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NewYork-Presbyterian Queens:
Excelling in Maternal-Fetal Medicine

Daniel Skupski, MD, Chair of the Department of Obstetrics and Gynecology at NewYork-Presbyterian Queens, an obstetrician and gynecologist with NewYork-Presbyterian Medical Group Queens, and a professor of obstetrics and gynecology at Weill Cornell Medicine, and Jessica Scholl, MD, attending maternal-fetal medicine physician at NewYork-Presbyterian Queens, maternal-fetal medicine physician with NewYork-Presbyterian Medical Group Queens, and assistant professor of clinical obstetrics and gynecology at Weill Cornell Medicine, counsel a patient.

NewYork-Presbyterian Queens: Excelling in Maternal-Fetal Medicine

BY JENNIFER WEBSTER

FROM EARLY MANAGEMENT OF HIGH-RISK PREGNANCIES TO A RAPID RESPONSE TEAM FOR MATERNAL HEMORRHAGE, THE DIVISION OF MATERNAL-FETAL MEDICINE AT NEWYORK-PRESBYTERIAN QUEENS SEEKS TO ENSURE PATIENT SAFETY THROUGH PREGNANCY, DELIVERY AND BEYOND.

DELIVERING MORE THAN 4,000 infants annually, the physicians at NewYork-Presbyterian Queens have extensive experience in keeping patients safe and helping mothers and infants thrive. For this reason, the hospital has earned its reputation as an important referral resource for high-risk pregnancies. At the same time, it remains rooted in its diverse community, offering advanced care close to home.

NewYork-Presbyterian Queens' track record for safety is no coincidence. It's built upon a level of safety maintained and a set of initiatives revised year after year through training, attention to detail and processes that facilitate continuous improvement. Procedural standardization and breadth of knowledge are key, says Daniel Skupski, MD, Chair of the Department of Obstetrics and Gynecology at NewYork-Presbyterian Queens, an obstetrician and gynecologist with NewYork-Presbyterian Medical Group Queens, and a professor of obstetrics and gynecology at Weill Cornell Medicine.

"High-volume delivery services require a large team of physicians, as well as leadership to get everybody on the same page in terms of comprehension, training and abilities," he says. "We address everything from normal vaginal delivery and the bleeding that may happen afterward to severe cases, such as morbidly adherent placenta [the growth of the placenta into the wall of the uterus], which places women at risk of dying from hemorrhage if the condition is not detected prior to delivery.

"We help ensure our providers have the necessary resources to keep women safe," Dr. Skupski continues. "We constantly fine-tune our program through quality assurance and quality-improvement programs. That way, if there is imperfect communication during an emergency, we have the nimbleness to quickly huddle,

> “The advantage of referring patients to NewYork-Presbyterian Queens is our expertise in diagnosing morbidly adherent placenta and coordinating management to provide the best possible outcomes.”
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> — JESSICA SCHOLL, MD, ATTENDING MATERNAL-FETAL MEDICINE PHYSICIAN AT NEWYORK-PRESBYTERIAN QUEENS AND ASSISTANT PROFESSOR OF CLINICAL OBSTETRICS AND GYNECOLOGY AT WEILL CORNELL MEDICINE

David Brady, MD, is Director of Obstetrical Anesthesiology at NewYork-Presbyterian Queens and helps coordinate the care of women with morbidly adherent placenta.

talk about what could be better and improve our response to the situation, whether we encounter it again in 10 minutes or in 10 months.”

THE RAPID RESPONSE TEAM: ADDRESSING MATERNAL HEMORRHAGE

NewYork-Presbyterian Queens has focused intensely on training for bleeding during and after delivery, bringing the virtues of knowledge and procedural standardization to bear. Since its formation in 2001, the Rapid Response Team developed to address maternal hemorrhage has lowered maternal morbidity dramatically, Dr. Skupski says. At NewYork-Presbyterian Queens, postpartum hemorrhage most commonly results from uterine atony, placenta previa and placenta accreta. In cases of uterine atony, physicians administer medications to encourage the uterus to contract. Placenta previa and placenta accreta, if diagnosed before delivery, are addressed through Cesarean section. Surgeons may also need to perform a hysterectomy or use sutures to stop uterine bleeding.

“When we started the program, we included components necessary to keep women safe,” Dr. Skupski says. “First, we educated everyone — nurses, PAs, residents and attending physicians — teaching them what signs to monitor and what to do when faced with extreme bleeding. The program consists of live lectures, Internet lessons and after-incident training, and it continues to this day.

“Second, we created the Rapid Response Team and developed protocols so we won’t be taken by surprise. For instance, one protocol requires that anyone with suspected placenta previa will have multiple follow-up ultrasounds. We counsel those women and ensure that physicians from the Institute of Placental Medicine at NewYork-Presbyterian Queens will be there on their planned delivery date.”

Rapid Response Teams may consist of obstetricians, maternal-fetal specialists, anesthesiologists, gynecologic oncologists with experience in complicated hysterectomy, neonatologists, PAs and operating room staff. While some specialists, such as the maternal-fetal medicine physician, play a larger role in diagnosing potential for hemorrhage, others leap into action as soon as a severe bleeding event occurs.

“Generally the nurse or PA identifies that the patient is bleeding too much,” Dr. Skupski says. “We pull a tab on the wall or simply shout out the situation. This is called Team Blue. The clerk will then call the operators’ service to activate an overhead page and a text to our call system.”

While the nurse who signaled the event and the primary obstetrician stay with the patient, other nurses bring a hemorrhage cart immediately. The charge nurse arrives to record the event. An anesthesiologist provides pain relief and

Dr. Skupski and Gary Eglinton, MD, rely on ultrasounds to care for their patients.

The Institute for Placental Medicine

AN ORGAN GROWN especially for pregnancy — and discarded and grown anew for each subsequent pregnancy — the placenta performs a host of highly complex functions. As such, it warrants particular study and care.

The placenta attaches deeply into the lining of the uterus, "establishing" the pregnancy. Throughout the pregnancy, it provides nutrients to the fetus, disposes of waste, produces hormones to regulate fetal growth, supports fetal blood circulation and oxygenation, and even maintains the fetal temperature. The well-being of the placenta is reflected in the fetus' health, and problems with the placenta will often transmit to the fetus and mother.

Many of those problems have to do with the location and attachment of the placenta — placental abruption, when the placenta peels from the uterine wall, or placenta previa, when the placenta covers the cervix, for instance. An increase in Cesarean sections has led to more placental problems, due to the slight scarring left behind.

The Institute for Placental Medicine has developed ways to address these problems and, as a result, gynecologists refer patients to NewYork-Presbyterian Queens when they suspect a problem with the placenta. Patients receive close monitoring, and a multidisciplinary team works to help the mother carry the pregnancy to term and to minimize hemorrhage at birth.

"The Institute for Placental Medicine is a referral center for women who think they may have a problem with the placenta," says Daniel Skupski, MD, Chair of the Department of Obstetrics and Gynecology at NewYork-Presbyterian Queens and a professor of obstetrics and gynecology at Weill Cornell Medicine. "Identifying placental problems is also part of our mission statement. We are providing research into invasive placental disease, learning how to diagnose and better treat this condition."

"We try to identify those cases early, in conjunction with the OB department," adds David Brady, MD, Director of Obstetrical Anesthesiology at NewYork-Presbyterian Queens. "If we suspect placenta previa or placenta accreta — a morbidly adherent placenta — Dr. Skupski and his team confirm those cases quickly, and we perform surgery at the time of delivery in the main operating room."

Dr. Skupski is particularly proud of research to enhance the ability of ultrasound to detect morbidly adherent placenta. Currently, providers can diagnose the condition using ultrasound about 70 or 80 percent of the time, Dr. Skupski explains, but that still misses many cases.

"In those cases, we believe there are other, more subtle signs that can reveal morbidly adherent placenta earlier, when it is not quite so severe," he says. "Those are the cases we miss with the classic signs. We are conducting a study at NewYork-Presbyterian Queens and eight other perinatal centers or hospitals on the East Coast with whom we collaborate as a research consortium. We are looking at those subtle signs to see if they can help us diagnose this condition more often."

Drs. Skupski and Scholl analyze a sonogram of morbidly adherent placenta.

fluid or blood resuscitation, Dr. Skupski explains. Maternal-fetal medicine specialists coordinate groups including the blood bank and surgical teams, adds Jessica Scholl, MD, attending maternal-fetal medicine physician at NewYork-Presbyterian Queens, maternal-fetal medicine physician with NewYork-Presbyterian Medical Group Queens and assistant professor of clinical obstetrics and gynecology at Weill Cornell Medicine. Senior staff oversee the event, referring to a standardized checklist to make sure all team members are prepared and responsibilities are clear.

The process may follow an orderly structure, but on the floor, people move lightning-fast.

"The staff immediately comes running," says David Brady, MD, Director of Obstetrical Anesthesiology at NewYork-Presbyterian Queens. "Once the staff assembles, the situation is evaluated and people who aren't needed can go. If it's a problem delivering the baby's shoulders (dystocia) during a vaginal delivery, for example, we need the neonatologist more than anyone else. In a Cesarean section hemorrhage, we need a lot of hands for a massive transfusion. In that

Drs. Brady and Scholl monitor a patient's progress.

case, we activate the massive transfusion protocol with the blood bank, in accordance with the New York State Safe Motherhood Initiative."

MATERNAL-FETAL MEDICINE: EARLY DETECTION FOR IMPROVED OUTCOMES

While rapid emergency response is vital, physicians strive to predict and manage problems early. Maternal-fetal medicine specialists guide that process, Dr. Scholl explains.

"Maternal-fetal specialists care for women and fetuses who have high-risk conditions," she says. "We offer care throughout the prenatal course, including ultrasound, counseling and medical evaluations. Our care continues through labor and delivery and into the postpartum period. We offer specific therapies [such as cerclage, bed rest, medications to reduce high blood pressure, and medication or diet to get diabetes under control] depending on the medical condition."

Obstetricians and family providers should refer patients who have had a history of problems with pregnancy, or who have severe medical conditions apart from pregnancy, for preconception counseling, Dr. Scholl says. Patients who develop problems with a pregnancy may also benefit from a maternal-fetal medicine consultation.

Around 11 to 14 weeks into pregnancy, a maternal-fetal medicine specialist will order an ultrasound and blood work to screen for any troubling fetal conditions. A detailed anatomic survey at 18 to 20 weeks provides additional information to mother and providers, Dr. Scholl explains.

"At each point in the process, if an abnormality arises, we talk to the woman about it," she says. "We proceed with further testing or counseling as needed."

Most frequently, maternal-fetal medicine specialists at NewYork-Presbyterian Queens see cardiac and spine abnormalities, but rare genetic abnormalities appear, as well. Management is a multidisciplinary process involving surgeons, medical specialists and pediatricians. Maternal-fetal medicine coordinates these roles, Dr. Scholl says.

"We make detailed plans prior to delivery so all needed teams are apprised of the situation," she says. "The necessary staff members, mode of delivery and timing are all planned out in advance."

Amniotic Fluid: Early Diagnostics and Innate Immunity

THE PLACENTA IS one of many foci for physicians who examine every aspect of a pregnancy to keep patients safe. Another is the amniotic fluid, which can be a diagnostic asset and also, surprisingly, a source for fetal immunity.

"When we diagnose a problem with a fetus, we are mostly generally looking for poor growth or some sort of congenital anomaly," Dr. Skupski says. "In pregnancy, amniotic fluid provides a big advantage, because sound waves travel easily through fluid. This is why ultrasound is such a diagnostic mainstay for fetal medicine. We can diagnose any birth defect, from spina bifida to chromosomal problems, through ultrasound or prenatal diagnostic amniocentesis."

Jessica Scholl, MD, attending maternal-fetal medicine physician at NewYork-Presbyterian Queens and assistant professor of clinical obstetrics and gynecology at Weill Cornell Medicine, also studies ultrasound diagnostics when used in conjunction with other methods.

"I've performed clinical research in prenatal diagnosis of fetal conditions, mainly looking at the risk of fetuses for genetic syndromes, and the association between genetic abnormalities and ultrasound findings," she says.

More than a conduit for testing, amniotic fluid is biologically active, protecting the fetus from infection and buffering it against the mother's immune system, Dr. Skupski adds.

"In the last 25 years, we've studied immunity in detail," he says. "We know cells floating in amniotic fluid are highly active in balancing the fight against infection versus maternal immune response and premature labor. We are trying to understand how that process works, but we're still in the dark ages. We know the fetus forces out some cells through its urinary system, respiration and skin. These cells are changed in various ways and become part of that balance. There are hundreds, if not thousands, of checks and balances in the various compounds that can be produced."

Dr. Skupski and Sheryl Gatuz, RN, follow up on patients at the central monitoring station on the Labor and Delivery floor.

PLACENTAL PROBLEM PREVENTION

Maternal-fetal specialists sometimes encounter or suspect morbidly adherent placenta, especially in women who have had placenta previa or multiple Cesarean sections. Using ultrasound and, occasionally, MRI, providers screen for this condition starting at about 20 weeks. While the condition is never fully realized until delivery, Dr. Scholl says, it may be predicted and planned for.

"The process requires a fair amount of coordination," she says. "Ideally, these patients undergo a scheduled Cesarean section. Teams including anesthesiology, urology, general surgery, the blood bank, radiology, interventional radiology, pathology and neonatology may all be involved."

Dr. Skupski is Chair of the Department of Obstetrics and Gynecology at NewYork-Presbyterian Queens and the founder of the Institute for Placental Medicine.

PEACE OF MIND THROUGH PAIN RELIEF

Labor and delivery are highly personal experiences, and patients have myriad individual concerns. Some seek to preserve independence and alertness, achieving an active delivery with minimal intervention. Others hope to minimize pain. An obstetric anesthesiologist must balance these desires, along with the overriding mandate to keep every patient, and every delivery, safe.

Early conversations are key to a rewarding labor experience.

"We try to offer pain relief services whenever patients want them," Dr. Brady says. "If they have special issues, they can see us ahead of time for answers to questions about pain relief options."

EPIDURAL OPTIONS

Epidurally administered pain relief is the first-line treatment for labor discomfort. About 80 percent of women receive an epidural, Dr. Brady explains. Patients may also receive intravenous medications with patient-controlled administration.

"We discuss the nature of the procedure, risks and benefits," Dr. Brady says. "We stress that an epidural is not required, but most people do want one. We emphasize safety, maternal choice, pain relief and patient satisfaction."

ANESTHESIA FOR CESAREAN SECTION

NewYork-Presbyterian Queens has an excellent record with anesthesia for Cesarean section. Only about 2.2 percent of patients receive general anesthesia, compared to a national average of 5.6 percent, Dr. Brady says.

"We will administer regional anesthesia, either a spinal or combined spinal epidural," Dr. Brady says. "If the patient does not require a hysterectomy, the surgery proceeds as usual. [These forms of anesthesia] result in long-lasting neuraxial pain relief after the Cesarean section, increasing patient satisfaction.

"We do try to avoid exposing the infant to general anesthesia; so in hysterectomy cases, we will give the mother a spinal epidural and, after delivery, will evaluate the placental situation and proceed from there. We may administer general anesthesia at that time."

A GOOD NEIGHBOR

While it offers advanced services and a culture of safety, NewYork-Presbyterian Queens also embraces a tradition of neighborhood medicine.

"We try to provide the best service we can to our community, which is one of the most ethnically diverse in the country, with a huge number of languages spoken," Dr. Brady says. "Our hospital reflects our community. We offer language services, we have a diverse staff, and we understand people's individual needs and situations. Our patients appreciate that.

"People need not travel to other places to get the service they require. We offer maternal-fetal medicine treatments and diagnostic procedures right here, in a caring and safe place to deliver, with a good safety record and excellent postoperative, post-delivery care."

For more information about maternal-fetal medicine at NewYork-Presbyterian Queens, visit nyhq.org/maternal-fetal_medicine. ■