Every year, approximately 700 women die in the United States from pregnancy-related complications. Even more astounding, about three in five pregnancy-related deaths were preventable, according to a recent CDC report. Some of the contributing factors for this include limited experience with obstetric emergencies and lack of appropriate personnel or services.

As our remarkable patient story in this issue of the Physician Report highlights, neither of those factors are relevant to Presbyterian/St. Luke’s Medical Center.

Quite the opposite, in fact — we are the only hospital in Colorado to have earned the highest rating from Leapfrog for high-risk deliveries. We are proud to provide Level IV Maternal Care to mothers with our Maternal Fetal Medicine program and to their newborns in our Level IV NICU (highest levels of care).

M.C. is alive today thanks to our extraordinary multidisciplinary team of specialists who worked together to save her life. Each person on the team was instrumental, and I truly believe that if she had gone to any other hospital in Colorado, she likely wouldn’t have survived.

Sincerely,

Reginald Washington, MD, FAAP, FACC, FAHA,
Chief Medical Officer

Remarkable P/SL Team Effort Saves Woman with Placenta Percreta After Massive Hemorrhage

In August 2018, dozens of doctors and medical providers worked on a patient they’ll no doubt remember for the entirety of their careers.

Last June, after two episodes of vaginal bleeding, M.C., 43, was initially transferred to Presbyterian/St. Luke’s (P/SL) Medical Center just shy of 30 weeks gestation. She had a known placenta previa and suspicion of placenta accreta by both ultrasound and MRI.

M.C. returned to P/SL on July 30, and was admitted for observation for five days. On Aug. 3, she delivered via C-section at 34 weeks in P/SL’s hybrid OR.

Prior to surgery, the interventional radiologist placed occluding balloons in the internal iliac arteries and anesthesia placed multiple IV lines.

Tara Becker, M.D., Maternal Fetal Medicine, performed the C-section. Roy Bergstrom, M.D., a laborist at P/SL, also scrubbed in to assist on the C-section.

Prior to the surgery, one of Dr. Becker’s partners reviewed the imaging and felt M.C. had placenta accreta.
“We didn’t feel like it was suspicious for deeper invasion, so we were blindsided by that,” Dr. Becker said. “We were surprised it was as bad as it was. Often when we do cases like these, we go in there super prepared and thinking it’ll be worse than it ends up being. This was the opposite.”

The C-section itself went smoothly. Despite the four previous C-sections M.C. had undergone, there wasn’t much scarring and entry into her abdomen and uterus went smoothly, Dr. Becker said.

After Dr. Becker delivered a healthy baby girl with an APGAR score of 6/8, it became clear the placenta was adherent and that M.C. would require a hysterectomy.

**MULTIDISCIPLINARY TEAMWORK**

Jeffrey James, D.O., a gynecologic oncologist, scrubbed in along with his surgical assistant, Dwight Lenox, for the surgery. Meanwhile Dr. Becker stayed to help out.

Initially, things seemed to be going smoothly until anesthesia alerted the team that M.C.’s vital signs were unstable and the surgeons noticed a significant amount of bleeding from behind the uterus from what ended up being a suspected placenta percreta.

Doctors determined she was also bleeding from her vena cava and vascular surgeon Bryan Kramer, M.D., was called into assist. Dr. Kramer had been in the room for five minutes when M.C. went into cardiac arrest.

“I clamped her supraceliac aorta to try to minimize the intravascular volume needed to perfuse her vital organs. Anesthesia did a superb job running the code, and ultimately restored normal vital signs,” Dr. Kramer said.

At this point, Dr. Kramer realized the gravity of the situation and called his colleague, Alan Synn, M.D., to help.

“I constituted the fourth surgeon to belly up to the table,” Dr. Synn said. “We took off the aortic clamp and extended the incision.”

**EXPERTS AT THE READY**

The next four hours was a systematic practicum in damage control for massive hemorrhage.

“The biggest problem for us was several bleeding sites on the vena cava near the renal veins — we think this is where some of the uterine drainage was going and the fragile veins tore off the IVC,” Dr. Kramer said.

Dr. Synn and Dr. Kramer repaired the vena cava directly in several spots.

“We then found between 12 and 20 veins that were abnormally dilated from

P/SL’s hybrid OR combines the functionality of an OR with a full endovascular suite and imaging system, allowing specialists to perform multiple procedures on a patient at one time with the support of the most advanced technology available.
her uterine hyperplasia, each over 1 cm in diameter, and bleeding from their thin walls,” Dr. Kramer said. “It was an epic exercise in the discipline of vascular surgical technique,” said Dr. Synn. “The delicate application of suturing and vascular control in the face of coagulopathy and extraordinarily fragile veins is the challenge to our surgical discipline. We exhausted every technique or trick that our combined 45 years of vascular surgical experience could conjure.”

The other doctors stayed in the room, helping the vascular surgeons with visualization and holding her organs out of the way. At many points, more than 25 people crowded the hybrid OR all working diligently to keep M.C. alive. “Absolutely every one of them was critical to saving her life,” Dr. Kramer said.

While Dr. Kramer and Dr. Synn worked, “the nursing and anesthesia staff kept giving her blood products to allow us the time we needed to stop the bleeding,” Dr. Kramer said. “They were the real heroes of the day in my opinion.”

M.C. lost between 50 and 65 liters of blood. She received a massive transfusion, including more than 150 units of blood products, which completely drained the blood bank.

In the end, the blood pooling receded and Drs. Synn and Kramer removed the blocking balloons in the internal iliac arteries. M.C. was left open and taken to the ICU.

“The main thing I learned that day was how many (dozens of) people we needed working feverishly for hours in order to resuscitate her and allow us time to stop the bleeding,” Dr. Kramer said. “If it weren’t for all these dedicated medical professionals from all different fields, we would not have been able to save her. The teamwork involved was the most impressive thing I have seen in my 20 years of practice.”

Dr. Becker called the experience humbling, and agrees it was a remarkable team effort.

“Everyone involved was completely instrumental in keeping her alive,” she said.

**NOT YET IN THE CLEAR**

M.C.’s journey still wasn’t over — she needed a colectomy the next day. Anthony Canfield, M.D., director of the robotic and minimally invasive surgery program at P/SL, evaluated M.C.’s right colon because it looked ischemic on the return to surgery.
“The main thing I learned that day was how many (dozens of) people we needed working feverishly for hours in order to resuscitate her and allow us time to stop the bleeding,” Dr. Kramer said.

“I resected the right colon, which was ischemic and since she had so much swelling we placed a special abthera dressing to keep her abdomen sterile but open with a cover to remove the fluid,” Dr. Canfield said. “With that, the abdomen wall became too tight and contracted to close.”

Using an ultrasound, Dr. Canfield injected Botox into M.C.’s flank muscles.

“Within a week, the muscles had relaxed and we were able to close her abdomen with some reconstruction of her abdominal wall,” Dr. Canfield said.

M.C.’s baby was released from the NICU before she was released. Thirty days after she was admitted, M.C. returned home.

“I was in my office six weeks later,” said Dr. Synn. “I am the father of two and recognized the sound of a baby’s cry. I don’t get to hear that too often in my vascular surgical clinic. Dr. Kramer had just completed a follow-up visit with our patient. He had that moment of grace look on his face. I knew that both mother and child were well.”

**HYBRID OR**

**THE PHYSICIAN REPORT**

SPRING 2019

**DOCUMENTATION TIP:**

**Heart Failure**

In this new segment, we’ll give you tips on how to properly document diagnoses to avoid receiving queries. This issue, we’re focusing on heart failure.

When documenting heart failure, both **TYPE** and **ACUITY** should be documented:

- Type – Diastolic HF (HFpEF – HF w/preserved Ejection Fraction), Systolic HF (HFrEF – HF w/reduced Ejection Fraction), combined Diastolic/Systolic HF, Right HF, Left HF, Right due to Left HF, Biventricular HF, High output HF, End-stage HF, Valvular (specify valve(s)), Other (specify cause)
- Acuity – Acute, Chronic, Acute-on-Chronic

**VISIT**

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