tive, the difference between the treated and untreated groups should be detectable.

The most obvious advantage of a scaled-back trial is that it would cut costs in half. And Sten Vermund, head of NIAID's AIDS vaccine trials and epidemiology branch, argues that doing a trial now would offer other benefits. For example, he says, the trials may reveal that a particular vaccine is effective against a subset of HIV strains. "What if a vaccine is 100% effective against 30% of the viruses?" he asks. "That would be extremely important." The trials might also reveal some clinically important facts, such as which immune responses correlate with protection. Finally, says Vermund, not conducting the trials carries risk, too. "What if they provide some efficacy and we never find out?"

The other side of the argument, NIAID's Fauci explained at the meeting last week, is that there is a danger—besides wasting money—to staging any large trials. It would be "catastrophic," he said, if people who enroll in HIV vaccine trials assume they are protected and engage in more high-risk behavior. And there also is a remote chance that an HIV vaccine will make the immune system *more* vulnerable to becoming infected; such "enhancement" has been seen with vaccines designed to prevent dengue.

Fauci, who will make the final decision about whether now is the time to stage efficacy trials of these vaccines, says he's not "totally convinced" by the arguments for pushing ahead, especially since he thinks there is "little chance" the preparations will be more than 30% effective. And he's particularly uneasy about the inherent illogic in receiving bad news about vaccines and then staging trials that can only detect high levels of success. "That's why I'm having considerable trouble with that concept," he says.

Fauci is not alone. Some leading investigators view the move toward large-scale trials of drugs and vaccines that are expected to have only limited effectiveness as evidence that research priorities are misplaced. As Harvard virologist Bernard Fields wrote in a "back-to-basics" manifesto in the 12 May *Nature*, "The focus on drugs and vaccines made sense a decade ago, but it is time to acknowledge that our best hunches have not paid off and are not likely to do so." In an interview with *Science*, Fields said he would not back a large, expensive efficacy trial now with these products. "I think the likely outcome is it's very unlikely to be positive."

Even if the AIDS Research Advisory Committee recommends going ahead, Fauci says he may not follow its advice. The Food and Drug Administration also must give the trials a green light, as it oversees all clinical trials. Asked which way he is leaning, Fauci replied: "To be honest with you, I don't know."

–Jon Cohen

CAREER ENDINGS...

Early Retirement Program Cuts Deep Into UC Faculties

For many U.S. universities, last year's court-ordered end of mandatory retirement for professors brought a new worry: that their aging faculty members would refuse to move over and make room for the next generation. But the nine campuses of the University of California are facing just the opposite problem, at least in the short term. In July, a record 941 UC faculty members will retire, many of them before reaching the age of 60. This unusual behavior is the result of a generous "golden handshake" that UC offered its faculty in a desperate effort to trim the payroll to offset cuts of $341 million in state funding over the past 3 years.

ILLUSTRATION: TERRY E. SMITH

Tempting. With VERIP-3, a professor retiring at age 57 with 27 years of service gets 77% of his or her salary.

This year's voluntary early retirement incentive program, known as VERIP-3, is the third such program in as many years. And it is cutting deep into the heartwood of the UC faculty. More than one third of UC's eligible faculty—those over 50 with 5 or more years of service—took the deal. And that includes many senior professors valued for their teaching and leadership. "People in their mid-50s are generally in the peak of their academic careers," says Marjorie Caserio, vice chancellor for academic affairs at UC San Diego. "To lose those people is to lose the core of the faculty."

That's the bad news; the good news is that most of the retirees will—in the tradition of professors emeritus—continue to serve the university in some way rather than heading for the sunbelt or the trout stream. And many of the youngest ones will carry on as if nothing had changed; the only differences will be that they will give up tenure and their salaries will be paid by UC's overflowing retirement fund rather than its operating budget. "I will teach, I will run my lab, I will do everything exactly the same way I did before," says Berkeley engineering professor Edwin Lewis, 60. "My reasons for taking VERIP were purely financial."

Indeed, many professors like Lewis simply found VERIP-3 too good to refuse. The annual pay of a retired UC professor is determined by a formula based on the professor's age at retirement and number of years with the UC system. The first two VERIPs altered that formula in a way that was attractive to faculty over 60 and netted 1045 faculty retirements. But further budget cuts forced UC to cook up VERIP-3, the sweetest deal yet. It contains an age credit making it tempting to faculty as young as 57, and allows some faculty in their mid-60s to earn nearly 100% of their pre-retirement salary. Those who receive part-time salary from research grants may earn more than before they retired.

But while individual professors benefit, some departments are hard hit. "The VERIPs, while they provide an easy system-wide [budget] fix, programmatically can be devastatingly capricious," says Dave Shelby, assistant dean of biological sciences at UC Davis. Three rounds of VERIP "essentially halved" the plant biology section at Davis, he says. "The program in which we have some of our most internationally known strength, just by virtue of the age distribution, was most dramatically affected."

Berkeley chancellor Chang-Lin Tien was so concerned that his campus, with a slightly older faculty than the others, would be decimated by VERIP-3 that he insisted on a reduced age credit for Berkeley faculty, making the deal less tempting to those younger than 58. Tien says that move retained 20 to 30 professors who might have retired.

But the campus still had some key losses, such as Nobel-laureate chemist Yuan T. Lee, who left to head the Taiwan Academy of Sciences. Lee's departure represents the worst fear of many campus administrators: that top faculty would be enticed to "cash in on retirement and leave and go to some other institution," says UCSD's Caserio. Each campus has a story or two of the professors

who got away. UCLA laser chemist Mostafa El-Sayed was showered with offers from other universities once VERIP-3 was announced. "It gave the incentive for other schools to approach people from UC," says El-Sayed, who is retiring with 80% of his pre-retirement pay and accepting an endowed chair at Georgia Tech.

But those dreaded cases have proven to be the rather rare exception, and most faculty taking VERIP are sticking around. Many will be "called back" to teach courses, for a fee of $5000 to $8000 per course. But these voluntary callbacks often aren't enough to meet departments' needs. "We are scrambling to cover teaching," says Nick Spitzer, co-chair of biology at UCSD. Seven of the department's 60 members took VERIP-3, and only one or two are interested in being called back to teach, leaving the department to seek temporary instructors.

Some departments are using research space as a lever to get the teaching they need. In the chemistry department at Berkeley, for example, the policy is "that there [must] be a linkage between the benefits that the individual derives from the department and what they give back to it," says chairman Ken Raymond. And that means that if retirees want to keep their research space and access to graduate students, they must do some classroom teaching as well.

Eventually retirees and temporary instructors will be replaced by junior faculty who will cost the university less. Although the net result of VERIP will be a 10% downsizing of the UC faculty, many of the positions vacated are already being returned to some departments, where they are creating a minor renaissance. This year the Berkeley physics department, which lost 25 faculty in three rounds of VERIP, will have six new positions; biology at UC Santa Cruz, which lost a third of its 36 faculty to the VERIPs, just completed six new hires in one year.

But young faculty can't truly replace those with decades of institutional wisdom —the generation that normally takes positions of leadership. "The 55- to 65-year-old set is now a very small set," says UCLA dean of physical science Roberto Peccei. And that, he says, shifts the burden of responsibility to younger faculty. While many of retirees will continue to relieve some of that burden, they have irrevocably relinquished their tenured faculty positions. And therein lies a long-term reward of VERIP—when research space becomes tight, the retirees can be asked to go. And that means UC has postponed the crisis that other universities will face over the abolition of mandatory retirement. "That issue will not be faced by the University of California for another 10 years," says Peccei. "There are not that many people who are that old any more."

–Marcia Barinaga

...AND BEGINNINGS

NSF to Emphasize Teaching In Early Career Awards

For more than a decade, young faculty members seeking funding early in their careers have been offered a smorgasbord of programs at the National Science Foundation (NSF). Take Michael Spencer, professor of electrical engineering at Howard University in Washington, D.C. In 1981, Spencer won a 2-year, $40,000 Minority Research Initiation award, which NSF created to help minority scientists take their first steps as independent researchers. Four years later, he received a prestigious 5-year Presidential Young Investigator (PYI) award, a program originally aimed at helping engineering departments attract young faculty who might otherwise accept better-paying jobs with industry. Those awards bolstered Spencer's work in semiconductors, and in 1987 he became director of Howard's Materials Science Research Center of Excellence, which gets $1 million a year in core funding from NSF.

The programs that have nourished Spencer and thousands of other young faculty members over the years—including research initiation awards in engineering and computer sciences and Presidential Faculty Fellow awards—are part of a continuing effort by the agency to launch young investigators on research careers. Now, however, NSF wants to use the awards to encourage another pursuit as well: teaching. It is planning to fold most of its early-career award programs into a single effort, called CAREER awards (the name is not an acronym), which will go to young investigators who show promise both as researchers and teachers.

The new, balanced emphasis on teaching and research mirrors the policies of the Clinton Administration and sentiment in Congress about the role of universities. Senator Barbara Mikulski (D–MD), chair of a Senate subcommittee that oversees NSF's budget, has warned foundation officials not to keep funding academic scientists whose only goal is "to make clones of themselves." Mary Good, who heads the Commerce Department's Technology Administration, admonished university administrators last fall about growing public unhappiness with the quality of education on campus.

To encourage young scientists to concentrate on teaching as well as lab work, NSF officials are making several significant changes in the rules. Applicants for the CAREER awards must describe both research and educational plans; officials from their

FACULTY START-UP PROGRAMS

Program	Purpose	Features	Size
TO BE PHASED OUT			
NSF Young Investigators (Formerly Presidential Young Investigators)	Extended research support for elite young investigators	$25,000/yr for 5 years plus up to $75,000/yr if matched by industry; 5–7 years post-Ph.D.	$45 million in 1994; 150–200 grants/yr
Research Initiation Awards	Research support for young engineers and computer scientists	$30,000/yr for 3 years; chosen from pool of standard grant proposals. First federal grant	$18 million in 1994
Minority Research Initiation Awards	Research support for minority faculty in all fields	$30,000/yr for 3 years; chosen from pool of standard grant proposals. First federal grant	$4.5 million in 1994
TO CONTINUE			
Presidential Faculty Fellows	Special recognition to small group of young investigators	$100,000/yr for 5 years; universities can nominate up to two candidates each	$9 million in 1994; 25–30 grants/yr
STARTS THIS SUMMER			
CAREER (Faculty Early Career Development)	Support for promising young researchers and teachers	Same size and length as standard grant; for tenure-track faculty within 4 years of first academic job	N/A