A scholarly prescription

Developing physician-scholars among fourth-year medical students.

“Taking a question you have in your head and turning it into something publishable, that’s a very interesting scenario, and one that really excited me,” says Adam Goldstone, M.D.’08, just a few days prior to being awarded his medical degree.

Goldstone and dozens of his classmates followed just such a plan during their last year at the College. Under the Vermont Integrated Curriculum (VIC), students can opt to fulfill either a teaching requirement or a scholarly project. Those who choose the scholarly project path sign on for an experience that will entail hours of data collection and analysis on a project based on either the clinical or basic sciences, and the ultimate pleasure of seeing the hypothesis point toward a conclusion.

“The scholarly project’s purpose is to encourage those students to become full-fledged physician-scholars,” says Eileen CichoskiKelly, Ph.D., the College’s director of educational instruction and scholarship. “Through this experience, they learn to polish their communication skills, and their powers of inquiry and analysis.” Scholarly projects are formally presented to the UVM on the same day, about a week before commencement, when the student-scholars give either a verbal or poster presentation of their work.

The scholarly project has been a formal part of the College’s curriculum for much of the past decade. Going back even further is the related Surgery Senior Major Scientific Program. Since 1970, seniors in this specialty have had the chance to present research projects to the assembled faculty in the department and their fellow students.

What follows in these pages is just a sampling of the broad process of inquiry recent medical graduates have gone through.
Danielle Williams, M.D.’08 found her scholarly project subject matter in the same area that originally helped her focus on becoming a physician. For four years, while earning her undergraduate degree, she had worked as an emergency services technician. “I put feelers out to see what kind of research people in the field in Vermont were interested in,” she says.

Associate Professor Wayne Misselbeck, M.D. and staff members of the Vermont Office of EMS and Injury Prevention were eager to learn about issues around the criminal background of applicants for EMS positions, and the extent to which screening measures can be developed to deal with the small number of applicants that fall into this category. “The literature does not have a lot about this subject,” she says. “Having been one, I realize the important role EMTs have. Since the data were few, I thought we’d look at it in an epidemiological way. We collected data from various sources that the Office of EMS recommended.” They were able to point the way toward recent applicant trends, and are looking ahead to publication in the future.

How much CT-scanning is necessary? That’s the question Adam Goldstone, M.D.’08 sought to answer through his scholarly project. “I was interested in patients with a history of kidney stones,” he says. “Particularly those who present to physicians multiple times with recurrent symptoms.”

Goldstone’s mentor was Assistant Professor Andrew Bushnell, M.D. “I worked with Dr. Bushnell in the Emergency Department. He’d noted that patients coming in with the same type of pain after previously having had a kidney stone got a CT-scan nearly every time.” Computed Tomography (CT) scans have become the gold standard for the diagnosis of kidney stones, Goldstone notes, but such scans are not completely harmless. “One abdominal CT-scan is equivalent to approximately 500 chest radiographs,” he says. The student and mentor culled data from the Fletcher Allen database. Repeat kidney stone patients rarely have their diagnosis changed, they found, which points the way toward further evaluation of the treatment of such patients.

Decreasing CT Exposure

Helping EMT Choices
Through the 38th annual Surgery Senior Major Scientific Program, ten fourth-year students on the verge of graduation gained the valuable experience of shaping data into a form that would be acceptable for publication, and presenting that work at what is, in effect, a small scientific seminar. To the audience of faculty members, students, and invited guests gathered in Hall B in the Given Building on May 1, seniors presented findings on a wide range of topics—leg fractures among skiers and snowboarders, abdominal pain and appendicitis diagnosis in children, and useful genetic “markers” for certain carcinomas were but a few of the subjects. Krista Evans, M.D.’08 (at right, above) won the third place award at the program for her project that explored the role of HbA1c (a test for abnormal glucose metabolism) as a predictor for complications after coronary bypass surgery. Dorian Korz, M.D.’08 (at right) won the second place award for his project on the use of anticancer agents in the mammary ductal network. First place at the seminar was awarded to Thai Lan Tran for her project, which focused on an aspect of the treatment of the lung cancer mesothelioma.

Jonathan Hall, M.D.’08 (at left in photo) spent a good deal for the past year in South Burlington, Vt., offering people cones—not the kind with ice cream packed inside but, rather, the bright orange rubber kind usually used to detour traffic. Working at the Spine Institute of New England, Hall introduced patients with degenerative lumbar spinal stenosis and neurogenic claudication (the narrowing of the spinal canal, which causes pain) to a “shuttle walking test” in which they were required to walk a ten-meter course between two cones. A CD-player beside the course played pre-timed signals to show when the start of the walk should begin, and when it should be over, and the intervals were slowly decreased until a subject was unable to complete the course in the allotted time. All the patients had undergone extensive radiographic examination beforehand, says Hall. “This study allowed us to understand the relationship between what the radiographs say is happening in the spine, and what a patient’s own self-reported health and functional status is. This could point the way to a better determination of how close some people are to needing surgical intervention.” Hall worked with several members of UVM Department of Orthopaedics & Rehabilitation, with Clinical Instructor Tucker Drury, M.D., (at right) serving as mentor. Drury and Hall (who begins his residency in orthopaedics at Fletcher Allen this summer) hope to present their findings at an orthopaedic conference in Hong Kong later this year.

### Data to Help Alleviate Pain

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### A Wide-Ranging Seminar

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