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[\[Previous Story\]](#)[\[Table of Contents\]](#)

NIH program helps students 'bridge' difficult transitions

Julie Grisham

Last month, about 240 people braved a late-winter snowstorm to attend a meeting on the National Institutes of Health's [Bridges to the Future program](#), which was held in Leesburg, Va. The program helps students make transitions between two-year and four-year institutions--called Bridges to the Baccalaureate--and between master's and doctoral programs--called Bridges to the Doctorate.

The bridges program is a special initiative by the National Institute of General Medical Sciences' Division of [Minority Opportunities in Research](#) (MORE) and the NIH Office of Research on Minority Health. It is the only MORE program that requires funds be spent exclusively on underrepresented minority students, such as blacks, Hispanics, Native Americans, and Pacific Islanders. It focuses on students majoring in biomedically related subjects including biology, chemistry, and biochemistry.

The meeting brought together NIH staff and faculty members from colleges and universities around the country. Its goals were to improve communication among institutions, build networks, provide training, and address issues such as recruitment and retention, research activities, curriculum and faculty development, and student motivation.



Eckstrand [Photo by Julie Grisham]

Irene Eckstrand, director of the bridges program, said at the meeting that working to increase the number of minority scientists is not only "the just and right thing to do," but it's "scientifically necessary." She said research is increasingly collaborative, and it is important for minority scientists to be part of the data-sharing network. She also said people from all communities need to be at the table when difficult ethical issues are discussed.

Norman L. Fortenberry, director of the Division of Undergraduate Education at the National Science Foundation, said at the meeting that Bridges to the Baccalaureate is important because about half of all underrepresented minority undergrads are at two-year colleges. "If we're going to achieve diversity in the biomedical sciences--and science in general--we've got to reach out to where the students are," he said. "And that's where they are."

The bridges program first received funding in 1992, and the number of program grants has increased steadily since then. In 1993, fewer than 30 baccalaureate programs received grants; by 1998, the number had almost doubled. In 1993, about 100 students participated in baccalaureate programs. Five years later, that number was up to almost 1,100.

For the doctoral programs, the number of grants also has increased, from 10 in 1993 to about 25 in 1998. The number of students has risen from 20 in 1993 to about 100 in 1998, after reaching a high of about 120 in 1996. The cumulative number of students who have participated in both baccalaureate and doctoral programs is more than 3,200.

Funding for the program was \$9.6 million for fiscal 1998. It may receive a slight increase in 1999 because the number of applications has increased, according to Clifton Poodry, director of MORE.

Bridges grants provide a variety of resources for students interested in continuing on in science. Most programs feature special seminars that teach students college preparation and study skills, research opportunities at upper-level institutions (some of which are paid), and mentoring from faculty members and other students. Students also are encouraged to attend scientific meetings and present their research.

For the baccalaureate programs, students are recruited in a variety of ways. Some are recruited while they are still in high school and are offered opportunities to participate in research activities during the summer, before starting college. Students who do well in science courses at community colleges also are sought. Generally, faculty members from community colleges work with faculty from a four-year institution to identify which students show promise in making the transition.

For the doctorate programs, the focus is students whose grades and test scores are not high enough to enroll directly in a doctoral program and instead enroll in master's programs. Faculty at the master's-granting institution help students to gain research experience such as working with doctoral students and researchers at a participating Ph.D.-granting university. Ideally, students transfer to that university after receiving their master's degree.

Most bridges program grants involve faculty from several different institutions. For example, one program in California is coordinated by faculty from four schools. Students from Pasadena City College, Los Angeles City College, and East Los Angeles City College--all community colleges--are filtered into California State University, Los Angeles. In this particular program, all coordinators are members of the chemistry faculty, in part because chemistry is considered a big hurdle for students majoring in science.

One of the recurring issues discussed at the meeting was the problem of tracking of students after they leave the bridges program, either upon graduation or because they enter a university that does not participate in the program. According to Eckstrand, when Congress considers future funding for the program, it wants to know whether students are graduating and whether the program's goal of increasing the number of underrepresented minority scientists is being met. Right now, the program has a web-based database that allows program directors at individual institutions to enter information about students, and NIH therefore depends on faculty members and their institutions to follow up with the students.

Another problem addressed at the meeting is articulation, which is the process of establishing equivalencies between courses and programs at different schools. Several states are dealing with this problem by assigning uniform course numbering throughout two-year and four-year schools.

Eckstrand tells C&EN she considers the meeting to have been a success because its "major purpose was to get people to share information about their programs--what works, what doesn't work--and I think we did that better than ever before." But she thinks the program can do better, putting more emphasis on convincing data, the evaluation process, and increasing the sense that "we are all in it together--from community colleges through doctoral programs."

[\[Previous Story\]](#)[\[Table of Contents\]](#)