

# Case Study

## High-tech OB simulation training educates OB teams, improves quality of rural health care

### Opportunity

In the U.S., hemorrhage is a leading cause of maternal death within 42 days of the end of pregnancy, yet many of these deaths are preventable.<sup>1</sup> While not all cases involve postpartum hemorrhage, the risk of excessive bleeding after childbirth is concerning enough that health care providers need to be thoroughly prepared at all times. Recognizing that the need for real-life training is especially great in rural areas, where the maternal death rate is up to 64 percent higher than it is in urban areas,<sup>2</sup> Bryan Health and the Heartland Health Alliance (HHA) piloted an OB simulation training program in 2018. The goal: to educate OB care teams, including family physicians who deliver babies, in recognizing and reacting to pregnancy-related complications.

### Approach

The Bryan Rural Division formed a collaboration in partnership with HHA, the Bryan College of Health Sciences, Bryan Medical Center, and Benjamin Byers, DO, a board-certified Maternal-Fetal Medicine physician at the Center for Maternal & Fetal Care. Utilizing \$20,000 of Bryan CAH Network's Flex Grant funds, they developed a multi-modal OB simulation training program designed to advance physician and OB team performance and improve patient

outcomes in postpartum hemorrhage situations. The program includes a fully-functioning, high-fidelity mannequin that recreates a real-life postpartum hemorrhage event. The mannequin utilizes a simulated blood product and responds to and verbally communicates with the providers.

Dr. Byers, along with a nurse instructor and nurse educator, provided the on-site training at 12 rural Nebraska hospitals within HHA:

- Beatrice Community Hospital and Health Center (Beatrice)
- Boone County Health Center (Albion)
- Butler County Health Care Center (David City)
- Community Hospital (McCook)
- Community Medical Center (Falls City)
- Henderson Health Care Services (Henderson)
- Howard County Medical Center (St. Paul)
- Lexington Regional Health Center (Lexington)
- Memorial Community Health (Aurora)
- Memorial Health Care Systems (Seward)
- Tri Valley Health System (Cambridge)
- York General Hospital (York)

<sup>1</sup> Building U.S. Capacity to Review and Prevent Maternal Deaths. Report from Nine Maternal Mortality Review Committees. <https://bit.ly/2KnhAsP>

<sup>2</sup> Rural America's Childbirth Crisis: The Fight to Save Whitney Brown. *The Wall Street Journal*. <https://on.wsj.com/2vWRzNC>

## OB Simulation Training (CME\*): Postpartum Hemorrhage

Conducted at each participating hospital for an optimal, site-specific learning experience, the training program includes:

**Pre-work:** Assigned reading to establish and standardize foundational understanding of risk factors and appropriate management processes, and to initiate reflection on site-specific concerns/areas for improvement.

**On-site live learning:** Dr. Byers and team deliver presentation and facilitate hands-on training using simulation mannequin. Learning objectives:

- Apply risk factor assessment and postpartum hemorrhage management in practice
- Evaluate local processes to manage postpartum hemorrhage
- Demonstrate best practice guidelines and lead participants in postpartum hemorrhage event

### **Physician roundtable debrief:**

Physician-to-physician time with Dr. Byers for questions and personal feedback. The sessions were facilitated to allow physicians to reflect on the training and consider steps that could be implemented to enhance quality care and improve patient outcomes.

\* Physicians awarded 3.5 hours of AMA PRA Category 1 Credit for completing entire course.



Pictured (from left): OB care team members Jared Kramer, MD, Patsy Tomhave, RN, and Amber Smith, RN, take part in postpartum hemorrhage simulation training at Howard County Medical Center in St. Paul, Neb.

## Results: Health Care Quality Improvements

The OB simulation CME program was well received, with a combined total of 34 physicians, 10 advanced practice providers and 107 additional OB team members participating. Physicians reported plans to implement the following quality improvement measures to further improve patient outcomes and reduce local maternal death rates related to postpartum hemorrhage:

- Conduct postpartum hemorrhage drills focused on recognition and action
- Implement process for risk factor assessment and awareness
- Implement and/or revise postpartum hemorrhage protocol
- Implement process for obstetric emergent medication availability; review dosing
- Develop mass transfusion protocol with anesthesia department; review activation process
- Develop postpartum hemorrhage cart

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**“A week after our OB team completed the simulation training program, we put our training to work in a postpartum hemorrhage requiring a massive transfusion protocol. The simulation was invaluable.”**

– Jared Kramer, MD, Howard County Medical Center

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In 2019, Bryan Health will expand its OB simulation training to focus on shoulder dystocia/shoulder dystocia with pre-eclampsia, another childbirth complication the high-fidelity mannequin is fully equipped to simulate.

## Contact

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## Community Partners

Bryan Health is a Nebraska-governed, nonprofit health system that cares for patients, educates tomorrow's health care providers, motivates our community with fitness and health programs, and collaborates to continually improve how we serve others.

The Heartland Health Alliance (HHA) is a 48-member hospital network providing service throughout Nebraska, Kansas, Iowa and Missouri. HHA's mission is to enhance the quality, availability and cost-effectiveness of rural health care.