“Active learning fosters a sense of teamwork and shared responsibility, which reflects the movement of the medical field away from expert autonomy and towards holistic, cohesive care.” – OLIVIA HARRISON ‘21

THE KEY TO EDUCATING THE NEXT GENERATION OF PHYSICIANS IS INNOVATION: USING ACTIVE LEARNING TECHNIQUES THAT HELP STUDENTS BUILD SKILLS, AND BECOME SELF-DRIVEN, LIFELONG LEARNERS PREPARED FOR THE EVER-EVOLVING WORLD OF MEDICINE.

BY ERIN POST
PHOTOGRAPHY BY DAVID SEAVER
The University of Vermont Larner College of Medicine has a long history of leadership in medical education, from its 1967 curriculum redesign, which introduced earlier and more extensive clinical instruction and enhanced emphasis on lifelong learning, to the launch of the Vermont Integrated Curriculum (VIC) in 2003, which brought education in the basic sciences together with the health sciences and clinical skills in innovative ways.

Now, the College has once again taken the lead in developing a new paradigm for medical education, one that asks students to lean in—to engage with each other and with faculty members—and asks teachers to facilitate that discussion. Called active learning, this new approach evolves the role of teacher and student in important ways.

"The role of the faculty member is changing," says UVM Assistant Dean for Medical Education Katie Huggett, Ph.D., director of the College’s Teaching Academy. "They’re still sharing their expertise, but in different ways. Faculty facilitate sessions, rather than lecture. They’re becoming content curators, rather than creators."

This shift in how medical students are taught is driven in part by the rapid creation of new medical knowledge, which now outpaces any one person’s ability to absorb it. Students need to be able to retrieve information and apply it, in class, they engage higher order thinking skills and learn how to work in teams.

"Students coming to the session having already completed some work on their own is important, says Wilcox, who is course director and an associate professor of pathology and laboratory medicine. Individual and Group Readiness Assurance Tests can be done prior to class or built into sessions."

"The pre-work is the foundational knowledge and the vocabulary," she says. "Then when we apply that to a real case scenario, a real patient, we’re all speaking the same language."

Once the pieces come together, student learning takes off.

"Their higher order thinking in the classroom sometimes just amazes me," she says. "It’s almost like you release this potential in the room."

The Takeaway

"Students are prepared when they come into class to integrate what they’ve learned. Instead of listening to a lecture and then studying, they learn the material first and then they apply it. It’s like the difference between reading about driving and driving a car. With active learning, you’re driving a car with the instructor in the seat next to you." — Karen Lounsbury, Ph.D., Foundations director and professor of pharmacology

CURRICULUM LEVEL 1: FOUNDATIONS

Ebecca Wilcox, M.D., begins a session during the first-year Nutrition, Metabolism and Gastrointestinal Systems course with a basic question: "Bile. What is it good for?"

Students sit in small groups at tables throughout the room— electronic tablets at the ready. Conversation picks up as the groups begin to order and list all of the functions of bile. Along with Jill Sullivan, M.D.’04, associate professor of pediatrics and pediatric gastroenterologist, Wilcox stops to answer questions as she walks between tables.

"Dr. Lidorf’s video is fantastic," Wilcox says, referring to the work of a fellow faculty member who created pre-learning material for the session. She encourages students to think back to its main points. When students reconvene, and the conversation is again directed by Wilcox and Sullivan, there are moments when pop culture meets the finer points of liver function. Actress Kirsten Dunst makes an appearance in a GIF as a visual cue for one of bile’s key roles (Dunst waving good-bye = bile eliminating toxins and metabolic waste). Then, their final project for the day: With colored markers and large sheets of paper, students are drawing out the metabolism of bilirubin, a key process in a properly functioning liver.

"Having a strong handle on normal is the key to recognizing and understanding abnormal," says Wilcox, noting that this work sets the stage for a later team-based session focused on clinical cases.

As students hash out bilirubin metabolism together and come up with creative ways to communicate it, they’re reinforcing what they learned ahead of class and taking it one step further.

"We meet them exactly where they are," says Sullivan. "We try to help them work through the entire metabolic process in preparation for clinical application."

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CURRICULUM LEVEL 2: CLERKSHIP

On the first day of the OB/GYN clerkship, students dive right into the practice of obstetrics. They deliver a baby in the safe confines of the UVM Clinical Simulation Laboratory. Flanked by a faculty member, a member of UVM’s simulation team, and a few classmates, they try out the basic maneuvers involved in a spontaneous vaginal delivery courtesy of a high-tech mannequin "mother" and "baby." The five-hour clerkship orientation continues with other stations focused on pelvic and breast exams, knot-tying, suturing, and scrubbing into a sterile procedure.

That first day is a harbinger of what’s to come, as the six-week clerkship consistently asks students to access medical knowledge and apply it in real time, while working with a group to solve problems. Elise Everett, M.D., associate professor of obstetrics, gynecology and reproductive sciences and clerkship director, says the goal is to foster leadership skills along with an understanding of the benefits of a team.

"Knowing what you don’t know and being able to identify and fill those knowledge gaps is important," she says. "And being reflective, self-aware and willing to ask for feedback and help is key to taking care of patients safely."

One innovation: critical thinking cards that have helped shift the clerkship’s didactic content from about 15 lecture hours to zero. Students meet weekly in small groups with a faculty advisor to review patient cases that relate to what they recently experienced in the clinical environment. The critical thinking cards include a chief
On April 25, 2019, UVM Assistant Professor of Radiology Adam Ulano, M.D., hosted his first-ever session teaching medical students. His charge: Introduce the first-year class to anatomical imaging techniques as part of the Radiology course. Ulano already had an aptitude for teaching: he’s the director of the UVM Medical Center Neuroimaging Fellowship Program. But many questions bubbled up as he considered the task at hand. How do you design an effective session? How should students prepare? How would he know his instruction was effective? Follow Dr. Ulano through some of the key moments as he prepares for his first session.

Read the story at VT Med Online
med.uvm.edu/vtmedicine/web-xtras

Adam Ulano, M.D., preps for a session he’s teaching with the help of instructional designer Karina Lopez, M.A., M.S.

"At the Larner College of Medicine, we’ve been innovators of a medical education program that incorporates best learning practice and takes into account ever-evolving health care systems and educational environments. Physicians today need to be self-directed, lifelong learners; active learning develops the skills our students need to thrive."

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