mate has been an important influence."

But Epstein says that Gubler's critique overlooks some worrisome signs. When Epstein and others feed data on the global warming that has taken place so far into their computer models of disease spread, he says, they find that the results match trends that are already apparent, such as the spread of mosquito vectors at higher latitudes. Gubler and others are "mixing up the present with the future," McMichael adds. "What we're saying is if climatic changes do occur, given what we think we know about the influences of changing temperature and humidity on the distribution and biological behavior of mosquitoes, vectors, and infectious organisms, it's a perfectly reasonable prediction that there will be change in the potential transmissibility of these things."

The NRC panel will not be the only body trying to make sense of these disputes. Nancy Maynard, deputy director of science for NASA's Mission to Planet Earth program, says NASA has just started a subcommittee on global change and human health, hoping to "provide the strongest scientific basis for these relationships. We want to know the science underlying this." PAHO, says Zimmerman, is also hoping to "establish a scientific agenda to define what studies are necessary to show the impact of changing climate and weather patterns on tropical diseases."

Still, Gubler worries that all the attention to global warming as a public health problem will distract the public from other priorities. "We should definitely do what we can" to reverse global warming, he says, "but we should also be thinking about directing resources toward public health measures to prevent the spread of disease—immunization, mosquito control, improved water systems, waste management systems. The most cost-effective way to mitigate the effect of climate change on infectious disease is to rebuild our public health infrastructure and implement better disease-prevention strategies."

Virologist Barry Beaty of Colorado State University in Fort Collins agrees: "You don't have to be a rocket scientist to say we've got a problem," he says. "But global warming is not the current problem. It is a collapse in public health measures, an increase in drug resistance in parasites, and an increase in pesticide resistance in vector populations. Mosquitoes and parasites are efficiently exploiting these problems."

–Gary Taubes

YOUNG INVESTIGATORS

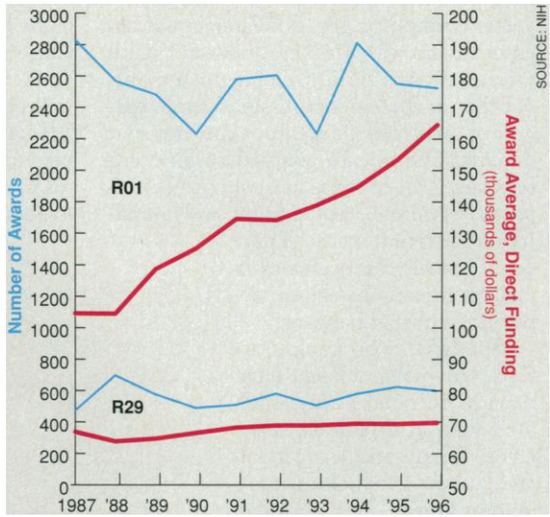
NIH Plans One Grant for All Sizes

You've finished your postdoc, and now you are ready to apply for your own grant from the National Institutes of Health (NIH). But first, you have a decision to make: Do you want an R29 grant, a type custom-designed for new applicants, or a standard R01, which puts you in a competitive pool that includes Nobel Prize winners? It may sound like a no-brainer, but many young investigators are finding that the easier option can be a frustrating trap.

Take cell biologist Kenneth Dunn of Indiana University in Indianapolis. He applied for an R29 because an adviser told him it was the surest route to success. But now that he's won the grant, Dunn is beginning to wonder. The R29's top payout of $70,000 a year means that, after salaries, Dunn will have at best $10,000 a year for supplies. "And I'm lucky," he says, because reagents in his field are cheap.

Next week, NIH's leaders are considering ending the agonizing R29-R01 dilemma simply by abolishing the R29 grant. The R29 was created 10 years ago as a low-budget alternative to the standard R01. It was designed to give new researchers easier access to the funding system, but NIH thinks the experiment has been a failure. The $70,000 per year it provides in direct costs over 5 years, NIH staffers say, is saddling good ideas with impossible budgets.

Under the NIH's new proposal, everyone would compete for R01s, which have a $500,000 limit per year and pay on average more than $160,000 a year (see graph). New applicants would still get special status, however: They would be identified as newcomers on the cover of their application, and peer reviewers would be asked to give them a break. And, to ensure that the number of new entrants into the funding system at least remains steady, NIH may add more than $300 million to the budget for grants.



Widening gap. While the average annual value of an R01 has increased steadily, R29s have fallen behind.

The additional money will be needed, says Marvin Cassman, director of the National Institute of General Medical Sciences, because institutes would have to fund new grantees at the rate that veterans drop out—8% to 9% a year. Over a 5-year period, in effect, all the R29s would be converted to more expensive R01s. Using 1995 data, Cassman estimates that the added cost would be $55 million the first year, rising to $370 million in the fifth year.

This plan was proposed last summer by a working group chaired by Cassman and Elvera Ehrenfeld, director of NIH's Center for Scientific Review, formerly the Division of Research Grants. It has been treated gingerly by NIH's top brass, however. The working group presented its report to NIH institute directors in July, and according to Ehrenfeld and Cassman, it was received favorably. But NIH made no decision.

The proposal is "very sensitive," explains working group member John Krystal, a Yale psychiatrist who strongly supports it, as does the other outsider on the panel, cell biologist Trina Schroer of Johns Hopkins University. But the NIH staff is wary that the plan will "increase everyone's anxiety," says Krystal. As Dunn observes, "this may look awful at first blush" to postdocs who are leery of competing with senior investigators. And senior scientists who don't understand why winning an R29 is a kind of curse may also be confused. Dunn recalls, for example, that one senior colleague was dismissive of younger researchers' concerns about funding, noting that he himself had three R01s. As for Dunn, he fears it may sound ungrateful, but he agrees that the R29 is so stingy that ending it "sounds like a good idea."

Cassman is aware that this proposal "is not a trivial change," in part because "it would require a significant increase in funding to new investigators" from all the institutes. The institutes seem to be inching toward making that commitment, however. A peer-review oversight group that advises Wendy Baldwin, NIH deputy director for extramural research, is hearing Cassman present the case for this change on 3 November, and the NIH institute chiefs will review it a second, and perhaps final, time at a meeting on 13 November.

"This isn't a done deal," says Baldwin. But she adds, "if I were betting, I would bet that it will be approved."

–Eliot Marshall