

# OBSTETRIC HEMORRHAGE IN THE RURAL EMERGENCY DEPARTMENT: RAPID RESPONSE



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Severe postpartum hemorrhage is a leading cause of maternal mortality.<sup>1</sup> Circumstances such as home births, deliveries on the way to the emergency department, and excessive postpartum bleeding predispose a woman to arrive at the hospital in a state of hypovolemic shock. When a hemorrhaging woman arrives at the emergency department, emergency nurses must recognize her condition and rapidly make decisions that may save her life. Prevention of death is more likely when women present to a high-volume acute care facility with birth capacity that has support from obstetricians, anesthesia, a blood bank, and experienced nursing personnel.<sup>2</sup> Arrival at a rural hospital with limited or no obstetrical support increases the risk for poor outcomes because of lack of obstetric health care providers, equipment, and knowledge or experience to manage hemorrhaging in the postpartum period. This article will review nursing skills related to admission of postpartum patients with active hemorrhaging and the management of this condition in rural hospital emergency departments.

## Maternal Death

Complications from birth can cause maternal death quickly. This outcome occurs mostly in rural areas and underdeveloped countries, with overall global mortality numbers reaching 300,000 to 536,000 annually.<sup>3,4</sup> The World Health Organization reports that the primary reason for maternal death is hemorrhage.<sup>5</sup> Global and regional attention to these preventable deaths has unearthed common elements, such as lack of knowledge, failure to recognize the condition, and being unprepared. Deaths

attributable to these reasons occur even in resource-rich hospital facilities in the United States.<sup>6</sup>

Modern medicine has reduced maternal death rates in the United States during the past 100 years. Estimates at the turn of the 20th century were 1000 deaths per 100,000 births. These numbers rapidly declined by 1980 to about 8 deaths per 100,000 births. Since these years of dramatic improvements, further reductions in maternal mortality rates have not occurred.<sup>1,5,7</sup> Experts have identified several reasons for a lack of further reductions in maternal mortality rates, including improved measures of reporting, increasing numbers of pregnant women at advanced maternal age (some with comorbidities),<sup>7</sup> rising numbers of pregnancies complicated by obesity, and increases in surgical deliveries.<sup>8</sup>

Trends indicate that under-response to abnormal vital signs during maternal hemorrhage leads practitioners to denial and delay of treatment.<sup>9</sup> In January 2012, The Joint Commission issued Sentinel Event Alert 44 related to the prevention of maternal deaths. The Joint Commission advises emergency personnel to be trained and prepared for appropriate treatment of postpartum hemorrhage.<sup>10</sup> Increased awareness, preplanned hemorrhage protocols, and annual staff training with mock drills will foster staff success when a hemorrhaging woman presents to the emergency department.

## Defining Obstetrical Hemorrhage

Maternal blood loss during birth is expected. During gestation, women experience a 40% to 50% increase in circulating blood volume and a 25% increase in red blood cells. This hypervolemia of pregnancy supports the fetus and creates a buffer of increased blood volume that allows loss of blood at delivery without physiologic threat to the mother.<sup>9</sup> Characteristics of postpartum blood loss are outlined in Table 1.

After delivery, uterine involution and coagulation factors should respond as expected to increase uterine tone; however, without increased tone, blood loss can exceed a startling 700 mL/min.<sup>11</sup> Severe hemorrhage is rare, but medical history and complications at delivery contribute to increased risk factors. Devine<sup>9</sup> reports that risks for postpartum hemorrhage are related to an abnormality in the

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TABLE 1

**Characteristics of postpartum blood loss****Postpartum blood loss Characteristics**

Postpartum hypovolemia	Volume losses exceed hypervolemic state Blood loss greater than 500 mL in vaginal delivery, greater than 1000 mL in cesarean birth
Primary postpartum hemorrhage	Leading cause: uterine atony Occurs immediately after birth, often in hospital or birthing center; can occur in the home setting
Secondary postpartum hemorrhage	Leading cause: retained tissue Occurs 24 hours to 6 weeks after birth, most often occurs in the home

Data from references. <sup>8,10</sup>

“4 T’s.” Risk factors and causes of postpartum hemorrhage are reviewed in Figure 1.

Primary postpartum hemorrhage is frequently due to uterine atony, which is defined as failure of the uterine muscle to contract.<sup>12</sup> Trauma to the birth canal can occur

after vaginal delivery. Lacerations to the cervix, vagina, or perineum can occur from several circumstances, including large babies or precipitous (rapid) deliveries. The leading cause of secondary postpartum hemorrhage is retained tissue. Retained tissue in the uterus can occur after vaginal or cesarean birth. Remnants of tissue in the uterus cause slow but steady and prolonged bleeding. Such patients usually present to the emergency department during the second postpartum week.<sup>9</sup> Pregnancies complicated by coagulation disorders can occur after sepsis, pre-existing coagulopathies, or fetal demise.<sup>9</sup> Most women in the United States deliver in the hospital; however, if anemia is not treated effectively by the time of discharge, with further bleeding at home, they are at higher risk for symptomatic hypovolemia.

**Measuring Blood Loss**

The family member or patient will report blood loss at home that is difficult to estimate. In the hospital setting, visually estimated blood loss recently has been cited as lacking in accuracy.<sup>13–15</sup> Recommendations are to move to quantitative blood loss methods to improve accuracy and provide an earlier alert of excessive blood loss.<sup>16</sup> Dry

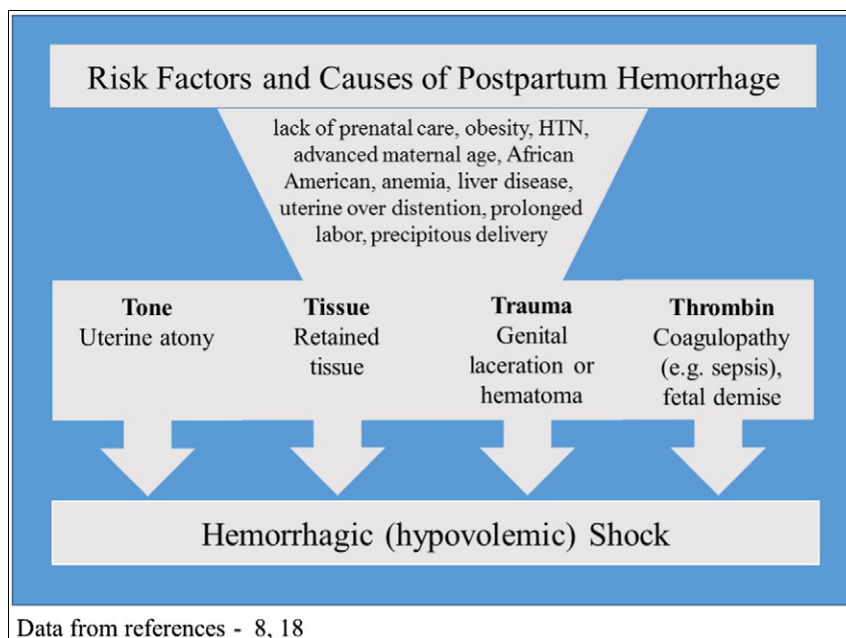


FIGURE 1

Risk factors and causes of postpartum hemorrhage. HTN, Hypertension. Data from references. <sup>4,9</sup>

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