

## Bringing rigor to education, too

**I**t's baffling, really. Medicine, a field rooted firmly in research, has never applied the same degree of rigor to evaluating the way physicians are trained. "If medicine has a high threshold for evidence of clinical care, why is there no corresponding threshold for educational effectiveness?" ask the DMS authors of a September article in the *Journal of the American Medical Association* (JAMA). "For example, what is the basis for the Liaison Committee on Medical Education (LCME) and Accreditation Council for Graduate Medical Education (ACGME) accreditation requirements?"

"There isn't any!" insists Patricia Carney, Ph.D., assistant dean for educational research at DMS and was the lead author of the JAMA article. "What happens," she says, "is that the accrediting bodies all get together and they decide what medical schools ought to be doing, mostly based on what they, themselves, do." In the article, she and her coauthors call for medical schools around the country to channel resources into what they've dubbed "educational epidemiology"—the science of studying the training of doctors. While a lot of papers about medical education are published, the number in which "an actual design is applied to the evaluation and a hypothesis is identified and tested . . . is actually pretty low," says Carney. What is published is largely qualitative rather than quantitative, the authors contend.

**Data:** But a handful of institutions, including Dartmouth, hope to change that. DMS was also one of eight medical schools invited to write about such research for the October issue of *Academic Medicine*. Medical education research began at DMS in 1995 with data collected on index cards. Carney and family physician Allen Dietrich, M.D., used the cards to track students' experiences in their primary-care rotations. What diseases were they seeing? What procedures were they performing? Then, in 1998, Carney and several colleagues launched ClinEdDoc, a computer-based documentation system.

"To me, ClinEdDoc was a Phase I trial that showed that collecting such data was feasible," says Carney. The system yielded eight published papers, including one comparing the educational experiences students get at academic medical centers, affiliated residency sites, and community-based practices. ClinEdDoc also allowed students to track their own learning and identify any gaps.

Today, DMS students use a different computer-based tool, the Dartmouth Medical Encounter Documentation System (DMEDS). They can record a wide variety of data on DMEDS, from diagnoses they encounter to communication skills they employ.

Better ways of assessing medical education are essential "unless we plan to go to five-year programs," says Carney. "We have got to figure out what older parts of the curriculum don't need to stay, because medicine is evolving. The science of health care, not just medicine but the whole shooting match, is so complicated that we have got to figure out what belongs and what doesn't."

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Dartmouth cardiologist David Malenka led a study that has policy implications.

## Heart study raises policy questions

**S**hould hospitals without heart surgery programs be allowed to offer invasive though nonsurgical heart procedures like angioplasties and stent implantations? A recent study headed by DMS cardiologist David Malenka, M.D., offers new insight into this controversial question. By comparing Medicare data from over 600,000 patients who underwent any of several nonsurgical procedures classed as percutaneous coronary interventions (PCIs), Malenka and colleagues revealed disparities between hospitals with and without surgical backup.

The study was based on 943 hospitals with a heart surgery program and 178 without one. Overall, patients who had PCIs in hospitals without such programs were 29% more likely to die within 30 days than those treated in hospitals with on-site heart surgery. Patients who had PCIs on a nonemergency basis fared even worse; they were 36% more likely to die in hospitals without than those with surgical backup. But no difference in mortality was seen between the two kinds of hospitals when PCIs were performed on an emergency basis—which the researchers defined as procedures done the same day patients were admitted for a heart attack.

The puzzling nature of this latter finding was noted in an editorial accompanying the paper, which was published in the *Journal of the American Medical Association*. "It seems unlikely that the interventional cardiologist would be a poor operator for one kind of procedure and a superior operator for the other," said the editorial.

**Implications:** Nevertheless, the findings have important implications. "If PCI programs are allowed to develop in centers without on-site cardiac surgery, patients being treated by [emergency] PCI will likely benefit," concluded the paper's authors. But, they cautioned, policies aimed at increasing access to emergency PCIs by making them available at hospitals without cardiac surgery "may inadvertently lead to an overall increase in mortality related to PCI," since 78% of PCIs performed at such hospitals are done on a nonemergency basis.

While Malenka headed the study, the lead author of the paper reporting the results was David Wennberg, M.D.C.M., an adjunct associate professor at Dartmouth Medical School. JENNIFER DURGIN