First Steps

First-year students in U-M’s Medical School experience a rite of passage in the gross anatomy lab, where they learn about the human body by dissecting it. They also come to terms with their donors, those who have given the ultimate gift to ensure the students’ education.

By Sally Poboiewski

At the U-M Medical School, the journey from student to doctor begins with 100 steps—the distance from lecture hall to gross anatomy lab. Every September, approximately 170 first-year medical students take that walk, and for Michael Yee, it was with a sense of fear and foreboding.

“I didn’t know what to expect,” says Yee, remembering the day last fall when he walked into the lab for the first time and anticipated his first encounter with a cadaver. A quiet and serious 25-year-old, Yee was planning to be an engineer and has a master’s degree in biomedical engineering. He had never dissected anything before, much less a human being.

“I remember vividly getting dressed in my scrubs and being nervous as I walked down that long hallway to the anatomy lab,” recalls Yee, MS’10. “That long walk really makes you think about what you are about to do. There was this cadaver lying on the table. We all just looked at one another wondering who was going to be the brave one to pick up the scalpel and make the first incision. I definitely was not going to volunteer to be the first.”

Gross anatomy is a rite of passage for first-year medical students, also known as M1s. The best way to learn how the human body comes together is to take it apart. In the process, students learn a lot about anatomy and even more about themselves.

Part of Sabine Hildebrandt’s job is preparing M1s for their first day in the gross anatomy lab. Hildebrandt, a U-M lecturer in anatomical sciences, delivers the students’ first anatomy lecture along with Ameed Raoof, an assistant professor of anatomy and medical education and director of the school’s Division of Anatomical Sciences.

They focus on professional and ethical behavior in the lab, discuss students’ concerns and fears about dissection, and reassure them that it’s normal to be anxious or uncomfortable in the beginning.

“When students first go to the labs, we give them...
some time to familiarize themselves with their donor,” says Hildebrandt. “I’ve had groups standing around the body and praying on that first day. Others start exploring right away and want to see what the person looks like. We do sometimes have emotional reactions and can deal with them on the first day without putting someone under pressure.”

The first thing you notice when you walk through the locked door to the lab is the sudden drop in temperature. The six small rooms inside look as cold as they feel, with gray linoleum floors and rows of fluorescent lights hanging from the ceiling. Each dissection room has 10 stainless steel tables. On each table rests a human body covered with a white plastic sheet. And beneath each table is a five-gallon plastic bucket to collect tissue and bone.

First-year medical students spend seven months in the anatomy lab dissecting a human body. With 132 hours of instruction, gross anatomy makes up a large part of the first-year curriculum. It is organized into sequences integrated with other courses in physiology, biochemistry, and other basic medical sciences. As students study the cardiovascular or respiratory system, for example, they dissect the heart, major arteries, or lungs from their cadaver.

“The idea is that students learn the basic structure and function of the human body together in the same sequence, so they understand its parts, its pathology, and its clinical correlations,” explains Raoof.

Any anxiety M1 students may feel in September is long gone by March, when they begin dissecting the head and neck. Working in groups of three, students cluster around
their table with scalpels, hammers, and chisels in hand, trying to locate their donor’s pharynx. Students check diagrams and instructions on computer monitors, while faculty and residents move around the lab answering questions and demonstrating techniques. The room buzzes with conversation and activity.

It doesn’t seem any different from any university biology lab until you look closely and notice the three-day stubble of a beard and sandy eyebrows on the face of the middle-aged man lying on a table. This was a person who loved and was loved, who felt joy and despair, and in the end donated his body so students he would never meet could learn to be doctors.

To succeed in gross anatomy, medical students must strike a balance between their feelings about the donor and the clinical detachment required to take a human being apart piece by piece. Every student has to find his or her own personal balance point. Some, like Michael Yee, focus more on the emotional connection.

“The more time I spend in anatomy, the more I reflect on my own mortality,” says Yee. “You find these little clues on the body about the donor’s previous life, like scars from old surgeries. Every time we go into the lab, the donor gives me more and more information, and I just keep taking more and more of the donor away. Sometimes, I feel a tinge of guilt.”

Others, like Cecilia Kwak, make a conscious decision to maintain a respectful, but emotionally distant, relationship with their donor. “I tend to empathize a lot,” she says, “and if the bond was too personal, I couldn’t do it.”

“We are very protective of our cadaver,” Kwak says of herself and the two others in her group. “We make sure to keep her moist and cover the parts of the body that don’t need to be showing. We appreciate her and how much we’ve learned from her. She was a great person to work on and in great condition for a 90-year-old woman. It would be interesting to learn more about her life, but not until after I’m finished with anatomy.”

It takes time, effort, and money to build and maintain a quality anatomical donation program. Some medical schools find it too difficult and expensive. With computer simulation technology becoming more sophisticated and realistic every year, some educators say students can learn just as much from a computer as they do in anatomy lab.

Self-described “hands-on” learners like Kwak are quick to disagree. She spends extra time in the anatomy lab and checks out boxes of bones available to medical students who want to study at home.

“I have a hard time conceptualizing what we talk about in the classroom, but this really makes things concrete,” says Kwak. “There’s something about being able to touch and feel...
the lungs—you can’t feel anything on a computer.”

“People curse the anatomy lab,” says Yee. “They don’t like the cold, its smells, the lighting. They don’t like all the hours we spend in there. We gripe about it, but looking back, realize there’s no substitute for it.”

The U-M Anatomical Donations Program receives about 275 adult donors each year, according to Dean Mueller, the program’s coordinator. About 60 of them are used in gross anatomy while others are shared with other medical schools or used for surgical and dental training or for specialty medical courses. If the donor has given written consent, some cadavers and organs can be plastinated to preserve them for permanent educational use.

“Many of our donors are retired teachers, from grade school to college professors, who believe in education and want to continue to teach (after their death),” says Mueller. “Some are former U-M hospital patients who are grateful for the medical care they received and want to give back. Some people donate because they like our football team.”

People often contact the Anatomical Donations Program and make the decision to donate their body years before they die, Mueller explains. Donors are asked to sign a legal will in the presence of witnesses.

“We want donors who want to be here and we want their families to want them to be here,” says Mueller, who emphasizes that the U-M Medical School does not accept unclaimed bodies from county morgues for its donor program.

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Donated bodies are a precious educational resource, and every part of every donor is used as long as possible. Since 1983, the program has kept detailed records on every donor—how their body was used and by whom—in a computer database. When donor bodies or body parts can no longer be used, the remains are individually cremated and the ashes placed in individual cremation containers. Ashes are returned to the family for private interment or buried in the UM-owned section of a cemetery near Ann Arbor.

The Medical School sponsors a group memorial service every September and invites the families of recent donors. Second-year medical students participate in the service and talk about how much their donor’s gift meant to them. First-year medical students also attend the service, which takes place before they begin gross anatomy.

“Our anatomy program focuses on professionalism from day one,” says Raoof. “It starts with respecting the cadaver as not just a dead body, but an individual with a unique medical history and a family. We insist that students attend the memorial service at the beginning of their first year, so they will see the families and understand the immensity of the task ahead of them.”

In September, Michael Yee and Cecilia Kwak will be M2 students. They and the other 168 members of the U-M Medical School’s class of 2015 will participate in the memorial service and meet the families of their donors. It will give them an opportunity to say how grateful they are for a stranger’s gift and what it meant to them.

At this point, Yee has no idea what he will say. How do you even begin to thank someone for a gift that changes your life? 💡

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