

Portraits of Patients: Lives We Have Changed



Christina Bowden with her son
Connor and NJMS trauma surgeon
Ziad Sifri, MD



TRUE GRIT

By Maryann Brinley

Portrait by Andrew Hanenberg

To put yourself in Christina Bowden's place is to be inside an Academy-award-winning drama about survival and strength—the kind that sets you on edge, thinking, “What’s next?” This optimistic, gutsy 35-year-old mother's life has taken far too many medical twists and downturns since Dec. 14, 2005.

After two overseas deployments as a U.S. Naval intelligence officer with VAQ-130 Flight Squadron, and Navy SEAL teams in 2000 and 2001, this California girl landed in what seemed like a safer stateside spot to work. Her husband, Jonathon, whom she met in the Navy and married in December 2001, is a dentist practicing with his father in Flemington, NJ. Out of the military, the couple imagined their future in a quieter zone, that place called happily ever after. In August 2003, they moved from Coronado, CA, to Pennington, NJ, and in 2004, Christina started working for the government.

Then, four years ago, when she was eight months pregnant, Christina was struck by a vehicle in Newark. Describing that day now, all she can say, after a pause, is “Errrrrhrrr. Let's see. Where should I begin?” The cadence of her voice is slow and steady, with willful determination. Christina works hard to say what she means and to be where she is today. Her intelligence and wit are fierce. “I struck my head, or so they tell me.” Of course, she—the conscious Christina Bowden—wasn't there. She was in a coma, struggling to return to life.

“To keep her alive as she slipped into a coma,” the UMDNJ-University Hospital paramedics, who had raced to the scene of the accident, “intubated her immediately, right there in the field,” explains NJMS trauma surgeon Ziad Sifri, MD. “This means they placed a breathing tube through her vocal cords to breathe for her and prevent her from aspirating any fluids down into her lungs,” Sifri explains. “Her level of consciousness was very low when the paramedics got to her. This, in the setting of a closed head injury means she was in bad shape.” On the Glasgow Coma Scale (GCS) which scores injured



ON CHRISTINA'S TEAM OF HEALERS

(Left) Jonathan Fellus, MD, NJMS neurologist at Kessler Institute for Rehabilitation Medicine

(Below) UH nurses in the Surgical Intensive Care Unit (SICU): Michelle N. Addie, RN, BSN, LaVern Allen, RN, BSN, Luz M. Meneses, RN, BSN, MA, Eloisa Laudato-Hufalar, RN, BSN, and Michelle Haynes-Mintz, RN



patients on a range from 3 to 15—anything less than 8 means the patient is in a coma—she would be classified a 6, he says.

In the UH emergency room, multi-disciplinary trauma teams moved fast. “Her pupils were sluggish but still reactive,” Sifri recalls. “She had obvious facial lacerations and abrasion” but her “pelvis was stable” with no obvious injury, which was important both for her and her unborn baby. Every minute counted because “the longer someone remains in shock, the more likely the person will die or suffer major complications. The same goes for the baby. This is one of the challenges of trauma,” Sifri explains, “to be able to work with different surgeons and specialists at the same time without interference, communication errors, or wasted time, while physically caring for the patient on many levels.” He led the primary trauma team. “Perfect timing, so that you can achieve the optimum outcome for the patient with the least complications, is so important.”

After seeing her X-rays, Sifri rushed her to a CT scanner to check for bleeding inside her head. “On the CT of the head, she had an obvious skull fracture and multiple bleeds within different areas of her brain,” he says. “She also had midline shifts and evidence of herniation, which means the brain had started to swell and was actually

pushing its way out of the skull, which is very dangerous and can be life-threatening.” Sifri consulted with a neurosurgeon.

“At this point, three teams were simultaneously taking care of her,” he recalls. The neurosurgeon focused on her brain swelling and was putting in an intra-cranial monitor, called an ICP monitor, to measure the pressure around her brain. The obstetrics-gynecology (OB-GYN) team was concentrating on her placenta which had actually ruptured. “This fetus was viable with a good heart rate that we could see on the ultrasound. Given Christina’s critical condition,” Sifri says, there was a serious potential threat to the unborn baby. “Interestingly—and this is something we teach our medical students—fetal distress is one of the earliest signs of shock in a pregnant woman. The fetus is very sensitive to shock and hemorrhage in the mother.” The team didn’t want to wait until the baby’s life was compromised and decided to deliver him immediately.

When she speaks about this day to her 4-year-old son, Christina makes Connor an integral part of the story. “We were in that accident together. Today, he is totally healthy and super-smart.” Delivered in an emergency C-section later that day, Dec. 14, 2005, by Guy D. Murphy, MD, an NJMS assistant professor, Connor was four pounds, fifteen ounces, and remained nameless for weeks. His Apgar score was low, and he was intubated before being taken to the Neonatal Intensive Care Unit (NICU) where he “was the biggest baby for weeks.”

For days in the Surgical Intensive Care Unit (SICU), Christina was treated for her brain injury and respiratory failure, and she remained on a ventilator. Friends would gather by her door with tears and fears tangible. By Dec. 29, she was stable enough to be moved out of the SICU to a lower level of care but, Sifri says, “her level of consciousness was still low and of concern.” Her condition might best be described using “that laymen’s expression. You know, ‘The lights were on but there was nobody home.’” That would eventually change.

But Christina was there deep inside. She acknowledges, “The brain is so remarkable. Jon tells me that on January 1, after a priest blessed me with spiritual water that a co-worker gave him, the nurses placed Connor on my chest. I started to wake up a little. I sensed that people were with me in the hospital room. Jon says that family, doctors, and nurses were all in my room crying.”

Christina also explains, “Jon told me that the baby couldn’t be discharged from the hospital until we named him—something he hadn’t wanted to do without my input. So, by my bed, he asked me to squeeze his hand for a sign of ‘yes,’ when he said the name I wanted.”

“Robert William?”

No.

“Connor William?”

“I squeezed yes for Connor William,” she says.

Upon her arrival at Kessler East on Jan. 6, 2006, Jonathan Fellus, MD, Christina’s neurologist, describes her as “barely responsive.” His job was to wake her up and bring her back to conscious living. He began by adjusting certain medications to keep her medically stable and to control her pain level. Fellus also wanted to “set the stage for

the neurological stability upon which I could regulate her sleep-wake cycles and give her more energy.” With every traumatic brain injury patient, Fellus, an assistant clinical professor at NJMS, takes an individual patient’s personality and behavior patterns into consideration.

“As Christina became more awake and alert, it was like a chess match,” Fellus recalls. “Not checkers, where you move one step ahead. But, chess, where you have to think three, four, five moves ahead using certain interventions, changing medications, and anticipating each stage of recovery.” Her Kessler rehabilitation team—including Sherry Higgins, CT (Cognitive Therapy), Elizabeth Salameh, PT (Physical Therapy), and Artrese Lyles, a nursing assistant, among many others—used every possible motivator to get her well again. “I had a lot of Ts,” Christina says laughing. “Occupational therapy, physical therapy, cognitive therapy, speech therapy...all the Ts. You name the T, I did the T.” For 46 days—eventually “I was crossing them off on a calendar”—Christina was as tough on her therapists as they were on her.

“I challenged myself all of the time. But, it’s crazy and frustrating waiting for your brain to catch up. Try to imagine starting life back at age 3. It’s easier the first time you have to learn how to eat, to walk, and to talk. The second time isn’t fun. Does that make sense?”

Fellus recalls, “I remember her family bringing Connor, her baby, in to visit.” Back at home, they had hired a nanny to help. “I wanted her to have those reality checks with her baby,” this neurologist explains. “I could see her degree of reaction and interaction with Connor. It helped us all reinforce what we were doing in therapy. We’d say, ‘You have to be able to take care of that baby.’”

Eventually weaned off the respirator, Christina’s freedom from a feeding tube took the finesse of Artrese Lyles, the nurse’s aide who would bring her a grilled cheese sandwich and Ensure, a nutritional supplement, every day. “That woman was remarkable,” Christina recalls lovingly.

At Kessler East, “I had to start back at the beginning,” she says. To describe her balance challenges, she uses this analogy: “My brain was like a buoy, constantly bobbing on a wavy sea.

“I went through so many phases and emotions...anger, anxiety, stress, and frustration. I wanted to be normal. I refused to be abnormal. I wanted to walk before Connor walked. I wanted to talk before Connor talked.” She wanted no part of the wheelchair, the walker, or the cane, which she referred to as her p.o.s. (piece of s!&t). “I didn’t want to curse. So I would say, ‘Where’s my p.o.s.?’ Thankfully, it’s collecting dust in our basement now,” she says proudly.

At the end of February 2006, Christina went home, where she spent the next year recovering. Now, she laughs about how volatile her emotions would run. “Jon didn’t know whether to come home after work carrying a baseball mitt and wearing protective gear, or to be ready to give me a hug. He is a rock. I love him so much.”

She went back to work part-time on Jan. 9, 2007, using a walker at first and later her p.o.s. When we met recently, this remarkable woman walked into our UMDNJ offices on her own, moving thoughtfully, with muscular tenacity, and very independently. “I’m so determined.

I’m elated by this aspect of myself. I just refuse to give up.”

If it weren’t for this positive mental attitude—she calls it her p.m.a.—the bad medical news she received in late July 2008 might have broken her spirit. “I was diagnosed with neuroendocrine cancer,” she explains. “Mid-July 2008, I had surgery. The oncologist removed my left ovary, left fallopian tube, appendix and 20 lymph nodes.

“Whoever said lightning doesn’t strike twice lied. After more tests, I was told I had multiple cancerous lesions in my liver, sternum, right femur, pelvis and spine. I reacted with a determined spirit.”

Fellus, whom she sees every six months, believes that the accident and the cancer are connected. There is a “lot of neural endocrine disruption after brain trauma and a body of literature which speaks to this. It is plausible for there to be an interaction between her brain trauma, what it unleashed on the body and the fact that this was a hormonally-based cancer. The poor little pituitary gland, locked at the base of her skull, connected by a narrow tube to the brain, stretched back and forth in that accident.” This master gland, connected to the hypothalamus, controls everything from growth, blood pressure, pregnancy, delivery, and thyroid function to temperature regulation.

In caring for patients with TBI, Fellus measures hormones routinely. As a pregnant TBI victim, Christina presented a very biochemically-complicated case. As trauma surgeon Sifri points out, “Estrogen and other female hormones protect against organ injury. So those hormones could also have helped her recover from injuries.”

Ten rounds of chemotherapy over nearly eight months left her feeling like a painful piece of “Swiss cheese with so many holes,” she admits. Yet, Christina approached the cancer battle thinking positively and from all directions. With her oncologist’s advice, Jon’s recommendations, and Fellus’ input, Christina adopted an organic diet. She started taking herbal supplements, scheduled acupuncture and other alternative healer appointments, and sought support from her family, friends, and co-workers. She also set up a personalized website with <http://www.caringbridge.org>, where she posts her progress and appointments and can receive inspiration from her site’s guest book. “I had to have a positive way to direct my energy.”

Recent CT scans show that the cancer has almost disappeared. “I have two liver tumors left: 1.7 cm lesion and a 9 mm lesion.”

Jon keeps saying, “The fight isn’t over until the fat lady sings.” Christina assures him, “She’s not singing yet. But, don’t worry, she will. She’s humming.”

Ziad Sifri, who races from trauma to trauma nearly every day of his working life, doesn’t often get the chance to read the happy ending to the stories in which he co-stars. In fact, physicians are actually prevented by law from inquiring about patients they have treated, unless the patient makes direct contact. So he smiled when he learned, four years after this disaster, that this particular patient had “regained a full, meaningful life. I am always nervous when I get someone with severe brain injury because we are not always sure who is going to recover. After all our time and effort, and all of Christina’s work and effort, this is very exhilarating to hear.” ●

[Molecular Beacons: molecules that signal the presence of a target by fluorescence]

THE BRILLIANCE OF BEACONS

By Eve Jacobs

Fred Russell Kramer—and partners Sanjay Tyagi and Salvatore Marras—are men with a mission. They want you to understand something about science that most people just don't get. "It's like art," Kramer says. "It's about vision.

It's about seeing beyond the every day, coming together with a group and hashing out new ideas. It's definitely NOT about solitary pursuits in a stainless steel lab."

If you think visionary and basic laboratory researcher do not belong in the same sentence, then it's time to meet these scientists. Kramer is a big guy, born in Queens and raised in the Bronx, a product of the public school system, a math, then zoology, major at the University of Michigan, who returned to New York to earn his PhD at Rockefeller University, and then served on the faculty of Columbia University for 17 years before joining the Public Health Research Institute (PHRI). He came to New Jersey when PHRI moved to UMDNJ's Newark campus in 2002.

Kramer is a natural storyteller, tells his tales with gusto, describes his science artfully, knows how to woo his audience, but also knows

when to step back and let the team shine. He radiates pride in his—and their—accomplishments in basic molecular biology and nucleic acid structure, chief among them "molecular beacons" that have beamed their way around the world and back, lighting up the imaginations of researchers, generating numerous discoveries based on this work, and yielding practical applications that are golden.

Think rocky New England coastline. Think rough seas on a dark and stormy night. Think threatening waves tossing a big ship like a wood chip on the waters. Now think of a thin slice of light cracking the blackness open, pointing the way to safety. Next, translate that into science. That is the molecular beacon—the point of pride of this lab. And that was the image in Kramer's mind when he named this invention—the culmination of years of hard work in the early '90s.

What has made this research possible is grant money. "Getting