anesthesia providers may be available in the operating room or at home but not to labor and delivery without a time delay. Surgical specialties such as gynecologic oncologists or vascular surgeons that may provide benefit to complicated emergent surgical situations but may be limited or not available. Available provider resources and pathways for activating emergency response from them should be identified prior to an emergency hemorrhage situation. A clear and simple process to contact providers should be developed and practiced during hemorrhage drills.

Equipment and Supplies

A significant hemorrhage is rare. Developing and maintaining hemorrhage supplies in an easily moveable container expedites care during hemorrhage emergencies. Since a hemorrhage may occur in multiple locations throughout the hospital it is optimal to have a designated hemorrhage cart that can be easily transported to the woman.

Emergency equipment may need to be brought from other areas of the hospital. A plan should be in place to mobilize emergency equipment that is not located in labor and delivery. Personnel with the responsibility to mobilize emergency equipment should be identified prior to an emergency hemorrhage. Mobilization of equipment should be practiced during postpartum hemorrhage drills to identify barriers within the process.

Blood Products

All types of blood products may not be stored at a facility, for example platelets may need to be brought in from a central regional location outside of the hospital. The hospital should identify the availability of each type of blood product, the processing time frames for each and communicate this information to the birth team. This information should be posted in an easily accessible location on the birth unit. Plans and criteria should be developed to guide pre-transfusion preparation for high-risk patients and for obtaining blood products in massive transfusion situations. Any changes to the availability of blood products should be immediately communicated to key participants of the birth team.

RECOMMENDATIONS

1. A multidisciplinary, multi-department team should be convened to evaluate readiness for managing obstetric hemorrhage.

2. Identify high-risk antenatal conditions that would be appropriate for planned birth at tertiary facility and review periodically.

3. Consider all potential personnel resources within the facility and include departments such as the operating room in planning response strategy.

4. Small hospitals should carefully map the response process for obstetric hemorrhage to identify availability of equipment, personnel, and blood products.

5. Risk assessment pre-transfusion testing (hold clot vs. type and screen vs. type and cross-match) strategies should be modified to account for potentially longer time to conduct tests and obtain blood products.

6. Conducting routine inter-departmental obstetric hemorrhage drills may assist the team in developing a shared mental model of response times and in identifying opportunities for system improvement.

EVIDENCE GRADE

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

1. Mhyre JM, Shilkrut A, Kuklina EV, et al. Massive blood transfusion during hospitalization for delivery in New York State, 1998-2007. *Obstet Gynecol.* Dec 2013;122(6):1288-1294.
2. El Ayadi A, Butrick E, Geissler J, Miller S. Combined analysis of the non-pneumatic anti-shock garment on mortality from hypovolemic shock secendary to obstetric hemorrhage. *BMC Pregnancy Childbirth.* 2013;Nov 15(13(1)):208.