



NPR NEWS INVESTIGATIONS

Focus On Infants During Childbirth Leaves U.S. Moms In Danger

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Lauren Bloomstein holds her newborn daughter.

Courtesy of the Bloomstein Family

As a neonatal intensive care nurse, Lauren Bloomstein had been taking care of other

people's babies for years. Finally, at 33, she was expecting one of her own. The prospect of becoming a mother made her giddy, her husband Larry recalled recently—"the happiest and most alive I'd ever seen her."

When Lauren was 13, her own mother had died of a massive heart attack. Lauren had lived with her older brother for a while, then with a neighbor in Hazlet, N.J., who was like a surrogate mom, but in important ways she'd grown up mostly alone. The chance to create her own family, to be the mother she didn't have, touched a place deep inside her.

"All she wanted to do was be loved," said Frankie Hedges, who took Lauren in as a teenager and thought of her as her daughter. "I think everybody loved her, but nobody loved her the way she wanted to be loved."

Other than some nausea in her first trimester, the pregnancy went smoothly. Lauren was "tired in the beginning, achy in the end," said Jackie Ennis, her best friend since high school, who talked to her at least once a day. "She gained what she's supposed to. She looked great, she felt good, she worked as much as she could" — at least three 12-hour shifts a week until late into her ninth month. Larry, a doctor, helped monitor her blood pressure at home, and all was normal.

On her days off she got organized, picking out strollers and car seats, stocking up on diapers and onesies. After one last pre-baby vacation to the Caribbean, she and Larry went hunting for their forever home, settling on a brick colonial with black shutters and a big yard in Moorestown, N.J., not far from his new job as an orthopedic trauma surgeon in Camden. Lauren wanted the baby's gender to be a surprise, so when she set up the nursery she left the walls unpainted — she figured she'd have plenty of time to choose colors later. Despite all she knew about what could go wrong, she seemed untroubled by the normal expectant-mom anxieties. Her only real worry was going into labor prematurely. "You have to stay in there at least until 32 weeks," she would tell her belly. "I see how the babies do before 32. Just don't come out too soon."

When she reached 39 weeks and six days — Friday, Sept. 30, 2011 — Larry and Lauren

drove to Monmouth Medical Center in Long Branch, the hospital where the two of them had met in 2004 and where she'd spent virtually her entire career. If anyone would watch out for her and her baby, Lauren figured, it would be the doctors and nurses she worked with on a daily basis. She was especially fond of her obstetrician/gynecologist, who had trained as a resident at Monmouth at the same time as Larry. Lauren wasn't having contractions, but she and the ob/gyn agreed to schedule an induction of labor — he was on call that weekend and would be sure to handle the delivery himself.

Inductions often go slowly, and Lauren's labor stretched well into the next day. Ennis talked to her on the phone several times: "She said she was feeling okay, she was just really uncomfortable." At one point, Lauren was overcome by a sudden, sharp pain in her back near her kidneys or liver, but the nurses bumped up her epidural and the stabbing stopped.

Inductions have been associated with higher cesarean-section rates, but Lauren progressed well enough to deliver vaginally. On Saturday, Oct. 1, at 6:49 p.m., 23 hours after she checked into the hospital, Hailey Anne Bloomstein was born, weighing 5 pounds, 12 ounces. Larry and Lauren's family had been camped out in the waiting room; now they swarmed into the delivery area to ooh and aah, marveling at how Lauren seemed to glow.



Photographs of Lauren and Larry in the Bloomstein's home in New Jersey.

Bryan Anselm for ProPublica

Larry floated around on his own cloud of euphoria, phone camera in hand. In one 35-second video, Lauren holds their daughter on her chest, stroking her cheek with a practiced touch. Hailey is bundled in hospital-issued pastels and flannel, unusually alert for a newborn; she studies her mother's face as if trying to make sense of a mystery that will never be solved. The delivery room staff bustles in the background in the low-key way of people who believe everything has gone exactly as it's supposed to.

Then Lauren looks directly at the camera, her eyes brimming.

Twenty hours later, she was dead.

"We don't pay enough attention"

The ability to protect the health of mothers and babies in childbirth is a basic measure of a society's development. Yet every year in the U.S., 700 to 900 women die from

pregnancy or childbirth-related causes, and some 65,000 nearly die — by many measures, the worst record in the developed world.

About This Investigation

In partnership:



Special Correspondent Renee Montagne, in her first project since hosting NPR's *Morning Edition*, teamed up with ProPublica's Nina Martin for a six-month long investigation on maternal mortality in the U.S.

Among our key findings:

- More American women are dying of pregnancy-related complications than any other developed country. Only in the U.S. has the rate of women who die been rising.
- There's a hodgepodge of hospital protocols for dealing with potentially fatal complications, allowing for treatable complications to become lethal.
- Hospitals — including those with intensive care units for newborns —

American women are more than three times as likely as Canadian women to die in the maternal period (defined by the Centers for Disease Control as the start of pregnancy to one year after delivery or termination), six times as likely to die as Scandinavians. In every other wealthy country, and many less affluent ones, maternal mortality rates have been falling; in Great Britain, the journal *Lancet* recently noted, the rate has declined so dramatically that "a man is more likely to die while his partner is pregnant than she is." But in the U.S., maternal deaths increased from 2000 to 2014. In a recent analysis by the CDC Foundation, nearly 60 percent of such deaths are preventable.

While maternal mortality is significantly more common among African-Americans, low-income women and in rural areas, pregnancy and childbirth complications kill women of every race and ethnicity, education and income level, in every part of the U.S. ProPublica and NPR spent the last several months scouring social media and other sources, ultimately identifying more than 450 expectant and new mothers who have died since 2011.

The list includes teachers, insurance brokers, homeless women, journalists, a spokeswoman for Yellowstone National Park, a cofounder of the YouTube channel *WhatsUpMoms*, and more than a

can be woefully unprepared for a maternal emergency.

- Federal and state funding show only 6 percent of block grants for "maternal and child health" actually go to the health of mothers.
- In the U.S, some doctors entering the growing specialty of maternal-fetal medicine were able to complete that training without ever spending time in a labor-delivery unit.

Read more from ProPublica.

dozen doctors and nurses like Lauren Bloomstein. They died from cardiomyopathy and other heart problems, massive hemorrhage, blood clots, infections and pregnancy-induced hypertension (preeclampsia) as well as rarer causes. Many died days or weeks after leaving the hospital. Maternal mortality is commonplace enough that three new mothers who died, including Lauren, were cared for by the same ob/gyn.

The reasons for higher maternal mortality in the U.S. are manifold. New mothers are older than they used to be, with more complex medical histories. Half of pregnancies in the U.S. are unplanned, so many women don't address chronic health issues beforehand. Greater prevalence of C-sections leads to more life-threatening complications. The fragmented health system makes it harder for new mothers,

especially those without good insurance, to get the care they need. Confusion about how to recognize worrisome symptoms and treat obstetric emergencies makes caregivers more prone to error.

Yet the worsening U.S. maternal mortality numbers contrast sharply with the impressive progress in saving babies' lives. Infant mortality has fallen to its lowest point in history, the CDC reports, reflecting 50 years of efforts by the public health community to prevent birth defects, reduce preterm birth, and improve outcomes for very premature infants. The number of babies who die annually in the U.S. — about 23,000 in 2014 — still greatly exceeds the number of expectant and new mothers who die, but the ratio is narrowing.

The divergent trends for mothers and babies highlight a theme that has emerged repeatedly in ProPublica's and NPR's reporting. In recent decades, under the

assumption that it had conquered maternal mortality, the American medical system has focused more on fetal and infant safety and survival than on the mother's health and wellbeing.

"We worry a lot about vulnerable little babies," said Barbara Levy, vice president for health policy/advocacy at the American Congress of Obstetricians and Gynecologists (ACOG) and a member of the Council on Patient Safety in Women's Health Care. Meanwhile, "we don't pay enough attention to those things that can be catastrophic for women."

At the federally funded Maternal-Fetal Medicine Units Network, the preeminent obstetric research collaborative in the U.S., only four of the 34 initiatives listed in its online database primarily target mothers, versus 24 aimed at improving outcomes for infants (the remainder address both).

Under the Title V federal-state program supporting maternal and child health, states devoted about 6 percent of block grants in 2016 to programs for mothers, compared to 78 percent for infants and special-needs children. The notion that babies deserve more care than mothers is similarly enshrined in the Medicaid program, which pays for about 45 percent of births. In many states, the program covers moms for 60 days postpartum, their infants for a full year. The bill to replace the Affordable Care Act, adopted by the U.S. House of Representatives earlier this month, could gut Medicaid for mothers and babies alike.

At the provider level, advances in technology have widened the gap between maternal and fetal and infant care. "People became really enchanted with the ability to do ultrasound, and then high-resolution ultrasound, to do invasive procedures, to stick needles in the amniotic cavity," said William Callaghan chief of the CDC's Maternal and Infant Health Branch.

The growing specialty of maternal-fetal medicine drifted so far toward care of the fetus that as recently as 2012, young doctors who wanted to work in the field didn't have to spend time learning to care for birthing mothers. "The training was quite variable

across the U.S.," said Mary D'Alton, chair of ob/gyn at Columbia University Medical Center and author of papers on disparities in care for mothers and infants. "There were some fellows that could finish their maternal-fetal medicine training without ever being in a labor and delivery unit."

In the last decade or so, at least 20 hospitals have established multidisciplinary fetal care centers for babies at high risk for a variety of problems. So far, only one hospital in the U.S. — New York-Presbyterian — has a similar program for high-risk moms-to-be.

In regular maternity wards, too, babies are monitored more closely than mothers during and after birth, maternal health advocates told ProPublica and NPR. Newborns in the slightest danger are whisked off to neonatal intensive care units like the one Lauren Bloomstein worked at, staffed by highly trained specialists ready for the worst, while their mothers are tended by nurses and doctors who expect things to be fine and are often unprepared when they aren't.

When women are discharged, they routinely receive information about how to breastfeed and what to do if their newborn is sick but not necessarily how to tell if they need medical attention themselves. "It was only when I had my own child that I realized, 'Oh my goodness. That was completely insufficient information,'" said Elizabeth Howell, professor of obstetrics and gynecology at the Icahn School of Medicine at Mount Sinai Hospital in New York City.

"The way that we've been trained, we do not give women enough information for them to manage their health postpartum. The focus had always been on babies and not on mothers."

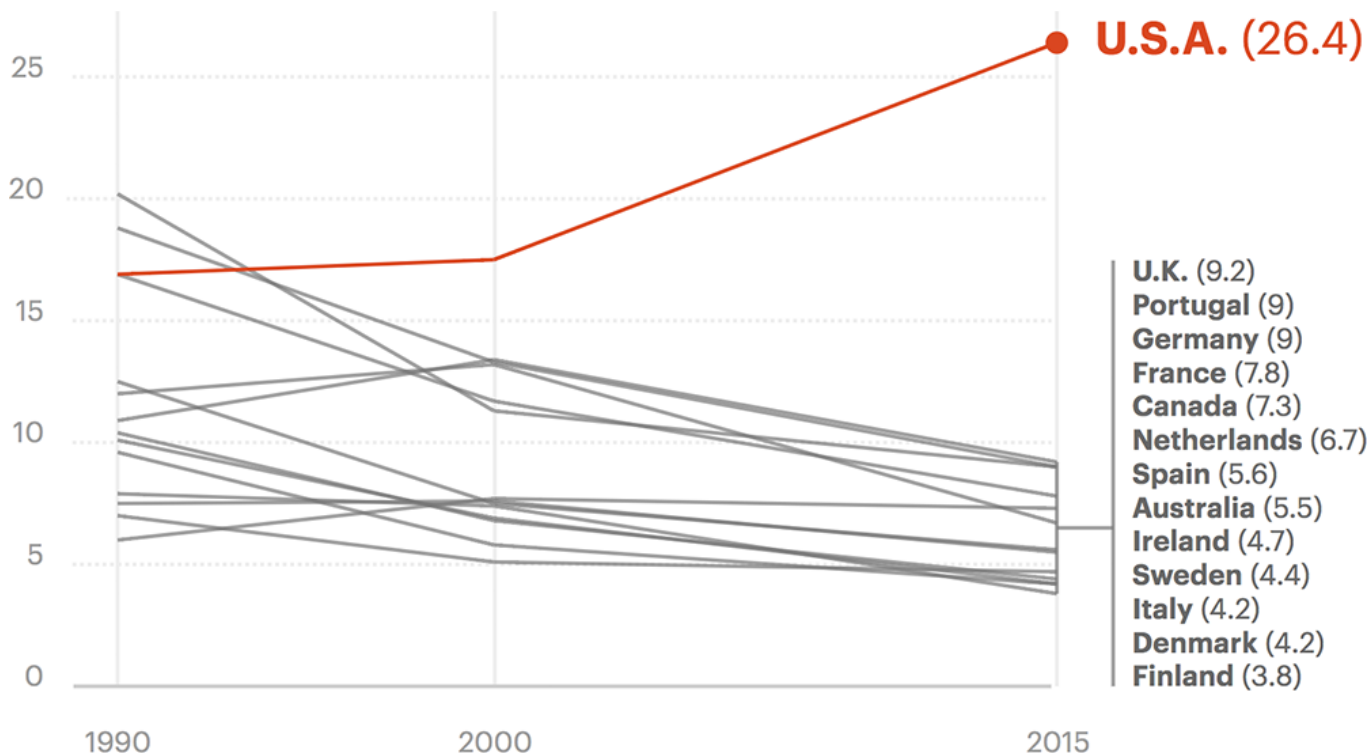
In 2009, the Joint Commission, which accredits 21,000 health care facilities in the U.S., adopted a series of perinatal "core measures" — national standards that have been shown to reduce complications and improve patient outcomes. Four of the measures are aimed at making sure the baby is healthy. One — bringing down the C-section rate— addresses maternal health.

Meanwhile, life-saving practices that have become widely accepted in other affluent countries — and in a few states, notably California — have yet to take hold in many American hospitals. Take the example of preeclampsia, a type of high blood pressure that only occurs in pregnancy or the postpartum period, and can lead to seizures and strokes. Around the world, it kills an estimated five women an hour. But in developed countries, it is highly treatable. The key is to act quickly.

By standardizing its approach, Britain has reduced preeclampsia deaths to one in a million — a total of two deaths from 2012 to 2014. In the U.S., on the other hand, preeclampsia still accounts for about 8 percent of maternal deaths— 50 to 70 women a year. Including Lauren Bloomstein.

Maternal Mortality Is Rising in the U.S. As It Declines Elsewhere

Deaths per 100,000 live births



Notes

"Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015," *The Lancet*. Only data for 1990, 2000 and 2015 was made available in the journal.

Source: *The Lancet*

Credit: Rob Weychert/ProPublica

"I cannot remember too many health care employees that I respect as much as Lauren"

When Lauren McCarthy Bloomstein was a teenager in the 1990s, a neighbor who worked for a New York publishing firm approached her about modeling for a series of books based on Louisa May Alcott's classic "Little Women." Since her mother's death, Lauren had become solitary and shy; she loved to read, but she decided she wasn't interested. "Are you kidding? Go do it!" Frankie Hedges insisted. "That would be fabulous!"

Lauren relented, and the publisher cast her as the eldest March sister, Meg. She appeared on the covers of four books, looking very much the proper 19th-century young lady with her long brown hair parted neatly down the middle and a string of pearls around her neck. The determined expression on her face, though, was pure Lauren.

"She didn't want sympathy, she didn't want pity," Jackie Ennis said. "She wasn't one to talk much about her feelings [about] her mom. She looked at it as this is what she was dealt and she's gonna do everything in her power to become a productive person."

In high school, Lauren decided her path lay in nursing, and she chose a two-year program at Brookdale Community College. She worked at a doctor's office to earn money for tuition and lived in the garage apartment that Hedges and her husband had converted especially for her, often helping out with their young twin sons. Lauren "wasn't a real mushy person," Hedges said. "She wasn't the type to say things like 'I love you.'" But she clearly relished being part of a family again. "You can't believe how happy she is," Ennis once told Hedges. "We'll be out and she'll say, 'Oh, I have to go home for dinner!'"

After graduating in 2002, Lauren landed at Monmouth Medical Center, a sprawling

red-brick complex a few minutes from the ocean that is part of the RWJBarnabas Health system and a teaching affiliate of Philadelphia's Drexel University College of Medicine. Her first job was in the medical surgical unit, where her clinical skills and work ethic soon won accolades.



Monmouth Medical Center in Long Branch, N.J., the hospital where Lauren and Larry had met in 2004.

Bryan Anselm for ProPublica

"I cannot remember too many health care employees that I respect as much as Lauren," Diane Stanaway, then Monmouth's clinical director of nursing, wrote in a 2005 commendation. "What a dynamite young lady and nurse!" When a top hospital executive needed surgery, Larry recalled, he paid Lauren the ultimate compliment, picking her as one of two private-duty nurses to help oversee his care.

Larry Bloomstein, who joined the unit as an orthopedic surgical resident in 2004, was dazzled, too. He liked her independent streak — "she didn't feel the need to rely on anyone else for anything" — and her level-headedness. Even performing CPR on a

dying patient, Lauren "had a calmness about her," Larry said.

He thought her tough upbringing "gave her a sense of confidence. She didn't seem to worry about small things." Lauren, meanwhile, told Ennis, "I met this guy. He's a doctor, and he's very kind." Their first date was a Bruce Springsteen concert; five years later they married on Long Beach Island, on the Jersey shore.

One of Lauren's favorite books was "Catcher in the Rye" — "she related to the Holden Caulfield character rescuing kids," Larry said. When a spot opened at Monmouth's elite neonatal intensive care unit in 2006, she jumped at it.

The hospital has the fifth-busiest maternity department in the state, delivering 5,449 babies in 2016. Monmouth earned an "A" grade from Leapfrog, a nonprofit that promotes safety in health care, and met full safety standards in critical areas of maternity care, such as rates of C-sections and early elective deliveries, a hospital spokeswoman said. Its NICU, a Level III facility for high-risk newborns, is the oldest in New Jersey.

"With NICU nursing, it's one of those things either you get it or you don't," said Katy DiBernardo, a 20-year veteran of the unit. "The babies are little, and a lot of people aren't used to seeing a teeny tiny baby." The NICU staff included nurses, neonatologists, a respiratory therapist, and residents. Lauren, DiBernardo said, "just clicked."

One of the things Lauren liked best about her work was the bonds she formed with babies' families. Nurses followed the same newborns throughout their stay, sometimes for weeks or months. She was a touchstone for parents — very good at "calming people down who have a lot of anxiety," Larry said — and often stayed in contact long after the babies went home, meeting the moms for coffee and even babysitting on occasion.

She also cherished the deep friendships that a place like the NICU forged. The neonatal floor was like a world unto itself, Lauren Byron, another long-time nurse there, explained: "There's a lot of stress and pressure, and you are in life-and-death

situations. You develop a very close relationship with some people."

The environment tended to attract very strong personalities. Lauren's nickname in the Bloomstein family football pool was "The Feisty One," so she fit right in. But she could stand her ground without alienating anyone. "She was one of those people that everyone liked," Byron said.

"We save more than we lose"

Another person everyone liked was ob/gyn John Vaclavik. He had come to Monmouth as a resident in 2004, around the same time as Larry, after earning his bachelor's from Loyola College in Baltimore and his medical degree at St. George's University on the island of Grenada. Medicine was the family profession: two uncles and two brothers also became doctors and his wife was a perinatal social worker at the hospital. Lauren and her colleagues thought he was "very personable" and "a great guy," Larry said.

"She was good friends with my wife and she felt comfortable with me," Vaclavik would recall in a 2015 court deposition.

After his residency, Vaclavik joined Ocean Obstetric & Gynecologic Associates, a thriving practice that counted numerous medical professionals among its clients. Vaclavik was a "laborist" — part of a movement that aimed to reduce the number of C-sections, which tend to have more difficult recoveries and more complications than vaginal births. In a state with a C-section rate of 37 percent, Monmouth's rate in 2016 was just 21 percent.

The neonatal nurses had plenty of opportunity to observe Vaclavik and other ob/gyns in action—someone from NICU was called to attend every delivery that showed signs of being complicated or unusual as well as every C-section. "We always laughed, 'They'll call us for a hangnail,'" DiBernardo said. Lauren was so impressed by Vaclavik that she not only chose him as her own doctor, she recommended him to her best friend. "She kept saying, 'You have to go to this guy. He's a good doctor. Good doctor,'" Ennis said.

In other ways, though, the NICU staff and the labor and delivery staff were very separate. The neonatal nurses were focused on their own fragile patients — the satisfaction that came from helping them grow strong enough to go home, the grief when that didn't happen. Once Ennis asked Lauren, "How do you deal with babies that don't make it? That's got to be so bad." Lauren replied, "Yeah, but we save more than we lose."

Loss was less common in labor and delivery, and when a new mother suffered life-threatening complications, the news did not always reach the NICU floor. Thus, when a 29-year-old special education teacher named Tara Hansen contracted a grisly infection a few days after giving birth to her first child in March 2011, the tragedy didn't register with Lauren, who was then three months' pregnant herself.

Hansen lived in nearby Freehold, N.J., with her husband, Ryan, her high school sweetheart. Her pregnancy, like Lauren's, had been textbook perfect and she delivered a healthy nine-pound son. But Hansen suffered tearing near her vagina during childbirth. She developed signs of infection but was discharged anyway, a lawsuit by her husband later alleged.

Hansen was soon readmitted to Monmouth with what the lawsuit called "excruciating, severe pain beyond the capacity of a human being to endure." The diagnosis was necrotizing fasciitis, commonly known as flesh-eating bacteria; two days later Hansen was dead. One of Vaclavik's colleagues delivered Hansen's baby; Vaclavik himself authorized her discharge. According to court documents, he said nurses failed to inform him about Hansen's symptoms and that if he'd known her vital signs weren't stable, he wouldn't have released her. The hospital and nurses eventually settled for \$1.5 million. The suit against Vaclavik and his colleagues is pending.

Vaclavik did not respond to several interview requests from ProPublica and NPR, including an emailed list of questions. "Due to the fact this matter is in litigation," his attorney responded, "Dr. Vaclavik respectfully declines to comment."

Citing patient privacy, Monmouth spokeswoman Elizabeth Brennan also declined to discuss specific cases. "We are saddened by the grief these families have experienced from their loss," she said in a statement.

"I don't feel good"

Larry Bloomstein's first inkling that something was seriously wrong with Lauren came about 90 minutes after she gave birth. He had accompanied Hailey up to the nursery to be weighed and measured and given the usual barrage of tests for newborns. Lauren hadn't eaten since breakfast, but he returned to find her dinner tray untouched. "I don't feel good," she told him. She pointed to a spot above her abdomen and just below her sternum, close to where she'd felt the stabbing sensation during labor. "I've got pain that's coming back."

Larry had been at Lauren's side much of the previous 24 hours. Conscious that his role was husband rather than doctor, he had tried not to overstep. Now, though, he pressed Vaclavik: What was the matter with his wife? "He was like, 'I see this a lot. We do a lot of belly surgery. This is definitely reflux,'" Larry recalled. According to Lauren's records, the ob/gyn ordered an antacid called Bicitra and an opioid painkiller called Dilaudid. Lauren vomited them up.

Lauren's pain was soon 10 on a scale of 10, she told Larry and the nurses; so excruciating, the nurses noted, "Patient [is] unable to stay still." Just as ominously, her blood pressure was spiking. An hour after Hailey's birth, the reading was 160/95; an hour after that, 169/108. At her final prenatal appointment, her reading had been just 118/69. Obstetrics wasn't Larry's specialty, but he knew enough to ask the nurse: Could this be preeclampsia?

Preeclampsia, or pregnancy-related hypertension, is a little-understood condition that affects 3 percent to 5 percent of expectant or new mothers in the U.S., up to 200,000 women a year. It can strike anyone out of the blue, though the risk is higher for African Americans, women with preexisting conditions such as obesity, diabetes or kidney disease, and mothers over the age of 40. It is most common during the second half of

pregnancy, but can develop in the days or weeks after childbirth, and can become very dangerous very quickly. Because a traditional treatment for preeclampsia is to deliver as soon as possible, the babies are often premature and end up in NICUs like the one where Lauren worked.

As Larry suspected, Lauren's blood pressure readings were well past the danger point. What he didn't know was that they'd been abnormally high since she entered the hospital — 147/99, according to her admissions paperwork. During labor, she had 21 systolic readings at or above 140 and 13 diastolic readings at or above 90, her records indicated; for a stretch of almost eight hours, her blood pressure wasn't monitored at all, the New Jersey Department of Health later found. Over that same period, her baby's vital signs were being constantly watched, Larry said.

In his court deposition, Vaclavik described the 147/99 reading as "elevated" compared to her usual readings, but not abnormal. He "would use 180 over 110 as a cutoff" to suspect preeclampsia, he said. Still, he acknowledged, Lauren's blood pressure "might have been recommended to be monitored more closely, in retrospect."

Leading medical organizations in the U.S. and the U.K. take a different view. They advise that increases to 140/90 for pregnant women with no previous history of high blood pressure signify preeclampsia. When systolic readings hit 160, treatment with anti-hypertensive drugs and magnesium sulfate to prevent seizures "should be initiated ASAP," according to guidelines from the Alliance for Innovation on Maternal Health.

When other symptoms, such as upper abdominal (epigastric) pain, are present, the situation is considered even more urgent.

This basic approach isn't new: "Core Curriculum for Maternal-Newborn Nursing," a widely-used textbook, outlined it in 1997. Yet failure to diagnose preeclampsia, or to differentiate it from chronic high blood pressure, is all too common.

California researchers who studied preeclampsia deaths over several years found one striking theme: "Despite triggers that clearly indicated a serious deterioration in the

patient's condition, health care providers failed to recognize and respond to these signs in a timely manner, leading to delays in diagnosis and treatment."

Preeclampsia symptoms — swelling and rapid weight gain, gastric discomfort and vomiting, headache and anxiety — are often mistaken for the normal irritations that crop up during pregnancy or after giving birth. "We don't have a yes-no test for it," said Eleni Tsigas, executive director of the Preeclampsia Foundation. "A lot of physicians don't necessarily see a lot of it."

Outdated notions — for example, that delivering the baby cures the condition — unfamiliarity with best practices and lack of crisis preparation can further hinder the response.

The fact that Lauren gave birth over the weekend may also have worked against her. Hospitals may be staffed differently on weekends, adding to the challenges of managing a crisis. A new Baylor College of Medicine analysis of 45 million pregnancies in the U.S. from 2004 to 2014 found mothers who deliver on Saturday or Sunday have nearly 50 percent higher mortality rates as well as more blood transfusions and more perineal tearing. The "weekend effect" has also been associated with higher fatality rates from heart attacks, strokes and head trauma.

According to Lauren's records, Vaclavik did order a preeclampsia lab test around 8:40 p.m., but a nurse noted a half-hour later: "No abnormal labs present." (According to Larry, the results were borderline.) Larry began pushing to call in a specialist. Vaclavik attributed Lauren's pain to esophagitis, or inflammation of the esophagus, which had afflicted her before, he said in his deposition. Around 10 p.m., according to Lauren's medical records, he phoned the on-call gastroenterologist, who ordered an x-ray and additional tests, more Dilaudid and different antacids — Maalox and Protonix. Nothing helped.

Meanwhile, Larry decided to reach out to his own colleagues in the trauma unit at Cooper University Hospital in Camden. In his training, perhaps the most important lesson he'd learned was to ask for help: "If there's a problem, I will immediately get

another physician involved." By chance, the doctor on call happened to be a fairly new mother. As Larry described Lauren's symptoms, she interrupted him. "You can stop talking. I know what this is." She said Lauren had HELLP syndrome, an acronym for the most severe variation of preeclampsia, characterized by hemolysis, or the breakdown of red blood cells; elevated liver enzymes; and low platelet count, a clotting deficiency that can lead to excessive bleeding and hemorrhagic stroke.

Larry's colleague urged him to stop wasting time, he recalled. Lauren's very high blood pressure, the vomiting, and the terrible pain radiating from her kidneys and liver were symptoms of rapid deterioration. "Your wife's in a lot of danger," the trauma doctor said. (She didn't respond to ProPublica's and NPR's requests for comment.)

"It's never just one thing"

Earlier this year, an analysis by the CDC Foundation of maternal mortality data from four states identified more than 20 "critical factors" that contributed to pregnancy-related deaths. Among the ones involving providers: lack of standardized policies, inadequate clinical skills, failure to consult specialists and poor coordination of care. The average maternal death had 3.7 critical factors.

"It's never just one thing," said Roberta Gold, a member of the Council on Patient Safety in Women's Health Care, whose daughter and unborn grandson died from a pregnancy-related blood clot in 2010. "It's always a cascading combination of things. It's a slow-motion train wreck."

The last 16 hours of Lauren's life were consistent with that grim pattern. Distressed by what the trauma doctor had told him, Larry immediately went to Lauren's caregivers. But they insisted the tests didn't show preeclampsia, he said. Not long after, Larry's colleague called back to check on Lauren's condition. "I don't believe those labs," he recalls her telling him. "They can't be right. I'm positive of my diagnosis. Do them again."

Meanwhile, Lauren's agony had become almost unendurable. The blood pressure cuff

on her arm was adding to her discomfort, so around 10:30 p.m. her nurse decided to remove it — on the theory, Larry said, "We know her blood pressure is high. There's no point to retaking it." According to Lauren's records, her blood pressure went unmonitored for another hour and 44 minutes.

Larry had given up on getting a specialist to come to the hospital so late on a Saturday night, but he persuaded Vaclavik to call in a general surgical resident. Around 11:55 p.m., according to the nurses' notes, Lauren begged, "Do anything to stop this pain." Vaclavik prescribed morphine, to little effect.

Just after midnight, her blood pressure about to peak at 197/117, Lauren began complaining of a headache. As Larry studied his wife's face, he realized something had changed. "She suddenly looks really calm and comfortable, like she's trying to go to sleep." She gave Larry a little smile, but only the right side of her mouth moved.

In an instant, Larry's alarm turned to panic. He ordered Lauren, "Lift your hands for me." Only her right arm fluttered. He peeled off her blankets and scraped the soles of her feet with his fingernail, testing her so-called Babinski reflex; in an adult whose brain is working normally, the big toe automatically jerks downward. Lauren's right toe curled as it was supposed to. But her left toe stuck straight out, unmoving. As Larry was examining her, Lauren suddenly seemed to realize what was happening to her. "She looked at me and said, 'I'm afraid,' and, 'I love you.' And I'm pretty sure in that moment she put the pieces together. That she had a conscious awareness of ... that she was not going to make it."

A CT scan soon confirmed the worst: The escalating blood pressure had triggered bleeding in her brain. So-called hemorrhagic strokes tend to be deadlier than those caused by blood clots. Surgery can sometimes save the patient's life, but only if it is performed quickly.

Larry was a realist; he knew that even the best-case scenario was devastating. Chances were that Lauren would be paralyzed or partially paralyzed. She'd never be the mother

she had dreamed of being. She'd never be a nurse again. But at least there was a chance she would live. When the neurologist arrived, Larry asked, "Is there hope here?" As he recalls it, the neurologist responded, "That's why I'm here. There's hope."

Larry began gathering Lauren's loved ones — his parents, her brother, Frankie Hedges and her husband Billy, Jackie Ennis. On the phone, he tried to play down the gravity of the situation, but everyone understood. When Larry's mother arrived, the hospital entrance was locked, and Larry and Vaclavik came to meet her. "The obstetrician just said, 'She's going to be all right,'" Linda Bloomstein said. "And Larry was standing behind him, and I saw the tears coming down, and he was shaking his head, 'No.'"

Around 2 a.m., the neurosurgeon finally confirmed what the trauma doctor had said four hours before: Lauren had HELLP syndrome. Then he delivered more bad news: Her blood platelets — essential to stopping the hemorrhage — were dangerously low. But, according to Larry, the hospital didn't have sufficient platelets on site, so her surgery would have to be delayed. Larry was dumbfounded. How could a regional medical center that delivered babies and performed all types of surgery not have platelets on hand for an emergency? Vaclavik called the Red Cross and other facilities, pleading with them to send any they had. "In my understanding, there was a complete shortage of platelets in the state of New Jersey," he said in the deposition. Hours passed before the needed platelets arrived.

The neuro team did another CT scan around 6 a.m. Larry couldn't bring himself to look at it, "but from what they've told me, it was horrifically worse." While Lauren was in surgery, friends began dropping by, hoping to see her and the baby, not realizing what had happened since her cheerful texts the night before. Around 12:30 p.m., the neurosurgeon emerged and confirmed that brain activity had stopped. Lauren was on life support, with no chance of recovery.

All this time, Hailey had been in the newborn nursery, being tended by Lauren's stunned colleagues. They brought her down to Lauren's room and Larry placed her gently into her mother's arms. After a few minutes, the nurses whisked the baby back

up to the third floor to protect her from germs. A respiratory therapist carefully removed the breathing tube from Lauren's mouth. At 3:08 p.m., surrounded by her loved ones, she died.

A private tragedy

In the U.S., unlike some other developed countries, maternal deaths are treated as a private tragedy rather than as a public health catastrophe. A death in childbirth may be mourned on Facebook or memorialized on GoFundMe, but it is rarely reported in the news. Most obituaries, Lauren's included, don't mention how a mother died.

Lauren's passing was more public than most, eliciting an outpouring of grief. Hundreds of people attended her wake and funeral — doctors and nurses from the hospital, friends from around the country, families Lauren had taken care of. Vaclavik was there, utterly devastated, Larry's family said. The head of Monmouth's ob/gyn department paid his respects and, according to Larry, promised in a private conversation at the wake to conduct a full investigation.



Hailey, now 5, at her mother's grave.

Courtesy of the Bloomstein Family

In the days after Lauren's death, Larry couldn't dwell on the implications of what had happened. He had to find a burial plot, choose a casket, write a eulogy. He was too shattered to return to the Mooresville house, so he took Hailey to his parents' place, a one-bedroom apartment they were renting while they renovated their home, and slept with the baby in the living room for the first month.

After the funeral, he turned all his attention to his daughter. He knew nothing about newborns, always imagining Lauren would teach him — "What could be better than having your own NICU nurse to take care of your baby?" he had thought. He relied on his mother and sister and Lauren's friends to guide him. He took time off from his job at Cooper, figuring three months would be enough. But as his return date approached, he knew he wasn't ready. "I don't think I can see a patient that's on a ventilator right

now," he realized. "Or even just a hospital bed." He didn't want to leave Hailey. So he quit.

He sold the house, though he couldn't bring himself to attend the closing — "I couldn't stand handing those keys over to someone else." He took Hailey a couple of times to stay with his sister and her family in Texas, where he didn't have to answer the constant questions. But traveling with his baby daughter was painful in its own way. People didn't know what to make of him. "It's strange for people to see a father alone," he said.

Wherever he went, he felt disconnected from almost everything around him: "You're walking around this world and all these people are around you, and they're going on with their lives and I just felt very, very isolated and very alone with that."

Back in New Jersey, Larry found a job closer to his parents' place, performed one operation and tried to quit. His new employers, though, persuaded him to stay. To avoid reliving the funeral, he returned to Texas for the first anniversary of Hailey's birth and Lauren's death in late September 2012. In one of his suitcases, he packed a giant cupcake mold Lauren had bought when they first married — she thought it would make a perfect first-birthday cake for the kids she yearned for. He baked the cake himself — chocolate, Lauren's favorite, covered with sprinkles.

"With our technology, every single time a woman dies, it's a medical error"

Other people in Lauren's and Larry's circle had been asking questions about her care since the night she died. "That was the first thing I literally said when I walked [into the hospital] — I said, 'How did this happen?'" Jackie Ennis recalled. In the next week or two, she probed Larry again: "Did they do everything they could for her?" He said, "No, there were warning signs for hours before." Ennis was too upset to dig any deeper.

As Larry's numbness wore off, his orthopedist friends began pushing him as well.

Larry was hesitant; despite the missteps he had witnessed, part of him wanted to believe that Lauren's death had been unavoidable. "And my friends were like, 'We can't accept that ... With our technology, every single time a woman dies [in childbirth], it's a medical error.'"

Lauren's death, Larry finally admitted to himself, could not be dismissed as either inevitable or a fluke. He had seen how Lauren's ob/gyn and nurses had failed to recognize a textbook case of one of the most common complications of pregnancy — not once, but repeatedly over two days. To Larry, the fact that someone with Lauren's advantages could die so needlessly was symptomatic of a bigger problem. By some measures, New Jersey had one of the highest maternal mortality rates in the U.S. He wanted authorities to get to the root of it — to push the people and institutions that were at fault to change.

That's the approach in the United Kingdom, where maternal deaths are regarded as systems failures. A national committee of experts scrutinizes every death of a woman from pregnancy or childbirth complications, collecting medical records and assessments from caregivers, conducting rigorous analyses of the data, and publishing reports that help set policy for hospitals throughout the country. Coroners also sometimes hold public inquests, forcing hospitals and their staffs to answer for their mistakes. The U.K. process is largely responsible for the stunning reduction in preeclampsia deaths in Britain, the committee noted its 2016 report — "a clear success story" that it hoped to repeat "across other medical and mental health causes of maternal death."

The U.S. has no comparable federal effort. Instead, maternal mortality reviews are left up to states. As of this spring, 26 states (and one city, Philadelphia) had a well-established process in place; another five states had committees that were less than a year old. In almost every case, resources are tight, the reviews take years, and the findings get little attention. A bipartisan bill in Congress, the Preventing Maternal Deaths Act of 2017, would authorize funding for states to establish review panels or improve their processes.

New Jersey's review team, the second-oldest in the U.S., includes ob/gyns, nurses, mental health specialists, medical examiners, even a nutritionist. Using vital records and other reports, they identify every woman in New Jersey who died within a year of pregnancy or childbirth, from any cause, then review medical and other records to determine whether the death was "pregnancy-related" or not. Every few years, the committee publishes a report, focusing on things like the race and age of the mothers who died, the causes of death, and other demographic and health data. In the past, the findings have been used to promote policies to reduce postpartum depression.

But the New Jersey committee doesn't interview the relatives of the deceased, nor does it assess whether a death was preventable. Moreover, like every other state that conducts such reviews, New Jersey "de-identifies" the records — strips them of any information that might point to an individual hospital or a particular woman. Otherwise, the medical community and lawmakers would refuse to go along. The goal is to "improve care for patients in general," said Joseph Apuzzio, a professor of obstetrics and gynecology at Rutgers-New Jersey Medical School who heads the committee. This requires a process that is "nonjudgmental" and "not punitive," he said. "That's the best way to get a free discussion of all of the health care providers who are in the room."

Yet the result of de-identification, as Larry soon realized, is that the review is of little use in assigning responsibility for individual deaths, or evaluating whether some hospitals, doctors or nurses are more prone to error than others. To Larry, this seemed like a critical oversight — or perhaps, willful denial. In a preventable death or other medical error, he said, sometimes the who and the where are as important as the why. "Unless someone points the finger specifically," he said, "I think the actual cause [of the problem] is lost."

"The facility is not in compliance"

Someone eventually steered Larry toward the New Jersey Department of Health's licensing and inspection division, which oversees hospital and nursing-home safety.

He filed a complaint against Monmouth Medical Center in 2012.

The DOH examined Lauren's records, interviewed her caregivers and scrutinized Monmouth's policies and practices. In December 2012 it issued a report that backed up everything Larry had seen first-hand. "There is no record in the medical record that the Registered Nurse notified [the ob/gyn] of the elevated blood pressures of patient prior to delivery," investigators found. And: "There is no evidence in the medical record of further evaluation and surveillance of patient from [the ob/gyn] prior to delivery." And: "There was no evidence in the medical record that the elevated blood pressures were addressed by [the ob/gyn] until after the Code Stroke was called."

The report faulted the hospital. "The facility is not in compliance" with New Jersey hospital licensing standards, it concluded. "The facility failed to ensure that recommended obstetrics guidelines are adhered to by staff."

To address these criticisms, Monmouth Medical Center had implemented a plan of correction, also contained in the report. The plan called for a mandatory educational program for all labor and delivery nurses about preeclampsia and HELLP syndrome; staff training in Advance Life Support Obstetrics and Critical Care Obstetrics; and more training on the use of evidence-based methods to assess patients and improve communications between caregivers.

Some of the changes were strikingly basic: "Staff nurses were educated regarding the necessity of reviewing, when available, or obtaining the patients [sic] prenatal records. Education identified that they must make a comparison of the prenatal blood pressure against the initial admission blood pressure." And: "Repeat vital signs will be obtained every 4 hours at a minimum."

An important part of the plan of correction involved Vaclavik, though neither he nor the nurses were identified by name. The head of Monmouth's ob/gyn department provided "professional remediation for the identified physician," the Department of Health report said. In addition, there was "monitoring of 100% of records for physician of record per month x 3 months." The monitoring focused on "compliance of

timely physician intervention for elevated blood pressures/pain assessment and management."

The department chairman, Robert Graebe, found Vaclavik's charts to be 100 percent compliant, Vaclavik said in the deposition. Graebe was asked in a March 2017 deposition if Vaclavik was in good standing at the hospital at the time of Lauren's treatment. "Was and is," Graebe replied.

In a separate note, the Department of Health told Larry that it forwarded his complaint to the Board of Medical Examiners and the New Jersey Board of Nursing. Neither agency has taken disciplinary action, according to their websites.

Larry's copy of the DOH report arrived in the mail. He was gratified by the findings but dismayed that they weren't publicly posted. That meant hardly anyone would see them.

A few months after the DOH weighed in, he sued Monmouth, Vaclavik and five nurses in Monmouth County Superior Court in Freehold, N.J. For a medical malpractice lawsuit to go forward in New Jersey, an expert must certify that it has merit. Larry's passed muster with an ob-gyn. But beyond the taking of depositions, there's been little action in the case.

Creating "toolkits"

As the maternal death rate has mounted around the U.S., a small cadre of reformers has mobilized. Some of the earliest and most important work has come in California, where more babies are born than in any other state —500,000 a year, one-eighth of the U.S. total.

Modeled on the U.K. process, the California Maternal Quality Care Collaborative is informed by the experiences of founder Elliott Main, a professor of obstetrics and gynecology at Stanford and the University of California-San Francisco, who for many years ran the ob/gyn department at a San Francisco hospital. "One of my saddest

moments as an obstetrician was a woman with severe preeclampsia that we thought we had done everything correct, who still had a major stroke and we could not save her," he said recently. That loss has weighed on him for 20 years. "When you've had a maternal death, you remember it for the rest of your life. All the details."

Launched a decade ago, CMQCC aims to reduce not only mortality, but also life-threatening complications and racial disparities in obstetric care. It began by analyzing maternal deaths in the state over several years; in almost every case, it discovered, there was "at least some chance to alter the outcome." The most preventable deaths were from hemorrhage (70 percent) and preeclampsia (60 percent).

Main and his colleagues then began creating a series of "toolkits" to help doctors and nurses improve their handling of emergencies. The first one, targeting obstetric bleeding, recommended things like "hemorrhage carts" for storing medications and supplies, crisis protocols for massive transfusions, and regular training and drills. Instead of the common practice of "eye-balling" blood loss, which often leads to underestimating the seriousness of a hemorrhage and delaying treatment, nurses learned to collect and weigh postpartum blood to get precise measurements.

Hospitals that adopted the toolkit saw a 21 percent decrease in near deaths from maternal bleeding in the first year; hospitals that didn't use the protocol had a 1.2 percent reduction. By 2013, according to Main, maternal deaths in California fell to around 7 per 100,000 births, similar to the numbers in Canada, France and the Netherlands – a dramatic counter to the trends in other parts of the U.S.

"Prevention isn't a magic pill," Main said. "It's actually teamwork [and having] a structured, organized, standardized approach" to care.

CMQCC's preeclampsia toolkit, launched in 2014, emphasized the kind of practices that might have saved Lauren Bloomstein: careful monitoring of blood pressure and early and aggressive treatment with magnesium sulfate and anti-hypertensive medications. Data on its effectiveness hasn't been published.

The collaborative's work has inspired ACOG and advocates in a few states to create their own initiatives. Much of the funding has come from a 10-year, \$500 million maternal health initiative by Merck, the pharmaceutical giant. Originally intended to focus on less developed countries, Merck for Mothers decided it couldn't ignore the growing problem in the U.S. The U.S. maternal mortality rate is "unacceptable," said executive director Mary-Ann Etiebet. Making pregnancy and childbirth safer "will not only save women's lives but will improve and strengthen our health systems ... for all."

But the really hard work is only beginning. According to the Institute of Medicine, it takes an average of 17 years for a new medical protocol to be widely adopted. Even in California, half of the 250 hospitals that deliver babies still aren't using the toolkits, said Main, who largely blames inertia.

In New York State, some hospitals have questioned the need for what they call "cookbook medicine," said Columbia's D'Alton. Her response: "Variability is the enemy of safety. Rather than have 10 different approaches to obstetric hemorrhage or treatment of hypertension, choose one or two and make it consistent ... When we do things in a standardized way, we have better outcomes."

One big hurdle: training. Another: money. Smaller providers, in particular, may not see the point. "It's very hard to get a hospital to provide resources to change something that they don't see as a problem," ACOG's Barbara Levy said. "If they haven't had a maternal death because they only deliver 500 babies a year, how many years is it going to be before they see a severe problem? It may be 10 years."

In New Jersey, providers don't need as much convincing, thanks to a recent project to reduce postpartum blood loss led by the Association of Women's Health, Obstetric and Neonatal Nurses. A number of hospitals saw improvements; at one, the average length of a hemorrhage-related ICU stay plunged from 8 days to 1.5 days. But only 31 of the state's 52 birthing hospitals participated in the effort, in part — perhaps — because nurses led it, said Robyn D'Oria, executive director of the Central Jersey Family Health Consortium and member of the state's maternal mortality committee. "I remember

having a conversation with [someone from] a hospital that I would describe as progressive and she said to me, 'I cannot get past some of the physicians not wanting to buy into this.'"

So New Jersey hospitals are about to try again, this time adopting mini-toolkits created by the ACOG-led Alliance for Innovation on Maternal Health for hemorrhage and preeclampsia. "We're at the very beginning" of a roll-out that is likely to take at least two years, D'Oria said. Among those helping create momentum has been Ryan Hansen, the husband of the teacher who died at Monmouth Medical Center a few months before Lauren Bloomstein.



Larry and Carolyn Bloomstein play with their daughters Aria, 2, (left) and Hailey, 5, at home in New Jersey.

Bryan Anselm for ProPublica

Still, as hospitals begin to revamp, mothers in the state continue to perish. One was Ashley Heaney Butler. A Rutgers University graduate, she lived in Bayville, where she decorated the walls of her house with anchors, reflecting her passion for the ocean.

She worked for the state Division of Vocational Rehabilitation Services as a counselor, and served as president of the New Jersey Rehabilitation Association. Her husband Joseph was a firefighter. She gave birth at Monmouth last September to a healthy boy and died a couple of weeks later at the age of 31, never leaving the hospital. It turned out that she had developed an infection late in her pregnancy, possibly related to a prior gastric bypass surgery. She was under the care of several doctors, including Vaclavik.

"She didn't get what she deserved"

The sudden death of a new mother is tragic to everyone around her. "When you take that one death and what that does, not only to the husband, but to the family and to the community, the impact that it has in the hospital, on the staff, on everybody that's cared for her, on all the people who knew them, it has ripple effects for generations to come," Robyn D'Oria said.

Jackie Ennis felt Lauren's loss as an absence of phone calls. She and Lauren had been closer than many sisters, talking several times a day. Sometimes Lauren called just to say she was really tired and would talk later; she'd even called Ennis from Hawaii on her honeymoon. The night Lauren died, Ennis knew something was wrong because she hadn't heard from her best friend. "It took me a really long time not to get the phone calls," she said. "I still have trouble with that."

During Lauren's pregnancy, Frankie Hedges had thought of herself as Hailey's other grandmother. She and Lauren had made a lot of plans. Lauren's death meant the loss of their shared dreams for an entire extended family. "I just feel she didn't get what she deserved," Hedges said.

Vaclavik's obstetric practice is "larger" than in 2011, and he continues to have admitting privileges at Monmouth and two other hospitals, he said in his deposition. "I will never forget" Lauren's death, he said. "... I probably suffer some post traumatic stress from this."

Hailey is five years old, with Lauren's brown hair and clear green eyes. She feels her mother's presence everywhere, thanks to Larry and his new wife Carolyn, whom he married in 2014. They met when she was a surgical tech at one of the hospitals he worked at after Lauren died. Photos and drawings of Lauren occupy the mantle of their home in Holmdel, the bookcase in the dining room, and the walls of the upstairs hallway. Larry and Carolyn and their other family members talk about Lauren freely, and even Larry's younger daughter, 2-year-old Aria, calls her "Mommy Lauren."

On birthdays and holidays, Larry takes the girls to the cemetery. He designed the gravestone — his handprint and Lauren's reaching away from each other, newborn Hailey's linking them forever. Larry has done his best to keep Lauren's extended family together— Ennis and Hedges and their families are included in every important celebration.

Larry still has the video of Lauren and Hailey on his phone. "By far the hardest thing for me to accept is [what happened] from Lauren's perspective," he said one recent evening, hitting the play button and seeing her alive once more. "I can't, I literally can't accept it. The amount of pain she must have experienced in that exact moment when she finally had this little girl ... I can accept the amount of pain I have been dealt," he went on, watching Lauren stroke Hailey's cheek. "But [her pain] is the one thing I just can't accept. I can't understand, I can't fathom it."

NPR's Bo Erickson, and ProPublica's research editor Derek Kravitz and engagement reporter Adriana Gallardo contributed to this report.

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