

Rising from the STORM

UTMB struggles
to recover after
Hurricane Ike

by Ken Ortolon

photos by Jim Lincoln
(except as noted)



MIKE HOLBROOK





Trash piled up outside "Old Red" during the post-hurricane cleanup.

When Hurricane Ike swept in off the Gulf of Mexico in the early morning hours of Sept. 13, 2008, officials at The University of Texas Medical Branch (UTMB) in Galveston were ready.

They had evacuated all patients from their hospitals; secured research facilities; urged students, residents, and nonessential personnel to flee Galveston Island; and had an emergency team of physicians, nurses, and other staff ready to provide care as needed during and after the storm.

But UTMB officials were not prepared for the tremendous devastation that Hurricane Ike dealt to their 117-year-old campus. While the 100-plus mile-per-hour winds wrought very little damage, the storm surge that Ike carried in from the gulf flooded more than 1 million square feet of ground-floor space throughout the campus, destroying tens of mil-

lions of dollars in medical equipment and crippling vital infrastructure.

Now, almost 15 months after the storm, the medical school still struggles to put all the pieces back together. Many of the 140 elevators on campus still don't work or fail intermittently, and water chillers that provide air conditioning occasionally fail because of corrosion or other damage caused by the seawater.

"It's been an interesting 12 months," Ben Raimer, MD, UTMB senior vice president for health policy, said in October. "The good news is that we have made substantial progress in getting things back to usable on campus."

Dr. Raimer is confident UTMB will come back "bigger and better than ever before," particularly since the UT System Board of Regents approved a \$667 million building program. The program will pay not only for repairs to the flooded spaces, but also for relocating vital equipment, such as power lines, telephone lines, and computer equipment to safe zones above the flood plain, or to create barriers to protect it from future flooding.

But Dr. Raimer and other officials say it will take months or even years to recover from Ike. And some faculty members say UTMB likely will never be the same institution it was before the storm.

"It won't be the place we remember before Hurricane Ike," said Jack Alperin, MD, clinical professor in the departments of internal medicine, pathology, biochemistry, and molecular biology.

PICKING UP THE PIECES

In the hurricane's aftermath, UTMB was at a virtual standstill for several months. Its hospitals were closed until January, third- and fourth-year medical students and residents were relocated to other medical schools and hospitals, and clinics on Galveston Island were closed.

Only classes for first- and second-year students, some research activities, some clinics on the upper floors of a seven-story clinic building on campus, and clinics on the mainland resumed activities within a few weeks of the storm.

"Last year, we relied heavily on our sister medical schools in the state, and they were unbelievably gracious in hosting our students during the year," said Steven Lieberman, MD, professor and vice dean for academic affairs.

Dr. Lieberman says all students and residents are now back under "direct UTMB supervision," but they're not all back on campus.

"We still have a contingent in Austin as we had before the storm," Dr. Lieberman said. "And we're also utilizing some new clinical sites in Houston and Corpus Christi."

Some students are doing pediatrics rotations at Driscoll Children's Hospital in Corpus



John Sealy Hospital reopened in January but operated at less than half the capacity it and other UTMB hospitals had before the storm.

Christi and psychiatry and surgery rotations at St Joseph's Medical Center in Houston. Rotations for several other specialties also are being conducted at St. Luke's Episcopal Hospital in Houston, Dr. Lieberman says.

The hurricane did very little damage to facilities above the ground floor, but the damage to first-floor spaces was staggering.

"The water was the initial problem," said David Marshall, chief operating officer for hospitals and clinics. "We had 1 million square feet of first-floor space on the campus that was flooded with about three-and-a-half feet of water. That, in turn, caused some other problems, which had to deal with electrical switch gear and telephone gear that had historically been in our basement."

Initial damage estimates were in the range of \$750 million, but Dr. Raimer says that total likely will go above \$900 million.

Flooding to the UTMB health system, which includes John Sealy Hospital, affected the pharmacy, kitchen, blood bank, materials management storeroom, sterile processing department, and respiratory therapy department.

Dr. Raimer says damage to radiation oncology equipment alone totaled \$50 million.

"All of those things had historically been on the first floor," Mr. Marshall said. "We had known that they were vulnerable on the first floor but there had not been enough capital over

the past few years to invest in relocating them or no space."

John Sealy Hospital reopened in January, but with only about 200 beds (compared with roughly 550 beds previously operated at John Sealy, the UTMB correctional hospital that cares for prisoners from the Texas Department of Criminal Justice, a children's hospital, and the Waverly-Smith Pavilion, which housed mostly obstetrical patients).

Neither the children's hospital nor the Waverly-Smith Pavilion was operating in October, and relocating the pharmacy and other departments damaged by the storm has taken up bed space at John Sealy.

Mr. Marshall says the pharmacy is now in what had been a 32-bed inpatient unit. The respiratory therapy department also is being housed temporarily in what had been a patient-care area, while the kitchen was moved into a mobile unit behind the hospital. The blood bank is now in a cramped space near a laboratory on the hospital's fifth floor, and sterilization of surgical equipment has been outsourced to a company in Sugar Land, he says.

By October, UTMB had increased the number of inpatient beds in operation to 370. Officials hope to have that number up to 400 beds by the end of the year. Dr. Raimer says officials do not believe they can support any more beds until a new clinical support services building can be constructed to house laboratory space, the hospital kitchen, air conditioning and heating services, and other infrastructure. >



Medical technologists, from left, Trina V. Hardy, Kathryn McCabe, and Noemi C. Chan in the blood bank at UTMB's John Sealy Hospital work in cramped, temporary space more than a year after Hurricane Ike flooded the previous blood bank area that was located on the hospital's ground floor. The hospital's blood bank, pharmacy, and other support services have been moved into former inpatient care areas on upper floors, forcing the hospital to cut the number of beds available for patient care.

Cover Story

Construction on that building will not begin, however, until the old Jennie Sealy Hospital is torn down.

Eventually, UTMB officials hope to increase their inpatient beds to as many as 500. That likely would include a new hospital tower that was on the drawing board before Hurricane Ike.

“We had an engineering firm come in recently and assess the infrastructure that supports patient care delivery, such as our medical gasses, the elevators in patient-care areas, the medical vacuum, the communications equipment in all of our patient-care areas,” Mr. Marshall said. “We think that our infrastructure will support around 500 beds. That’s the number of beds that we could free up with opening the Waverly-Smith Pavilion and getting the pharmacy and respiratory therapy and other things that we have in patient-care areas freed up.”

Mr. Marshall says it is doubtful that the children’s hospital will ever reopen as a patient-care facility, but Waverly-Smith could open early in 2010.

EMERGENCY ROOM EMERGENCY

While the hospital reopened in January, the UTMB emergency department did not reopen until Aug. 1. Ironically, the emergency department itself sustained little damage.

“The physical structure of the emergency department and trauma center building was not particularly damaged,” said Bill Mileski, MD, chief of trauma services and director of emergency medicine. “The problem was the hospital was not intact. Our support facilities for inpatients — pharmacy, blood bank, cafeteria — were devastated.”

Dr. Mileski, who also is professor of surgery, says the emergency department could not operate without the ability to admit patients to the hospital.

“We could support only 100 to 150 beds for a while, and those were being consumed by all the patients who were al-

ready in the process and scheduled for labor and delivery services here,” he said. “So we were pretty much a full-service women and children’s hospital in terms of labor and delivery and neonatal care, but that was all we had the facilities to support for a while.”

But that does not mean emergency care could not be had on the island. Immediately after the storm, a volunteer disaster medical assistance team (DMAT) set up operations to stabilize emergency patients and transfer them to facilities on the mainland. After about a month, UTMB emergency physicians took over, providing urgent care and stabilization services.

“We couldn’t admit them to the facility because we didn’t have the inpatient capacity,” Dr. Mileski said. “We’d have to transfer them to another facility. During the interval, we kept ambulances on standby on our ambulance dock to transport people in a hurry to other facilities if we needed to.”

He says the vast majority of emergency patients from Galveston County were treated at hospitals in Texas City and Clear Lake. Some with acute traumatic injuries were taken to Hermann Memorial and Ben Taub hospitals in Houston.

“And those hospitals did a really terrific job of picking up the slack while we were off-line,” Dr. Mileski said.

Since reopening, the emergency department has seen brisk business, although not quite the volume it saw before the storm. In the department’s first two months of operation, it averaged about 110 patients per day, compared with between 140 and 150 per day before Hurricane Ike.

Meanwhile, many UTMB outpatient clinics were able to reopen quickly and have been able to maintain income from patient care at about 90 percent of previous year levels, Dr. Rainer says.

“To have gone through a storm like this and been literally brought to your knees and then for the docs to get the clinics up and running was courageous,” Dr. Rainer said. “They had office hours extended to late evenings and weekends. They have created places to see patients by sharing space with each other, multiple specialties using the same space at different times.”

Hospital inpatient revenues, on the other hand, have been severely impacted by the months the hospitals were closed and the shortage of bed space. Dr. Rainer says an exact total of lost hospital revenue has not been determined.

“With the number of beds going down, our revenue certainly has gone down,” he said. “But we have sized our staff to the number of beds. We’re looking carefully at our margin, our bottom line to be sure that we can get financially on our feet from this.”

RESETTLING ‘OLD RED’

While patient care activities may have been hardest hit by the storm, other parts of >



Second-year medical students Mark Stephens and Kevin Smith discuss upcoming exams with third-year pathology resident Jason Gregoro, MD, in one of the newly refurbished small-group teaching classrooms.



UTMB trauma service chief Bill Mileski, MD, says the storm forced diversion of emergency patients to nearby hospitals. The emergency department has reopened but has fewer patients.



UTMB pediatrician Joan Richardson, MD, says the notion of the school leaving Galveston is unthinkable.

UTMB's operations also were affected. Dr. Lieberman says a considerable amount of classroom space was flooded, along with medical education support offices.

"We do a lot of small-group teaching," he said. "Most of those small-group teaching rooms were affected by the flood. And there were several education support offices that were damaged. In fact, about 85 percent of the support personnel for medical student education were displaced by the storm."

Bill New, MA, associate dean for research administration,

"I'm getting sentimental, but it's hard to think that there would not be a University of Texas Medical Branch in Galveston, particularly when we've got the wherewithal to build it such that we shouldn't sustain the kind of damage that we sustained this go-round."

says many of the buildings that house research laboratories also suffered flood damage on the ground floors, but no intellectual property and very few research animals were lost due to the storm.

Some researchers were back at work as early as last October, even though the buildings and infrastructure weren't exactly stable, he says.

"One of the hardest things to manage from an institutional point of view was the expectations of the faculty," Mr. New said. "People really wanted to get back to work as quickly as they could and yet the buildings weren't as stable, and you don't really realize that until your phone fails every three or four weeks because of the corrosion."

Even as late as mid-October of 2009, a water chiller that generates air conditioning failed because of Ike-related issues, forcing UTMB to close several buildings for a few days, Dr. Raimer says.

While the storm did not destroy any research, Mr. New says there was "a real loss of momentum" as researchers had to acquire new mice or other animals and get their research back up to speed while dealing with damage to their own homes.

One of the buildings whose fate remains unclear is the Ashbel Smith Building, nicknamed "Old Red" because of its red brick and red Texas granite. The Romanesque Revival-style building stood at the heart of the UTMB campus for nearly 120 years.

Designed by the renowned architect Nicholas C. Clayton and completed in 1890, "Old Red" housed the UTMB medical humanities program, admissions office, and anatomy labs before Hurricane Ike.

Built on piers, the building actually floated up on the waters of the storm surge before settling back down as the water receded. Dr. Raimer says engineers told UTMB officials the building needs to settle for several more months before the damage can be assessed and the future of the building decided.

"Old Red is a symbol for us stopping for no storm," Dr. Raimer said, paraphrasing a famous telegram sent by then UT System Board of Regents Chair Beauregard Bryn following the deadly 1900 hurricane. Responding to a suggestion from the UTMB dean that perhaps the school should be closed, Mr. Bryan replied, "UT stops for no storm."

"For Texas physicians, that [Old Red] is a treasure," Dr. Raimer said. "I'm sure at the proper time when we've assessed all the damage, we will come up with how it will be used in the future. Most of all, I can tell you it will be preserved."

THE HUMAN TOLL

While the physical destruction that Hurricane Ike wrought was enormous, the storm took substantial human toll, as well. Many faculty, staff, students, and residents lost literally everything they owned.

Dr. Alperin says he and his wife were forced out of their home for seven months while repairs were made. Joan Richardson, MD, professor and chair of the Department of Pediatrics, was luckier. While her carpeting was destroyed, most of her possessions were undamaged.

Also, third- and fourth-year students along with hundreds of residents had to relocate to continue their training. Some students did rotations in various cities before returning to Galveston. (See "A Vagabond Education," June 2009 *Texas Medicine*, pages 41–44.)

And, UTMB had to cut the number of slots in its residency programs by 15 to 20 percent because fewer beds in its hospitals meant fewer patients for resident training.

Dr. Lieberman says many of those residency slots will be restored in 2010, but final plans have not been set. "We'll make some of those determinations as we get a little bit closer and know exactly what the hospital capacity is going to be," he said.

And, in what may have been the deepest cut of all, UTMB was forced to lay off approximately 2,500 employees from virtually all areas of its operations, including physician faculty members.

Cindy Stanton, director of recruitment services, says that was particularly difficult.

"I'm the director of recruitment services, so what made this so difficult for us is that we're in the business to recruit good people and get them on board. The recruitment office was responsible for the layoffs, which meant we were giving those good people away, basically. We allowed other employers to come onto our campus and have access to this very talented group of employees. And it was very strange."



A sign outside the UTMB Primary Care Pavilion alerts patients that clinics formerly housed in the building have been relocated. The pavilion, a former shopping mall, was heavily damaged by flooding caused by Hurricane Ike and had not reopened as of late October.

As the hospitals, emergency department, and other parts of the UTMB operation reopened, many of those employees were rehired. Ms. Stanton says more than 1,000 jobs were re-filled, but not always by the people who previously held them.

"As you can guess, some people moved out of the areas completely," she said. "A lot of employees lost their homes in the storm and took jobs elsewhere and have since gotten rooted wherever they went and chose not to come back."

Some faculty members say there also has been considerable frustration at not being able to do the things they've trained to do.

"Disruptive is too mild a term for what faculty and staff have gone through," Dr. Mileski said. He said hitting "an interval in your life where you can't do that thing that you've prepared yourself to do and trained yourself to do your whole career because the rest of the system is not there to support it" has given him a renewed appreciation for the "intrinsic reward that comes from taking care of people."

Dr. Richardson says obstetrical services were one of the first things to come back online. In fact, some 6,000 babies have been delivered at UTMB since the storm, she says.

"It's bittersweet for me," she added. "We've been zipping along business as usual for the past year, whereas other parts of the facility have been very slow to come back because our infrastructure can't support the number of beds and all the >

“I think what struck me the most is our students, how resilient they are. And also how supportive of their school they are. They were chomping at the bit to get back to the island to help, whether it was cleaning out houses or seeing patients in a clinic.”

things you’ve got to have for those beds that we had pre-Ike.”

Dr. Richardson also says the uncertainty over UTMB’s future on Galveston Island also took a toll on faculty, staff, and students alike.

There was some suggestion in legislative circles that UTMB might be moved elsewhere. That was met with a considerably negative reaction on campus, she says.

“I’m getting sentimental, but it’s hard to think that there would not be a University of Texas Medical Branch in Galveston, particularly when we’ve got the wherewithal to build it such that we shouldn’t sustain the kind of damage that we sustained this go-round,” Dr. Richardson said.

RETURNING TO NORMALCY

That uncertainty, however, passed when lawmakers reaffirmed their support for keeping UTMB in Galveston by passing a \$300 million supplemental appropriations bill to pay for repair of campus facilities. That money, along with funds from an insurance policy, philanthropic donations, and matching dollars from the Federal Emergency Management Agency, will finance the \$667 million building project approved by the Board of Regents, Dr. Raimer says.

While it remains a long journey, UTMB officials say things are settling back into place. They planned to issue construction management contracts for much of the repair and mitigation work before the end of the year, and Dr. Raimer says they have some “impressive plans” for restructuring John Sealy Hospital, as well as addressing learning spaces across campus.

It is likely that most first-floor space throughout the campus will be converted to conference room or classroom space that does not require expensive equipment that would be in harm’s way.

Ike’s long-term impact on UTMB is still unknown, but some faculty members say there already are obvious signs of change. For one, UTMB likely will not be quite the tight-knit environment where most faculty, staff, and students worked and learned on the main campus.

“We’re already seeing that,” said Dr. Richardson. “Rather than having 90 percent of our clinical activity on the campus, we’re going to be seeing a significant proportion of our clinical activity going out of Galveston and onto the mainland. That makes it a little different. It changes the feel of the campus. For the most part, we were all here together. Now we’re going to be like most academic health science centers in that we’re going to be spread out to other geographic areas.”

Dr. Raimer says there are other changes taking place as well, and he sees it as an opportunity to improve.

“Change can be good, and I think many [of the faculty] view this as an opportunity to change styles of practice,” he said. “There is a real, real major movement on patient services, improving the way we treat the patient and delivering patient-centered care.

“There certainly has been a lot of change to the campus itself,” he continued, “and the way we put it back together to improve service to patients, whether it’s scheduling in the outpatient area or day surgery or just the services within the hospital itself.”

In the end, Dr. Raimer says he has been impressed with the “resilience” of the students and the employees of UTMB.

“This would be a great environment for whining because you still look around town and there are dead trees and this isn’t working or that isn’t working,” he said. “But I don’t hear a lot of whining.

“I think what struck me the most is our students, how resilient they are,” he added. “And also how supportive of their school they were. They were chomping at the bit to get back to the island to help, whether it was cleaning out houses or seeing patients in a clinic.”

Dr. Lieberman says despite the disruption, all UTMB fourth-year students graduated on time and scored high on their board and clinical skills exams. “While their education and their lives were disrupted, their education stayed on track and the academic achievements have not suffered as a result,” he said.

And, Dr. Richardson praised the faculty and staff who have devoted many hours to putting UTMB back together while dealing with their own personal losses.

“It was inspiring to me,” she said. “There were people coming to work every day doing everything they could to get UTMB back up and open, and I knew full well that they had lost everything. Their houses were demolished; they’d lost all their clothing, everything. And yet they came to work every day.

“It’s been a tough go, but this is a tough bunch down here. They do best when things are at their worst and they certainly have come through.” ★

Ken Ortolon is senior editor of *Texas Medicine*. You can reach him by telephone at (800) 880-1300, ext. 1392, or (512) 370-1392; by fax at (512) 370-1629; or by e-mail at ken.ortolon@texmed.org.