Lost in the Storm

Houston thought it was prepared for a major hurricane like Harvey. But as the flooding overwhelmed the city's emergency systems, families like the Daileys found out too late that they were on their own.

By SHERI FINK AUG. 30, 2018

ayne Dailey sat in a waiting area at a Houston hospital, anxious for word about his wife. He and his sister stared at the television to distract themselves. It was Wednesday, Aug. 23, 2017, and broadcasters described a large storm moving off the Yucatán Peninsula with Texas in its sights, potentially bringing historic flooding to Houston that weekend.

Wayne, who as a child in Galveston County spent hours watching the cloudscapes drift over the Gulf of Mexico, kept multiple weather apps on his phone and had already been tracking the storm. "It's going to get us," he told his sister. But coastal storms were a part of life that he had prepared for, and they did not concern him.

He was more worried about his wife. Casey Dills-Dailey was undergoing surgery to remove the adrenal gland above her left kidney. The surgeon predicted an uncomplicated operation, conducted through tiny incisions. Still, Wayne wondered, would the surgery do what it was supposed to do? Was the doctor as skilled as he said he was? It was hard to grasp that the life of his 38-year-old wife could be endangered.

The operation came after years of mysterious symptoms that began when Casey was in her early 30s. She had hot flashes and eventually stopped

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space between her shoulders. Ugly red marks appeared on her abdomen. The illness left her in pain, nauseated and unable to stand for more than 15 minutes at a time.

Casey would scour books and the internet to help others solve medical or legal problems — Wayne, 39, called her a doctor without a degree — but the cause of her own health issues had eluded her. She blamed herself, ascribing her weight gain to overeating. Finally, in late March, after an ambulance took her to the hospital for a bout of severe abdominal pain, doctors detected a mass on one of her adrenal glands. Weeks of tests produced a diagnosis: Cushing's syndrome, a curable but potentially deadly disorder caused by an overabundance of cortisol, a steroid hormone. The mass appeared on a 2015 scan for kidney stones, doctors realized, but because it is a common and typically nonproblematic finding, its significance was missed.

Casey was referred to Dr. Curtis Wray, a surgical oncologist, to remove what doctors suspected was a noncancerous tumor that was releasing extra cortisol, causing her Cushing's syndrome. The diagnosis helped explain many of her problems, from high blood pressure to erratic moods. Casey could not wait to look and feel like herself again.

That morning, a resident surgeon said Casey should expect to stay three or four days for recovery. He described the operation's potential complications — bleeding, infection, damage to other organs — which frightened Wayne. Dr. Wray, the senior surgeon, came in and reassured them. His team had performed the operation many times. Surprising Wayne and Casey, he predicted she would be home in 24 hours.

Wayne asked to see the tumor when it was out. After surgery, Dr. Wray called him from the waiting area and showed him an image on his phone. The tumor was the width of Wayne's two thumbs put together. Most important, to the surgeon it appeared benign.

After Casey was settled in her hospital room, Wayne drove home to spend the night with their two sons. The family lived outside the Houston city

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along fancifully named streets — Drifting Winds, Island Song and theirs, Enchanted Path Drive.

The Daileys were what Wayne called a "simple, simple family": Casey, a housewife who home-schooled their oldest son, Luke, 14; their youngest son, Ronnie, 10; and Wayne himself, a "middle-class worker, a lower-class worker," without a steady job. For more than a dozen years, he had operated heavy machinery at oil refineries, clawing trenches into the earth for foundations and pipe racks. The finances were in his wife's name in case he did not make it home. He had survived explosions, survived co-workers. Lately, he had been working for a friend's tree-service firm. Casey made their uncertain income stretch, scrapping junk metal and advertising homemade quilts for \$50 on social media; it took her about a week to make each one.

Their trailer-park community had its drugs and gangs and violence, the evening cracks of gunfire and whining sirens. But four generations of family members and friends filled the homes on their block. Casey's parents lived across the street, next to her aunt. Three homes over, there was Casey's grandma's bowling partner. Next door was Erasmo Villa, from Mexico, who with his brother-in-law had drywalled the Daileys' home free of charge just because they were neighbors, and neighbors help each other. Casey cultivated roses that bloomed from pale pink to vivid red, growing impossibly high.

Casey grew up in the trailer. Her mother had many miscarriages before giving birth to her only child, and Casey quickly took a place at the center of the family, clinging like a bear to her grandpa's neck. As an adult, she cared for him and other sick relatives until they died.

Having little money did not mean the Daileys could not be generous. Casey joined the homeowners' board, chaperoned school field trips and led a Cub Scout troop with Wayne because nobody else volunteered. An evicted family with three children had slept on pallets on the Daileys' living-room floor. Wayne and Casey served as temporary guardians for one of Ronnie's

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That night after Casey's operation, Wayne picked up the boys from their grandparents' trailer. He ate dinner, put the television on in the bedroom and fell asleep. At around 9:30 the next morning, Casey called him from the hospital. "Come up here," she said. They were discharging her.

Tropical Storm Harvey was rapidly strengthening in the gulf, and Wayne stopped to pick up necessities. When he walked into the imposing hospital in the early afternoon, though, nothing looked amiss. In truth, doctors at Casey's hospital, Memorial Hermann-Texas Medical Center, were preparing for a possible hurricane, sending stable patients home. During Tropical Storm Allison in 2001, Memorial Hermann, with 540 patients inside, lost power and was evacuated, as medical workers manually squeezed air into the lungs of patients whose mechanical respirators had failed. Since then, billions of dollars had been spent to protect the hospital and other facilities at the Texas Medical Center campus.

A surgical intern just weeks out of medical school examined Casey. He prepared discharge instructions and wrote two prescriptions: one for a stool softener and the other for 40 tablets of Tramadol, an opioid painkiller. He did not prescribe steroids, which would typically be needed when a steroid-producing tumor like Casey's was removed.

A nurse went over the bright-orange folder of information, explaining how to keep the incisions clean to avoid infection and emphasizing the importance of being as active as possible to help prevent a potentially deadly blood clot from forming in her legs or lungs. Casey was to follow up with Dr. Wray in a week.

She arrived home that afternoon in pain and ready for a nap. Casey's aunt from across the street texted to offer help and asked whether Casey and Wayne were ready for the hurricane. Casey responded that they would fill containers with water, hunker down and keep an eye on their outdoor dogs. "It's all we can do."

Late the next night, Friday, Harvey barreled into the Texas coastline northeast of Corpus Christi as a Category 4 hurricane, the strongest to

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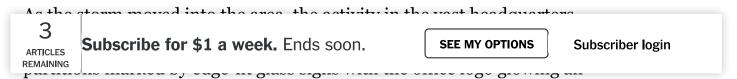
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On Saturday night, before 10 p.m., Wayne opened his screen door, stepping barefoot onto the stoop to look at what was coming. Wind chimes tinkled, and the roof dripped a steady beat of rain between crashes of thunder. Branches tipped with small red flowers swayed dizzily above the door. A shock of lightning brought the trees into sudden light. Less than an hour later, he opened the door again to a hiss of sheeting rain that obscured the rumble of thunder. Behind him in the house, an emergency alert blared from one of their mobile phones, a flash-flood warning: "Imminent Threat — Severe."

A sthe storm strengthened, emergency officials appeared to have the situation well in hand. Houston's mayor, Sylvester Turner, had warned that Harvey would be a "major rainmaker" for the city and asked people to stay off the roads over the weekend, but he did not call for an evacuation — he later told reporters that sending millions of people fleeing onto the highways would be "asking for a major calamity." In 2005, more than half of the county's population drove out ahead of Hurricane Rita, just weeks after Hurricane Katrina. Traffic stalled, gas tanks ran dry and dozens of residents died on the freeways from the heat, vehicle-fire injuries, traffic accidents and delayed medical attention. Then Rita swerved and missed Houston.

Harris County's top elected official, Judge Ed Emmett, also decided that there should be no mass evacuations. With a population of more than 4.5 million — about equal numbers outside and inside Houston — Harris County's roughly 1,700 square miles held more people than half of the states in the country.

Texas law requires every jurisdiction to have plans for managing emergencies, and as the lead county official, Judge Emmett served as its emergency-management chief. On Sunday, he was based at the county's emergency operations center, in the Houston TranStar building, which houses Harris County's lead agency for disasters, the Office of Homeland Security and Emergency Management.

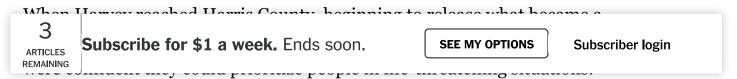


eerie white. Just below the room's high ceilings, giant video screens played the news and tracked weather.

Webbed with rivers, creeks, lakes, bayous and reservoirs, Harris County had experienced a notable increase in severe, storm-induced floods in recent years. Storms in 2015 and 2016 killed more than a dozen people and swamped parts of the "500 year" floodplain — an area that according to previous models had only a 0.2 percent chance of flooding in a given year. Climate experts predicted that the trend would continue as the atmosphere warmed and extreme weather rose in frequency and intensity. The built environment worsened the problem: Concrete covered ever more miles of rainfall-absorbing prairieland, and sewers and ditches were designed by the local government to overflow into the streets, which were considered part of the drainage system. This helped protect homes and businesses from flooding, but it could trap their inhabitants when streets became canals.

A dizzying array of agencies participated in emergency response, coordinating their activities using the National Incident Management System, a protocol that arose from efforts to jointly battle wildfires in the 1970s and that was adopted nationally after the attacks of Sept. 11, 2001.

The concept was simple: Disaster response, and the responsibility for it, started at the point of impact and moved out and up as resources were overwhelmed. Individual and local-community preparedness — stocking food, water and medicines and looking out for neighbors — was the initial safeguard. The 911 system was the next, connecting people with police, fire, rescue and emergency medical assistance. The circle expanded from there. If one of the county's 54 independent fire departments, which were responsible for water rescues, found itself overwhelmed, it could reach out to the fire desk at the county emergency operations center in the TranStar building, which could request assistance from other local fire stations or from representatives of the Coast Guard or the Federal Emergency Management Agency sitting nearby. Health and medical services had a separate hierarchy of support agencies.



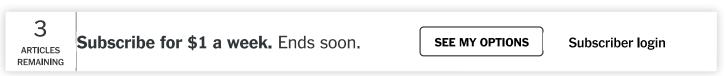
But as the water rose on Sunday, it overwhelmed those preparations. Many local fire departments lacked boats or trucks that could handle flooded streets, and those that had them could no longer share. A Houston police sergeant drowned in his vehicle trying to drive to work. The flooding was so widespread that it impeded the arrival of additional state and federal teams.

At TranStar, officials felt agitated and helpless. They were getting personal emails appealing for rescues, sometimes with photographs of elderly relatives attached. There was no time to wait. "I got a crazy idea," Rodney Reed, the assistant chief for operational support for the Harris County Fire Marshal's Office, said as Judge Emmett walked into a snack-filled room. "I need you to support it." Reed argued that they should invite unaffiliated volunteers into the rescue effort. According to conventional wisdom, they get in the way and often end up needing help themselves. But Reed assured the judge that taking the step would save lives.

And so at noon on Sunday, Judge Emmett stepped to a lectern before news cameras to make an unusual statement. A large screen looped colorful radar images of the storm behind him. "Those of you who have boats and high-water vehicles that can be used in neighborhoods to help move people out of harm's way, we need your help," he said. "Government assets are fully utilized."

Judge Emmett asked the public to call the emergency operations center if they were willing to volunteer. County officials wrote each offer on a sticky note or scrap of paper, affixing it to a wall with blue tape in neat rows according to geographic quadrants, ready to be pulled whenever a fire department called requesting boats.

The perhaps-even-greater challenge was connecting the volunteers to the people who needed rescuing. Callers had trouble getting through to 911 as the volume of calls for assistance more than quadrupled. Judge Emmett asked people to stop calling unless they faced immediate danger. "The phone lines are backed up," he said.



posted on the public's technologies of choice: Facebook and Twitter. Instead, it used social media to disseminate five emergency numbers for the local Coast Guard station, setting up a separate, parallel dispatch system for residents in need of rescue. In a sign of the ad hoc nature of the triage system, personnel tracked urgent medical cases with a pencil-and-paper checklist. In its postings, the Coast Guard instructed people to mark their roofs or "wave sheets, towels etc." to get rescuers' attention.

Identifying who needed help the most was the crucial first step to responders saving lives. During the county's news conference, authorities sent a wireless emergency alert to cellular customers, including Wayne and Casey: "Call 911 for LIFE THREATENING emergencies ONLY. STAY PUT IF SAFE."

ayne felt safe. He had renovated, moving electrical equipment from underneath the trailer into the attic. The yard angled down into the street. He had purchased plenty of food, and he filled the bathtub and washing machine with water. His family, like Texas, could stand on its own.

If there had ever been a time to evacuate, this was not it. That morning, a man named Samuel Saldivar had driven into the neighborhood about a mile south of the Daileys' home to rescue his parents, who had Alzheimer's disease. He loaded them and four of their great-grandchildren into a large white van and crossed a small bridge over Greens Bayou after sunrise. The bayou had often swamped bridges along its path, and officials had recognized the need to improve it.

As Saldivar came off the bridge, the rising waters swept the van from the road. Saldivar was able to escape, and clung to a tree for the better part of an hour. The local fire service, Sheldon Community Fire and Rescue, had no boats. The sheriff's deputies arrived with one and, with a local firefighter, rescued Saldivar. But the van, with everyone else still trapped inside, was now submerged. The rescuers' boat, not fit for swift water, could not reach it. Saldivar's parents, two great-nieces and two great-

Throughout Sunday, brown water continued to fill Enchanted Path Drive. By the afternoon, the floodwaters reached Wayne and Casey's garden. Luke asked his father if the flooding was going to kill the grass, or the rose bush, or the plants in the yard. Wayne said no. He also cut off the boy's restless entreaties to wade across the street, where Casey's aunt's car now stood parked in water to the top of its wheels. "Be smart," Wayne snapped. "Not like these people over here." He gestured at neighbors tracing a milky brown path toward the main road, submerged to their upper thighs and carrying umbrellas. "You don't know what's in that water," Wayne said.

As Wayne monitored the flooding, he also kept an eye on Casey. Her pain had quickly become far more severe than anticipated. The Tramadol was not helping, and a months-old injury to her hip and leg was making it even more difficult to get up and move. She grew queasy shortly after Wayne removed an anti-nausea medication patch from behind her ear as instructed, three days after it had been applied at the hospital. Having coped with bouts of vomiting for years, Casey had the drug Zofran at the ready, and it seemed to help for a few hours at a time.

On Sunday her temperature was slightly higher than normal. Wayne's father, a former volunteer fire chief with some training in emergency care, explained by phone how to check her incisions for signs of infection like redness, swelling or pus. They looked fine. When she woke up, she even took a few phone calls, including robocalls with updates from Luke's homeschool academy and Ronnie's elementary school.

As the sky deepened into gray on Sunday evening, Wayne padded to the door in his bare feet and jeans. Rain dripped from the trees, drawing expanding circles in the dim water that now covered their lowest step. A man in a blue baseball cap, his shirt rolled up below his chest, waved as he waded by, water above his buttocks, pushing a small, round raft with a woman inside it. "You ought to go out," he warned. Wayne chortled, unconvinced. "Y'all be careful," he responded.

On Facebook Live, Wayne repeated the message officials were spreading.

Wayne did not like to worry anyone. He had done enough of that when he was young, partying hard and spending time in jail for marijuana possession as a teenager. Marrying Casey and becoming a father had helped transform him. They went to high school together, but did not know each other well. When they met again a few years later, she electrified him. The young woman with the long brown hair had a radiance that drew him. He couldn't *not* look at her. She was the girlfriend of his friend next door. He told himself he would marry her one day.

As the waters rose Sunday night, Wayne stayed up with Casey, who could not stop vomiting. "Something ain't right," Casey said. On Monday morning, it continued raining, and the muddy water rose to their top step, just below the front door. Casey had finally fallen asleep, and when Wayne checked on her, he found it hard to keep her awake.

Around 1:30 in the afternoon, Wayne called 911. In Harris County, 911 calls were routed based on geography to one of several primary "public safety answering points," or PSAPs — independently managed call centers that were most typically housed in local police departments. He reached the answering point for calls outside Houston in unincorporated Harris County, at the Harris County sheriff's office. He told the woman who answered that Casey had recently had surgery. "She has been very sick. She's been vomiting for the past day and a half approximately, and she's in severe pain. And I don't want her to get in this water in her sutures. She needs to get airlifted to a hospital."

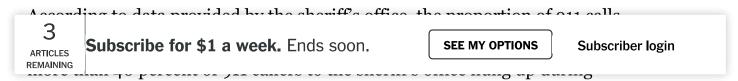
This was not a police emergency, so the communications officer transferred the call to a secondary PSAP, which would determine the next steps. The phone rang 10 times over the course of about a minute, much longer than usual. Another woman picked up, speaking quickly. "Fire and ambulance." After giving his address and confirming that he needed a water rescue, Wayne said that Casey had recently had surgery and had been vomiting for a day and a half. The second call-taker interrupted him. There were over a thousand calls for help, she said. "As soon as the fire department is able to make it to this area then you will be evacuated."

Mayne thought she needed an airlift to a hospital. The first call-taker stayed on the phone after the second call-taker picked up, but — counter to national guidelines for 911 call-takers — she did not intervene to ensure that the second call-taker had the missing information on Casey's medical condition. And so the second call-taker entered Wayne's call into the computer system as one requiring water rescue from the local fire department, not urgent medical response from the local E.M.S. service, which was a separate agency.

The job of a 911 call-taker is emotionally and technically demanding at the best of times. During Harvey, the stress was extraordinary. The overloaded call center where the second call-taker was working, Harris County Emergency Corps, served roughly a dozen independent fire and ambulance services in the county. The corps had doubled its staff to eight from four for the storm, but call volume had more than tripled. Every one of the six 911 lines and additional non-emergency lines was ringing nonstop. Personnel were working 12-hour shifts and sleeping in the building and a nearby hotel. Someone had posted the center's direct-dial phone numbers on Twitter, and it was now receiving calls from other parts of the county, requiring phone transfers that took up to 20 minutes.

The center did something it had never done before. Its leaders walked to the call floor and told call-takers to bypass the formal triaging system that it normally used to assign emergency-priority codes to callers. Instead, they would log the call for water rescue and read a script saying that there were many calls and that the fire department would respond as soon as it could.

The sheriff's communications division, which handled primary calls, also faced severe challenges. The basement had filled up with water from Buffalo Bayou, causing power failures. Its staff moved to a regional 911 training center, the only available backup location with a connection to the physical 911 network. After the move, key technical functions stopped working, including, for a time, the internal dispatch system.



the long waits, according to internal email records from the regional 911 network provider. That further increased the load on communicators, who typically had to follow up on the so-called "abandoned" calls. In Houston the problem was even worse — of the nearly 40,000 calls, more than half ended in hang-ups.

Why couldn't the overburdened centers simply press a few buttons to redirect 911 calls to unaffected centers elsewhere? At the heart of the problem was an astonishing fact: A majority of 911 systems in the United States use primarily analog, rather than digital, technology. Until recently, even the ability to text 911 for help has been rare. Government and industry experts agree on the need to upgrade to so-called next-generation 911 systems that are Internet Protocol-based and can be designed to redistribute calls automatically in a crisis. While some entire countries have completed the upgrades, relatively few areas in the United States have. Vermont was among the first, and it seamlessly transferred calls after Hurricane Irene in 2011 from a flooded communications center to calltakers at centers outside the area of impact — who had maps, data and uniform training to help them handle calls from unfamiliar areas.

Oversight of 911 is fragmented among states and localities, systems are often poorly funded and there is no national mandate to upgrade. By the time it is widely adopted, experts say, next-generation 911 technology itself may well be obsolete. Harris County had been in the process of updating its technology for 10 years when Harvey struck, but the new system would not be operational until February of this year.

Wayne knew none of that, though. Nor did he know that Casey had not been tagged as an urgent medical case.

hile he waited for the fire department, Wayne spent Monday afternoon exploring every other option he could think of, including the list of emergency numbers the Coast Guard Sector Houston-Galveston command released the previous day. He kept the porch light on and, as some had advised online, hung a towel out a window and

or arrow the gameen door to alast notantial recovers. With his callabore

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answered assured him that the hospital was accepting patients. Wayne told his family he was thinking of pushing Casey through the water on an inflatable mattress. They thought it was a bad idea.

That evening, as it continued to rain, Wayne heard an airboat passing by his house and tried to flag down its driver, who had earmuffs on to protect against the earsplitting engine noise. The man slowed down when he saw Wayne in the doorway standing next to Ronnie. "My wife and my kids and I need out!" Wayne shouted to the man. "My wife needs help. She has a medical condition." The man said he was on the way to pick someone up and would get Wayne and his family on the way back. "Just stay right there."

Casey was in the bedroom with the television on, lethargic and in pain. Wayne gave her the news, and she nodded. Wayne stuffed clothing, dry towels and rain jackets into bags. He let family members know that an airboat was coming for them, and his sister posted the news on his Facebook page. "I'm glad he didn't swim out," one of his oldest friends wrote. Wayne told everyone he loved them. "We are going to be O.K.," he wrote around 7 p.m., and then turned on Facebook Live. "As we wait for the airboat to come back for us, I'll just show y'all what it looks like," he said.

It was raining, but the water level had stopped rising. "Airboats will be here any time now," Wayne said. A droning sound in the background grew louder. "Matter of fact, I think I hear them now, so I'm going to go ahead and end the video," he said.

Wayne leaned out his front door to look at the main road, which was five trailer lots away at the end of their street. The airboat came into view. But instead of turning onto Enchanted Path Drive to pick them up, it continued on to wherever it was heading.

Wayne felt a wave of panic, but he tried to keep his composure for his kids. He wanted them to feel sure that their father would get them out of there. Minutes later, their home lost power. The television news switched off along with the Wi-Fi, which the boys were using to watch videos. It would

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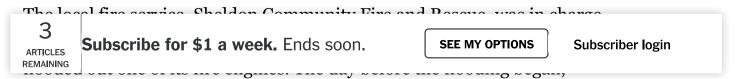
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Wayne turned off Casey's fully powered cellphone to conserve its battery. His own phone could last nearly a day, and he had an external battery to extend it for another. Late into the night, he called and texted every number that his family and friends sent him to reach volunteer rescuers. He placed calls to a number for the Cajun Navy, an ad hoc volunteer group. He called strangers and took calls from strangers. By midnight, he believed Casey had been added to about a half-dozen rescue lists.

But most rescue operations, both official and unofficial, had shut down for the night for safety. Casey was still running a slight fever. Wayne checked her incisions again. They still looked good. He tried to reassure worried friends and family members. "It will be tomorrow," he wrote on Facebook. "I have Casey stable for now. I have everyone sleeping. I am going to get some rest. I only had about an hour of sleep in about 28 hours. Love you guys and will keep y'all posted."

few minutes before sunrise on Tuesday, Wayne called 911 for the second time. It had been a bad night. Casey's movements were shaky, and when she tried to speak, her words were mostly gibberish. Just as with his first call, he was transferred to a call-taker at Harris County Emergency Corps. "Fire and ambulance," she said quickly and sneezed. Wayne explained about Casey and her recent surgery. He said they needed a water rescue. The flooding in the street was six feet deep. The call-taker, sounding groggy, asked if his home was flooded. "I've been blessed, no water in it," he said.

She told Wayne that many neighborhoods in his area had to be evacuated. "As of right now they haven't resumed water-rescue operations," she said. The fire department would do so at daylight. She had Wayne's phone number for them, and they would get to him as soon as possible. "O.K., thank you very much," Wayne said. But the 911 center did not assign any personnel or resources, and the call-taker once again categorized the incident as a water-rescue call to be sent to the local fire department, not a medical emergency for the E.M.S. agency.



Sheldon personnel responded to five incidents, a typical number. On Sunday the number of calls shot up to more than 170, nearly all of them requests for water rescues as opposed to reports of fires; roughly 40 more calls came in for addresses already in the system — people who had called for help and then called back after they did not get assistance. The fire desk at the emergency operations center had little it could offer. It gave the cellphone numbers of Sheldon Fire chiefs to civilian volunteers with boats, which was helpful but also added to the logistical burden.

On Sunday night, Sheldon Fire and Rescue leaders called the 911 center to say that the service lacked resources to conduct water rescues, especially at night. Instead of dispatching calls one by one to the handful of Sheldon Fire and Rescue crews, the 911 center put those calls into a holding pattern. Fire captains could access the ever-lengthening list on a mobile data terminal in their cars. On Monday, new calls for rescue in the district arrived on average every minute to two minutes. By the time of Wayne's 911 call that day, Sheldon Fire had already received more than 500 water-rescue calls, not counting duplicates.

The triage method was haphazard. Sometimes if a call sounded urgent, a 911 dispatcher would text or phone District Capt. Isaac Pinson, saying, "Hey, man, can you get to this?" Pinson said later that whenever possible, he read the dispatchers' notes and, by radio from his Tahoe truck, prioritized sending fire crews on fishermen's boats to homes where lives were in danger, or to areas with the greatest concentration of flooding. Sometimes a personal contact helped identify someone needing rescue. One crew went to get family members of a Texas state trooper out of their house.

The chaos created considerable wasted effort. Captain Pinson sent personnel to rescue people who became stuck on flooded streets after wading out of homes where they could have stayed safely. His crews lost precious time responding to false alarms, including a report that the roof of the local high school had collapsed with hundreds of people sheltering inside. For the most part, Captain Pinson concluded, people clamoring to

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At daylight on Tuesday, Wayne saw that the water level outside had dropped slightly. He could barely rouse Casey. He tried calling the Texas Department of Public Safety and, failing to reach someone who could help, called 911 a third time. "I need a medical-emergency rescue," he said with an edge to his voice he did not have before.

The call-taker at the sheriff's office asked him if it was because of flooding. Wayne said no and explained about Casey's surgery and the last two days of vomiting. "She's kind of unresponsive," he said. When the call-taker said she would get an ambulance there, he said, "There's no way" and explained that five or six feet of water still lay outside. "I've been trying for two days to get her out of here," Wayne said.

Emergency workers later reported that 911 dispatchers in Harris County had limited knowledge of impassable roads, including routes to local hospitals. Although dispatchers were kept abreast of major road closures, some could not use their terminals to access potentially useful websites like the state transportation department's web page showing blocked roads, or even Google Maps. A next-generation 911 system that incorporates layers of multimedia information might help solve that problem in future disasters, perhaps even incorporating information from drone overflights.

The communications officer at the sheriff's office told Wayne that she would get an ambulance to him and instructed him to let the paramedic know the situation when the call transferred.

A Harris County Emergency Corps call-taker picked up the call and asked for Wayne's address. "O.K., we do already have your two calls for service," the woman said.

"My wife, she's getting worse," Wayne said. "She's unresponsive, she's real lethargic, she's been vomiting. She's in a lot of pain. And I really, really, really, really, really need to get her to a hospital A.S.A.P."

She told Wayne brusquely that there were thousands of calls for service in the area. "The fire department is working as quickly and safely as they can

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It wasn't O.K., but Wayne said, "O.K."

Nineteen seconds into the call, the communicator closed the incident as a "duplicate" without assigning any responders, since Wayne's previous call was already in the queue.

Wayne called family members, and his mother commented on Facebook at 10 a.m., asking for help from anyone who could provide it. "Casey's condition has worsened. She is feverish and unresponsive."

Wayne tried 911 again. This time, his call ended up in Houston. About one call in seven was misrouted by cell towers during the storm, a higher than normal rate, according to data obtained through a public-records request from the regional 911 network, Greater Harris County 911. Communicators had to stay on the line trying to transfer these misrouted calls, adding to the gridlock.

The Houston call-taker rerouted Wayne to the Harris County Emergency Corps. This was now the fourth time Wayne had spoken to this center, and he could not have been clearer with the call-taker on the line when she asked him what he was reporting. "My wife is in urgent need of medical, medical attention," he said, "she's almost unresponsive."

At last, the call-taker classified the problem as a "31," an unconscious party, rather than as someone in need of water rescue. "We're getting medical to you as soon as they can get there," she said.

fter 21 hours, Wayne's call had moved out of the queue for the local fire service, which was responsible for water rescues, and was now in the hands of the independent local medical-response agency, South Lake Houston E.M.S., which was in charge of medical emergencies. Both of South Lake Houston's two stations, the newer of which was now itself surrounded by water, were normally about a 10-minute drive from Wayne and Casey's trailer.

South Lake Houston covered a territory of around 70 square miles, much of

supplemented their income with other jobs, including with other ambulance services.

Normally, they answered five or six calls a day. On Sunday, they were dispatched to 17 calls. On Monday, it was 39, and because of flooding they only reached two of them. Tuesday was looking to be even worse. The ambulance service had not staffed up before the crisis, and the flooding prevented some personnel from making it in for their shifts. Two paramedics who had worked two days straight in a nearby district drove in on Monday morning to help.

From the beginning, the disaster had been harrowing for the paramedics. One crew sped in an ambulance toward a hospital downtown in the midst of the violent storm, with a critically ill patient on a ventilator. Floodwaters stopped them on the roadway. They tried hitching a ride three separate times with three different trucks, but the water was too high. Ultimately the paramedics lifted the woman into a volunteer's kayak and walked her the last mile. The crew had to be flown by helicopter back to the station.

Several times, the paramedics waded through water only to arrive where someone did not really need help. Once, they were dispatched to respond to a reported death and spent an hour canvassing a flooded neighborhood on foot, unable to locate the person. Sometimes they worked with the fishermen and pleasure-craft operators who formed an impromptu rescue network but were not trained or equipped to save lives. In the broader region, volunteers sometimes overturned in rough floodwaters (at least four ultimately drowned).

By midday Monday, the E.M.S. service's leaders concluded that, in the case of callers who were inaccessible by ambulance, it was best to keep track of their conditions and try to reach them only if they became critical. Joe Fress, the director, asked his personnel at the station to write out a list of all the medical calls that were listed as "pending" in the computer system, with locations and phone numbers.

On Monday, one of those pending patients was Randy De'Shun Belcher, a

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difficulty breathing. "I'm sending the paramedics to help you now," the call-taker at Harris County Emergency Corps said, and South Lake Houston E.M.S. was dispatched.

Thomas called back when the ambulances did not arrive as promised. The call-taker incorrectly assured her that units were en route. "You gotta understand we're going through a hurricane," she said. The apartment complex was just off the Texas State Route 8 Beltway, which was not flooded. But the entrance to the apartment complex was under water, about 100 feet from the beltway's frontage road, and not navigable by ambulance. Nobody called Thomas to let her know.

Just after noon on Monday, Thomas tried 911 again. "He's not breathing properly," she said. She called again 90 minutes later. The call-taker sighed loudly, sounding exasperated as she took down the address. Thomas repeated what was happening, now sounding tired and dejected.

At 5 p.m., still waiting, she again called 911 in tears to report that her fiancé was barely breathing. "O.K., I'm sending the paramedics to help you now," a communicator again told Thomas. The call was coded in a way that indicated Belcher was getting sicker, which led Fress, finally, to tell his paramedics, "Let's just try to get there, let's try to make it."

They parked on the Beltway and grabbed gear and medications from the ambulance. They crossed the feeder road and entered the complex, the floodwaters rising to their waists in the parking lot. Their rescue equipment was splashed even as they held it aloft on their shoulders. Their boots grew heavy with water, and their hips ached.

As they made their way, another 911 call-taker, speaking quickly but patiently, was giving Thomas's mother, also in the home, instructions on how to start CPR. At 5:50 p.m., the paramedics finally walked into the apartment. Belcher, a father of 12, had been without a pulse and not breathing for at least a half an hour. The paramedics knew they would not get him back, but they also knew, for the sake of the devastated women, they had to try.

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The medical interventions did not work. The paramedics felt horrible that they could not save him, and that the medical examiner's staff would not be able to get there to pick up Belcher's body. They needed to do something they had never done before Harvey — they left Belcher's body on the living-room floor with a breathing tube in his mouth and an intravenous catheter in his right arm so the medical examiner would know what they had done. Before they left, they covered Belcher with a bedsheet, knowing that Thomas might be stuck in the apartment with him for days before his body was retrieved.

ayne raised Casey from their bed and shuffled her in his arms to a recliner in the living room so she would be closer to the front door when help arrived. Ronnie and Luke sat, hushed and frightened, on the adjacent sofa.

Before noon on Tuesday, Wayne heard the thrum of helicopter rotors and saw a rescue line being lowered behind the trailers two streets over.

He burst through the back door, where the grade was higher, sloshed through water that reached his thighs and lifted an extension ladder against the side of the trailer. He climbed to the roof, shouting and waving a flashlight. Luke stood on the front steps signaling with a bright yellow broom. Ronnie hollered for his father from the back door, not knowing where he had gone.

The helicopter moved toward them. It hovered overhead. Then it flew away.

Wayne swore. He made a decision: He did not want his children to watch their mother die. "I'm going to bring y'all over there," he told his boys, gesturing to Casey's parents' trailer across the street. "And I'm going to get Mommy out of here." He carried little Ronnie, with Luke sloshing along beside them.

Wayne had no idea for whom the helicopter had come, or how it had been dispatched, but he learned months later. Norma Anderson, 75, had kidney failure and, having missed dialysis, was in bad condition. A 911

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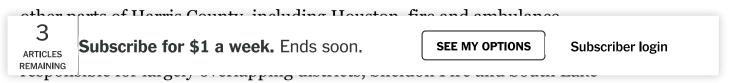
for Norma, the owner of her trailer had a friend who knew the district's congressman, Gene Green, and thought to call him. An intern in the representative's Washington office, Simon Handler, took the call and phoned a federal agency for a helicopter, which soon arrived.

Wayne returned from Casey's parents' house soaking wet. He changed his clothes and went back to Casey's side, telling her over and over that help was coming. Shortly before 1 p.m., nearly a day after Wayne's first 911 call, a paramedic from South Lake Houston E.M.S. called Wayne back. It was the only call Wayne's cellphone recorded having received from the station, although paramedics later recalled talking with Wayne more than once to keep track of Casey's condition.

Greg Perches, a paramedic who said he spoke with Wayne, arrived at South Lake Houston E.M.S. on Monday night, which allowed the ambulance service to assemble a second crew. Wayne impressed him by saying he thought Casey was becoming septic, using a medical term that indicated a potentially deadly consequence of a severe infection.

The county's systems were supposed to prioritize people like Casey, people who "have a medical situation, even if they're not in an area where flooding is life-threatening," Francisco Sánchez, a deputy emergency-management coordinator for Harris County Homeland Security and Emergency Management, later said.

Perches says his director, Joe Fress, phoned the county fire desk to see whether the county had resources to send to Wayne and Casey's street, but was told it did not. By the logic of the county's emergency-management plan for health and medical services, the ambulance service should have been able to call for assistance from a regional catastrophic medical operations center, which was in charge of coordinating patient evacuation, transport and placement. But that center did not have its own air or boat resources, and additional ambulances would have been of no use in reaching flooded areas. The ambulance companies had to rely on fire services to help them. But in South Lake Houston's district, unlike in some



Houston E.M.S. did not follow recommendations to set up a joint command in response to the disaster, in part because there were so few workers available. Also, while personnel were individually friendly and respected each other, there was "bad blood from a long time ago" between the agencies, Sheldon Fire's Captain Pinson says. "They don't work with us that well." Workers from both agencies would later agree that communications between them during the disaster were poor. Their radios were on different channels, and their calls were dispatched separately by the 911 center. That meant that when someone having a medical emergency was also trapped by floodwaters, the fire department would not necessarily know about it. The paramedics were fatalistic. "We were fortunate to get what we could get" in terms of outside help, says Billy Slagle, a supervisor at the E.M.S. service. Theirs is a "very small community," he says, "who's nobody."

Perches told Wayne to flag down any boat he could, both men later recalled. Right after the call, Wayne turned his phone to record Casey as she lay, flushed and barely conscious, on the recliner chair by the front door. He had heard on the news that people were making false reports when they called 911. He wanted to document that this was a true medical emergency, and that Casey needed help, in case anyone ever questioned him.

"Casey?" Wayne asked as he recorded her. The feverish eyes of his wife flickered and focused. She made a sound that might have been the beginnings of the word, "What?"

"Someone's coming to help us, O.K.? I love you." She groaned softly and turned her head away from him. "Just keep breathing, O.K.?" he said. Pearl Jam's "Just Breathe" was their special song.

It was 12:54 p.m. There was still no power, and light from the open door threw shadows across her reddened face as she lay on the easy chair. Outside, the flooding continued receding, but slowly.

After he finished the short recording, Wayne heard a sound that made him

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two men in it. Wayne stood up and kicked the door open, shouting: "My wife is dying, man. I got to get her out of here."

he men said they were from the Cajun Navy. They tied the boat to the handrail, came into the trailer and looked stunned when they saw Casey. "We've got to get her out of here now," one of them said.

They carried Casey to the boat and motored 300 feet to the drainage ditch at the corner of Enchanted Path Drive and John Ralston Road, where the street was dry. One man took off running to try to flag an airboat, waving his arms and screaming: "We got a medical emergency! We got a medical emergency!"

Stephanie Vincent, a 37-year-old respiratory therapist from Kinder, La., was with a group of boat volunteers about a half-mile up the road and saw the man running in their direction. "They got something over there," she said, and started running toward the man with several friends.

One of the airboats they were with flew ahead of them. About a half-dozen men picked up Casey by her arms and legs and loaded her into the airboat. "Be careful of her left side," Wayne warned them.

Vincent and a medical student whose name nobody could later recall tried to get a history of Casey's problems, but a glance told them all they needed to know. "This woman needs critical care right now," the medical student said. "She's fighting for her life, and she looks like she's losing."

They headed to a nearby field free of power lines where a helicopter could land. A volunteer from Pasadena, Tex., tried calling a number he had found for the Coast Guard on Facebook or Zello, a walkie-talkie app that citizen rescuers were using. Other volunteers stood on a bridge where the road crossed a swollen channel, waving their brightly colored life jackets to try to flag passing helicopters.

Vincent stood beside Casey, holding her hand and trying to talk to her. Casey was able to open her eyes and squeeze Vincent's hand, but she could

For the volunteers, the day to that point had been filled with waiting. They had slept in a Baptist church overnight and followed a member of the Cajun Navy to try to evacuate 275 people from a flooded trailer park. But when they reached the neighborhood, residents did not want to leave. The volunteer boat fleet had not managed to find anyone willing to be rescued until Wayne and Casey.

Now Vincent felt there was a reason they were supposed to be there. She wished she had brought a monitor to check Casey's oxygen level. Wayne kept hold of Casey's hand and murmured encouragement to her. He repeatedly thanked the volunteers. "I'm so sorry," Vincent said. She and her friends had waited hours for something useful to do. If they had known about Casey, they would have gone right to her.

The man from Pasadena called again to check on the helicopter. There were several operating in the area, but all were fully loaded with passengers and would not be back for the better part of an hour. A half-hour passed, then more, with Vincent growing irritated and panicked. Why were they just sitting there? Casey was going to stop breathing and die if they did not get her somewhere. "Put her on our boat," she told the others.

Her idea was to take Casey back to the meeting point where the boats had launched that morning, at the Houston Motorsports Park, about three miles north off a major parkway. Two Texas Department of Transportation high-water dump-truck crews had been parked there for hours, waiting to transport evacuees.

Several volunteers lifted Casey onto a seat of the white bay boat, laying her head back on the bow, where Stephanie arranged life jackets to cushion it in anticipation of a fast, bumpy ride. Vincent and Wayne supported Casey's head as they took off, speeding west along the swollen canal toward the flooded Greens Bayou.

They began twisting along Greens Bayou, taking shortcuts where they could. Vincent sat on the bow facing backward, hair whipping in the wet wind, keeping a finger on Casey's neck to monitor her carotid pulse. It was

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were ominous, and Vincent later said she thought about the possibility she would need to start CPR. She had the sense that Wayne expected it, too.

At one point, Vincent's friend Rachelle McClellan jumped out of the boat to help push them over a sand-choked levee against a current — she had to be pulled back in on the other side, where the water was deeper. To McClellan, the way Casey's hands and feet looked reminded her of how her mother's did the day she died. The entire journey took about 15 minutes. When they arrived, a truck was already backed up deep into the water. McClellan held onto the truck bed to keep it steady, and several men lifted Casey into it, where the gravel normally goes. Wayne and a transportation employee hopped in behind her.

They planned to drive to a hospital, but found the roads were closed, and a National Guardsman they passed recommended that they drive to a small shopping center off Beltway 8, about four miles north. There was supposed to be a medical station at a Kroger grocery store, and there was also a 24-hour emergency-care center run by Memorial Hermann, the hospital system where Casey had undergone her surgery.

As the truck bumped and jerked along the road, Wayne could not recall a more uncomfortable ride. The motion was beating up Casey. He struggled to keep her covered as the rain started up again. She was wet and filthy and surely cold.

They arrived to find no medical clinic outside the Kroger, and the emergency medical center was closed. The two transportation employees in their orange vests cussed and looked scared. "This woman is dying," Wayne heard one of them say into a phone or radio. "She's going to die right here if we don't get her an ambulance."

A lthough the dump-truck crews were deployed as part of the official storm response, their radios allowed them to communicate only among themselves. So the driver, Calvin Milburn, a maintenance technician, called 911 on his cellphone. Harris County Emergency Corps received at the call at 2:49 p.m. Milburn told the call-taker that Casey was

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She said the paramedics would do their best to get there and asked whether he had access to a defibrillator. He did not.

The call center dispatched a South Lake Houston E.M.S. ambulance to the far north of its territory. "You need to bring the patient to the freeway," the paramedic who took the call, Tyler Cegielski, said. The paramedics were not willing to exit the freeway for fear of swamping their ambulance in high water. They would have to navigate around some areas of flooding and predicted they would be at that part of the freeway in 10 or 15 minutes.

The dump truck bumped back out of the parking lot and onto the freeway to await the ambulance. Wayne leaned over Casey, cradling her head in his left arm, and caressing her with his right, her body half in his lap and half in the bed of the dump truck.

"Just hang in there, sweetheart. Just breathe. Just breathe," he said. "Help is on the way. The ambulance is coming."

It was taking much longer than 15 minutes. Wayne saw several ambulances pass by, but they seemed to be going other places. The rain picked up again, and the workers let out a tarp over the truck bed to protect them.

Casey had been fading in and out of consciousness for hours now. Wayne felt her stir. Her left hand rose to clench his shirt, pulling his face down to her so they were nose to nose. Her eyes were open now, looking at him. "Let me go," she said, the first clear words he'd heard her say in more than a day. "Let me go."

"What are you talking about?" he said. "Help is right here." But Casey did not respond. She vomited something dark and foul-smelling. She stopped breathing.

Wayne reached his hand out and beat on the driver's side window. "My wife's dying back here," he yelled.

Milburn climbed into the truck bed with them. Casey had no pulse. He began performing CPR. Wayne saw a constable on the other side of the

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another constable pulling up, she told Wayne, "Get that one." Wayne ran over and told the second constable the situation. That constable, too, got on his radio. Wayne crossed back over the median and hailed a third constable, who turned on his emergency lights, cut off traffic and pulled up behind the dump truck. Another constable arrived along with passers-by who had been driving on the freeway. One went into the back of the dump truck to help work on Casey.

About three minutes after Wayne returned to the dump truck, at 3:16 p.m., the ambulance finally arrived.

Two of the paramedics who had tried to save Randy Belcher the previous day, Jeremy Fuentes and Jason Foster, took over and brought Casey out of the dump truck. They figured it had been about eight minutes since her heart had stopped. They inserted a breathing tube, started an intravenous line in the crook of her right elbow and placed a needle into the tibia of her right leg to deliver fluids. They attached a pistonlike Lucas device that uses a suction cup to compress and recoil the chest, providing automated CPR.

The idea that the young woman had been breathing and even speaking just a few minutes earlier made Fuentes think they had a chance to revive her. They went through everything they had on their truck that might restart Casey's heart — multiple doses of epinephrine and atropine — but nothing seemed to work. The monitor showed a flat line, no electrical signal that they could shock back to regular rhythm. To Fuentes, the hardest part was watching Wayne watch Casey.

After about 20 minutes, one of the paramedics said, "Mr. Dailey, we got to go." Wayne rode in Ambulance No. 25 with Casey. He supplied her medical history as the ambulance, slowed by the rain, headed to Memorial Hermann Northeast Hospital in Humble, more than 11 miles away, the only working hospital they knew they could reach.

They arrived at 3:54 p.m. Casey's temperature was high, but her pulse, breathing rate and blood pressure were nonexistent. Her pupils did not react to light, a sign that her brain had not received enough oxygen.

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For eight minutes, the hospital team pumped Casey's chest, filled her lungs with oxygen, and gave her additional doses of epinephrine. But at 4:04 p.m., Dr. Christopher Langan concluded nothing could revive her.

It was 1 day 2 hours 30 minutes after Wayne's first call to 911. Wayne reached Casey's parents on the phone. "I'm so sorry. I'm so sorry," he said. "Casey's gone."

Facebook messages from people across the nation. Someone had posted Wayne's phone number on a Hurricane Harvey Google map, and his address was one of relatively few marked with a pink dot to signify a medical emergency. "Hello, this is Wesley Brown with the Cajun Navy, I'm calling to see if you have been rescued or not." "Wayne, this is Monica from Houston Rescue. Please let me know immediately if you are still in need of a rescue." "Hi, this is the Cajun Navy dispatch. I'm calling to see if you've been rescued or need to be rescued." "You don't know me, but I live in Georgia. I picked up your emergency signal on the Facebook account. I've tried to call FEMA and all them, and I can't get nobody on the phone, but I'll keep trying."

Wayne responded to the messages. "I'm sorry to say that my wife passed away on the way to the hospital," he wrote in a text message to a stranger with a South Carolina area code. "I appreciate your efforts, thank you."

"I am so so sorry for your loss," the stranger wrote back. "Sending prayers your way."

The next week, Wayne's and Casey's parents noticed that she was not named as a victim of the storm. Wayne called the Harris County Medical Examiner's office, distraught. "How come my wife is not on the list of people who died as a direct impact of Harvey?" he asked. The investigator explained that "direct impact" primarily meant drowning. Wayne's wife, on the other hand, had a medical problem.

Wayne said he knew that, "but she wouldn't have died in the back of a

my street. She'd be in a hospital right now." The investigator apologized and offered to talk to her administrator to see if she could get Casey on the list.

To this day, Casey's death is not included in Hurricane Harvey's official toll. Randy Belcher's is not either. In interviews, personnel at South Lake Houston E.M.S. said they believed that at least four or five other people in the district who called 911 with medical emergencies died when they were not rescued in time.

Local media highlighted deaths of people in other districts as well: Noah Delgado, an 8-year-old who died of an asthma attack in northwest Harris County and whose mother could not get through to 911; Bonnie Parsutt, 69, who died in Galveston County after her oxygen failed when the electricity went out; Mary Avila, 80, also in Galveston County, who died in a nursing home when she could not get dialysis; and a heart-attack victim who died at home in a flooded neighborhood of Montgomery County that emergency workers could not reach.

The City of Houston reported to the F.C.C. that many people with disabilities who had entered themselves into the State of Texas Emergency Assistance Registry and had repeatedly called 911 and 211, the city's non-emergency line, to request help when their homes flooded did not receive assistance.

The number of acutely ill people who lost their lives because of delayed rescues has not been tallied. Preliminary data from the state health department's Center for Health Statistics indicate that 2,498 people died in Harris County in August 2017, nearly 200 more people than died in July of that year. Over the period of 2008-16, deaths in July compared with August typically varied only slightly. August 2017 appears to be an outlier.

The Harris County medical examiner lists only 36 deaths as storm-related, all of which were caused directly by drowning, falls in floodwaters and electrocutions. "We consider only deaths that are a direct consequence of environmental factors," says Tricia Rudisill Bentley, a spokeswoman for the

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By contrast, the Centers for Disease Control, in guidance issued last October, recommends that medical examiners "consider indirect causes of death that can be related to the disaster," including disruption of health care and transportation. Calculating deaths in this way is much more likely to convey the true toll of a disaster. But the C.D.C.'s recommendation "hasn't changed anything here," says Jason Wiersema, a forensic anthropologist with the Harris County medical examiner's office, which has instead provided public health agencies with access to data for further analysis.

he medical examiner ultimately determined that Casey died of pulmonary emboli, blood clots that had most likely formed in her legs and then traveled to block major blood vessels in her lungs. But experts who reviewed her case believe that her deteriorating state in the days leading up to her death was probably related to how her care was managed after surgery. The tumor in one of Casey's adrenal glands had made too much of the hormone cortisol, which typically suppresses the other gland's release of it. After her tumor was removed, it would have taken time, perhaps months, for her body to begin producing enough again, with steroid medication needed in the interim to avert life-threatening complications. The deficit of steroid hormones would explain Casey's pain, vomiting and weakness. The resulting dehydration and her immobility would have raised her risk for developing the blood clots — as would her recent operation and her history of Cushing's syndrome.

When they discharged Casey before the storm, doctors at Memorial Hermann did not send her home with this medicine, which is routinely given after removal of a hormone-producing adrenal-gland tumor. Memorial Hermann referred questions about the case to the individual physicians. Dr. Curtis Wray, her surgeon, declined several requests to speak through UTHealth, where he is an associate professor of surgery. The intern who discharged Casey also did not respond to several email and phone inquiries.

Dr. Geoffrey Thompson, the head of endocrine surgery at the Mayo Clinic

surgeon, whose group has performed close to 3,000 operations of the type Casey had. That failure, and the delay in her transport to the hospital, was all the more tragic, Dr. Thompson added, because the condition she had "is highly curable."

Dr. Laurence Katznelson, medical director of the pituitary center at Stanford School of Medicine, agrees. "Everybody gets placed on steroids," he says. Asked whether he could come up with reasons Casey's doctors might not have prescribed steroid medication, Dr. Katznelson replied, "I can't think of one."

After Harvey, Sheldon Fire acquired a high-water vehicle and boat and sent firefighters for swift-water rescue training; South Lake Houston E.M.S. received approval to purchase a high-water truck for transporting people with life-threatening medical emergencies. But a major problem identified by the county was the lack of a common platform for responders to share information on local, county, state and federal levels. The informationsharing problem is a national one, recognized after the Sept. 11 attacks and the deaths of emergency workers who could not communicate with one another. The establishment of an interoperable communications system, FirstNet, for public-safety personnel was stalled by years of political wrangling over the sale of a portion of the radio spectrum, but it is finally under construction, including in Harris County. Other local and national agencies have also been experimenting: During the storm in Harris County, the Coast Guard brought in a civilian programmer to map distress signals, and in Charleston County, S.C., people can now provide information to 911 online.

For Wayne Dailey, who has struggled emotionally and financially in the wake of Casey's death, improving systems for identifying people with medical emergencies in disasters and getting help to them in time is his most fervent wish. As the climate continues to change, Harvey is far from Houston's most extreme hurricane possibility. Parts of Harris County prone to devastation from storm surges — windswept walls of water that slam onto land with great power — were spared that additional hazard this

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County emergency-management coordinator, says, "it had the potential to be much worse."

n the afternoon of Sept. 14 last year, in a small, packed sanctuary in a white-painted wooden church in High Island, Tex., Casey's funeral service began to the strains of Pearl Jam's "Just Breathe." The pastor read a eulogy written by Casey's father, Chuck Dills, who was too devastated to deliver it himself (Dills died of newly diagnosed bladder cancer less than six months later). "A gift from God, that's what she was," Chuck wrote.

The crowd left the church wiping their eyes. Wayne and Luke, two of the pallbearers, followed behind them. "Your Mom would be proud of you," Wayne said to Luke, touching his cheek.

The family drove to the graveyard. As Casey's coffin was lowered, all was silent except for the sound of grass being mowed in the distance. One by one, each guest departed, until only Ronnie remained, peering into the broken ground. Wayne came to get him, but for a long time the boy refused to leave.

Dr. Sheri Fink is a correspondent for The Times whose articles have been recognized with a Pulitzer Prize in 2015, with colleagues, for coverage of the Ebola epidemic and in 2010 for her magazine feature on the aftermath of Hurricane Katrina, which was the basis for her book "Five Days at Memorial."

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