Can Brain Surgery Be Taught In An 80-Hour Work Week?

BY DAN BROWNING
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MINNEAPOLIS — Dr. Dino Terzic got lucky the other day. In his seventh and final year as a neurosurgery resident at the University of Minnesota, the 32-year-old Bosnian got to operate on a rare type of brain aneurysm that required a special approach through the patient's forehead.

As Terzic prepared to slice into the patient's scalp, he was asked if he'd ever seen this type of flaw in an artery, which occurs in just 2 to 3 percent of aneurysm cases.

"On a video," Terzic replied with a chuckle.

Terzic's hands-on experience shows why the nation's medical schools are beset by a nagging controversy over rules that limit the number of hours residents can work. The rules were adopted a decade ago to avoid the sort of fatigue and medication errors that contributed to the death of 18-year-old Libby Zion in New York in 1984. But now, some medical educators say the rules may be undercutting the training of some U.S. doctors by reducing the number of procedures they perform.

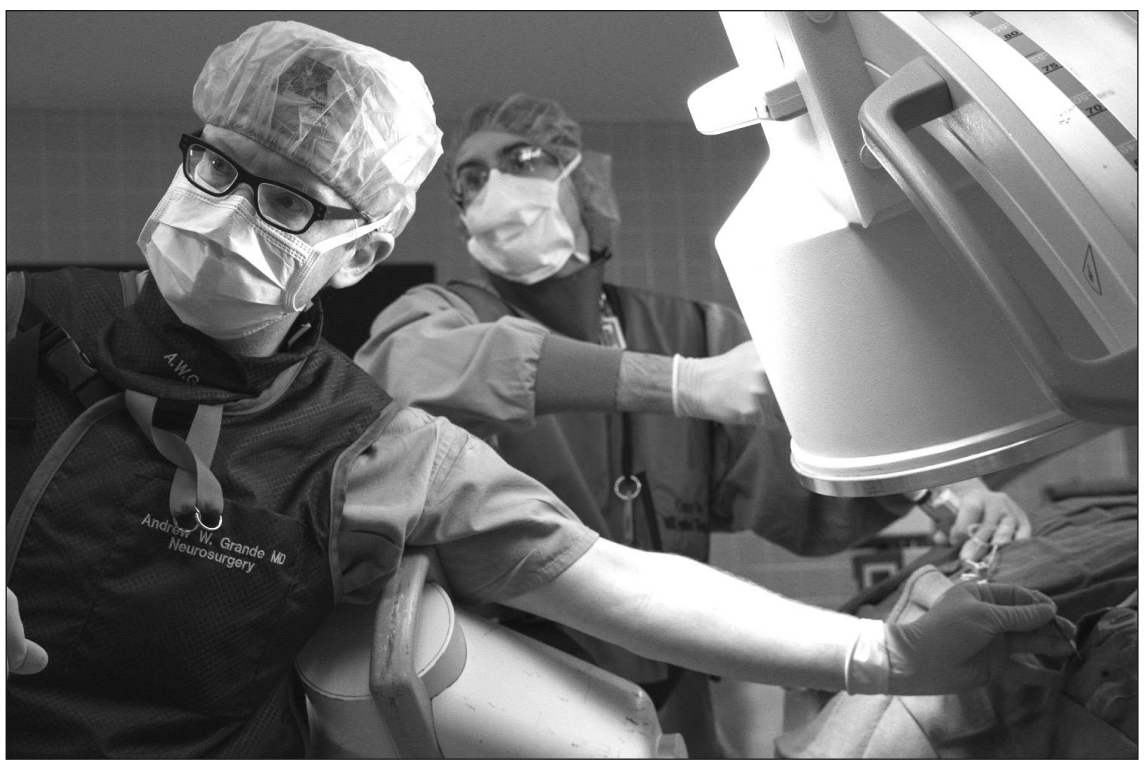
"While we're in residency our goal is to do as many cases as possible," Terzic said.

"It has been a very controversial thing from the beginning, particularly among surgical specialties, because it was unclear to us what the impact would be," said Dr. Stephen J. Haines, director of the U's neurosurgery department. "Would it really have a benefit to training? Or would the ... decrease in experience of the residents overcome any value of just having a less intense time and sleeping more?"

Haines directed a study, published in August in the *Journal of Neurosurgery*, which found that regulations barring residents from working more than 80 hours a week made no measurable improvement in major outcomes. He and his colleagues focused on neurosurgery residents because they had among the longest hours before the rules took effect — often more than 120 hours a week — and because they routinely deal with high-risk procedures in which a mistake may kill the patient or cause lasting damage.

"Interestingly, the (duty hour) regulations appear to be associated with an increase in the frequency of postoperative complications and discharge to long-term care facilities," the study says. It's unclear why.

Even so, the accreditation council that oversees physician training in the United States has considered reducing resident duty hours even more, prompting pushback from training departments.



DAN BROWNING/MINNEAPOLIS STAR TRIBUNE/MCT
Dr. Andrew Grande, an assistant professor of neurosurgery at the University of Minnesota, helps chief resident Dino Terzic thread a stylette through a patient's cheek into the base of the skull.

An analysis of 135 studies published in June in the Annals of Surgery concluded that "one-size-fits-all" duty hour restrictions may not fit all specialties. While the restrictions have improved the lives of surgery residents, the authors wrote, their scores on board exams have declined. Worse, the analysts found that limits on duty hours appear to be harming more seriously ill patients, possibly by increasing the number of "handoffs" that take place.

"As soon as you start introducing more people into your care team ... you're not only handing off the patient to someone else to care for, you're handing off the responsibility," said Dr. Andrew Grande, a vascular neurosurgeon and assistant professor at the U. "So that drive to really dig down deep and go that extra mile for that patient — I don't think it's the same."

The U, like nearly all neurosurgery training programs, accepts just two new interns a year for its grueling, seven-year program.

"They are the hardest-working people in the hospital," said Dr. Matthew Hunt, director of the U's neurosurgery residency program.

Rounds usually begin around 5:30 a.m., after a thorough review of what the interns call "The List." It's a digest of the demographics, conditions, medications, lab results, images and strategies for individual patients.

Second-year residents Coridon Quinn, 36, and David Darrow, 28, spend much of their time updating The List. One recent morning, it covered 20 patients, though Quinn said he's seen as many as 40. It must remain perfectly accurate as the other physicians — and their patients' lives — depend on it.

At the U, first-year residents, known as interns, spend five months on neurosurgery, seven months on neurology, general surgery, trauma and ICU training. They spend much of their time in the clinic, learning to make diagnoses and to interact with patients and their loved ones facing dire health problems.

Interns can work no more than 16 hours straight, while other residents must stop at 24. Those restrictions can be tricky in a field in which some operations last 20 hours or more.

The second year of training is particularly difficult: Residents alternate, one month at a time, working the 12-hour overnight shift alone. Although the shift technically starts at 7 p.m., they often start an hour early, sign out at 8 a.m., and continue working a while longer. They visit patients and field often urgent questions from nurses and physicians. When in doubt, they phone the chief resident for advice.

"The first several months we bug the heck out of him," Quinn said.

The residents also conduct research, prepare and attend presentations on current cases, and attend mandatory weekly, three-hour classes on topics such as neuropathology and neuroradiology.

Darrow said nothing can prepare new residents for the heavy responsibilities and long hours.

"Not even close," he said between gulps of coffee. "You're just running all the time."

Nationally, 10 to 20 percent of neurosurgery residents quit in their first two years.

"You can't really tell if this is your thing until you're into it," Terzic said.

Neurosurgery residents ride an emotional roller coaster. One recent patient, a student close to finishing his degree at the U, had hit his head in a fall and came in with a few spots of blood in his brain. The residents were initially optimistic, but the bleeding and swelling increased rapidly.

"The surgery we do for this is to remove the entire top part of the skull for six months," Darrow said. He said the patient faces a year or more of rehabilitation and may never work in his field of study.

Darrow said although neurologists can keep patients alive despite severe brain damage, "at the end of the day if it doesn't make a difference, you're just prolonging the pain. Then you have to have the discussion with the family — and that's hard."

Dr. Ciro Vasquez, a sixth-year senior resident, spent more than an hour on a recent day adjusting a surgical table and myriad instruments he would use to remove a "vascular abnormality" from the side of a patient's brain.

"Sixty percent of brain surgery happens before the operation," Vasquez said.

Dr. Cornelius Lam, a neurosurgery professor, supervised the operation and quietly suggested how to cut through the muscle over the bone in one pass to minimize damage.

"Beautiful," Lam said as Ciro worked. "We've got a pretty good resident here."

As Grande, Terzic and Vasquez went to work on the patient with the rare aneurysm, several visitors stopped by to watch the lengthy procedure. Terzic painstakingly cut through the arachnoid, a weblike membrane that holds the brain tissue together.

"Just enjoy it," Grande said. "Before you know it, it just falls open and you're there."

Terzic continued making tiny cuts, probing with his electrified tongs and a suction device, but he couldn't find the aneurysm. The room fell silent as everyone watched his progress on an HDTV monitor. Then Terzic nicked a vessel, filling the cavern with blood. He tried unsuccessfully for a few moments to repair it, and Grande stepped in to seal it up and continue the operation.

The residents watched Grande closely as he cut and prodded his way deeper into the patient's brain.

"There it is!" Terzic called out.

Grande clamped off the aneurysm and returned the patient to Terzic.

"This case went well. Now I've got to got talk to a family about lab tests on a malignant brain tumor in a woman 26 years old," Grande said. "So, the highs and the lows of neurosurgery."

Ebola Patient's Death Renews Questions About His Care

BY NOMAAN MERCHANT AND JOSH FUNK
Associated Press

DALLAS — The death of the first Ebola patient diagnosed in the United States renewed questions about his medical care and whether Thomas Eric Duncan's life could have been extended or saved if the Texas hospital where he first sought help had taken him in sooner.

Duncan died in Dallas on Wednesday, a little more than a week after his illness exposed gaps in the nation's defenses against the disease and set off a scramble to track down anyone exposed to him.

The 42-year-old Liberian man had been kept in isolation since Sept. 28 at Texas Health Presbyterian Hospital, where a fevered Duncan first showed up days earlier and told the staff he had been in West Africa. Doctors initially sent him home. He returned after his condition worsened.

Dr. Phil Smith is the director of the biocontainment center at the Nebraska Medical Center, where an NBC News freelance cameraman is being treated for Ebola. He said getting early treatment is key to surviving Ebola.

When a patient reaches the point of needing dialysis and respiratory help, as Duncan did this week, there may be little doctors can do.

"At that point, any kind of intervention, whether it is an antiviral drug or convalescent plasma, is less likely to work," said Smith, an infectious disease specialist.

Duncan carried the deadly virus with him from his home in Liberia, though he showed no symptoms when he left for the United States. He arrived in Dallas on Sept. 20 and fell ill several days later.

Of the six Ebola patients treated so far in the U.S., Duncan was the only one not cared for in one of the special hospital units set up to deal with highly dangerous germs. That's because health officials knew the others had Ebola at the time they decided where the patients should go, whereas Duncan sought care at Texas Health Presbyterian hospital on his own.

Health officials also have said that any hospital with isolation capabilities can treat Ebola patients, but Duncan's death is sure to renew attention on the hospital's response.

There is no way to know whether any specific treatment or step might have saved Duncan's life. At the time of his death, he was taking an experimental antiviral drug.

He died "despite maximal interventions," said Dr. Tom Frieden, director of the Centers for Disease Control and Prevention. "The earlier someone is diagnosed, the more likely they will be to survive."

Pastor George Mason of Wilshire Baptist Church in Dallas was present when county officials told Louise Troh, the woman Duncan had been staying with, of his death.

"She expressed all the what-ifs," including whether the initial delay in admitting Duncan made a difference, Mason said.

Others in Dallas are still being monitored as health officials try to contain the virus that has ravaged West Africa, with about 3,800 people reported dead. The disease can be spread only through direct contact with the bodily fluids of an already sick person.

NATHAN HUNSINGER/DALLAS MORNING NEWS/MCT
Nowai Korkoyah, mother of Ebola patient Thomas Duncan, is pictured at a press conference with Rev. Jesse Jackson at South Dallas Cafe in Dallas on Tuesday.

Health officials have identified 10 people, including seven health workers, who had direct contact with Duncan while he was contagious. Another 38 people also may have come into contact with him. The four people living in the Dallas apartment where Duncan stayed were moved to another home and are in isolation.

Officials have said everyone who had potential contact with Duncan is being monitored for 21 days, the maximum incubation period for the disease, which can cause vomiting, diarrhea, bleeding and in later stages, damage to vital organs.

Also Wednesday, a sheriff's deputy who went into the apartment where Duncan had stayed was hospitalized "out of an abundance of caution" after falling ill, authorities said.

Federal and state health officials say there's no indication the deputy had any direct contact with Thomas Eric Duncan.

Duncan's illness has stoked anxiety in some parts of Dallas. Several residents of the neighborhood where Duncan got sick told city officials they had been sent home from work. Some community volunteers shunned a nearby afterschool program. And the hospital acknowledged that some patients were staying away out of fear of Ebola.

Duncan went to the emergency room of Texas Health Presbyterian in Dallas on Sept. 25, but was sent home. By Sept. 28, his condition had worsened and an ambulance took him back to the hospital.

Duncan's family visited the hospital earlier this week and got a glimpse of Duncan using a camera system. But relatives said Tuesday that they declined to view him again because the first time had been too upsetting.

"What we saw was very painful. It didn't look good," Duncan's nephew, Josephus Weeks, said Tuesday.

The hospital has changed its explanation several times about when Duncan arrived and what he said about his travel history. The hospital has said the staff did not initially suspect Ebola, even though Duncan told them on his first visit that that he came from West Africa.

His body was to be cremated and his remains returned to the family. The Centers for Disease Control recommends that bodies of Ebola victims not be embalmed and instead suggests they be cremated or promptly buried in a hermetically sealed casket.

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Linda Zimmerman
"Some Days are Diamonds, Some Days are Stones: Dealing with Metastatic Breast Cancer"

Linda was employed by HyVee for 16 years, with 14 of those years at the Customer Service Desk. She is the mother of 7 children. Born and raised in Gayville, SD. She lives with her husband Ron in Yankton.

Also speaking: Mary Lee Villanueva, MD
Yankton Medical Clinic, P.C. Board Certified Oncologist/Hematologist

Our Emcee, Mary J. Milroy, M.D., FACS
Yankton Medical Clinic, P.C. Board Certified Surgeon, Specializing in Breast Surgery

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