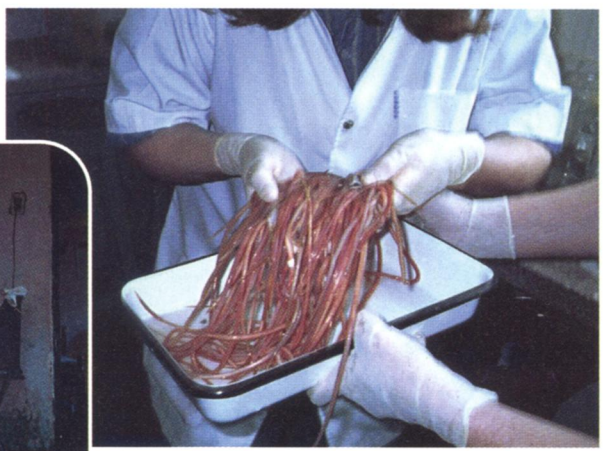
INFECTIOUS DISEASES

Tackling Neglected Diseases Could Offer More Bang for the Buck

STOCKHOLM—Public health efforts in the developing world are missing out on a bargain, say a group of researchers and health policy leaders. At a meeting here* and in a recent paper, they argue that the ramped-up efforts against the Big Three—HIV/AIDS, tuberculosis, and malaria—will yield far bigger dividends if they are coupled with an attack on so-called neglected diseases such as hookworm, schistosomiasis, and leishmaniasis. These infections make their victims more susceptible to the Big Three, the researchers contend.



Double benefit. Treating the ascariasis worms that had infected this girl (*inset*) may leave her less vulnerable to other diseases.

Up to seven neglected tropical diseases could be tackled for just 40 cents per person per year, they say. "It's the best buy in public health at the moment," says Alan Fenwick, a schistosomiasis researcher at Imperial College London.

Unlike HIV and malaria, lymphatic filariasis and onchocerciasis do not trip off the tongues of world leaders. Nor do such neglected diseases directly kill as many people as the Big Three. Instead, they take their toll more insidiously, through stunted growth, anemia, and blindness, contributing to widespread developmental and learning delays. These infections, both bacterial and parasitic, "are the world's leading cause of growth deficits and the world's leading education problem," says Peter Hotez, a parasitologist at George Washington University in Washington, D.C.

But neglected tropical diseases are vulnerable to a concerted campaign. Effective drugs—inexpensive or donated by drug companies—are available against many of them. And in a paper published 30 January in the *Public Library of Science Medicine*, Hotez, Fenwick, and their colleagues argue that treating the 500 million people afflicted would cost just $200 million a year—compared to $500 million pledged this year for antimalaria efforts.

At the same time, the authors argue, treating these seven diseases—the helminth infections ascariasis, trichuriasis, hookworm, lymphatic filariasis, onchocerciasis, and schistosomiasis, and the bacterial infection trachoma—might benefit the ongoing fight against the Big Three. They point to a growing body of evidence that suggests that populations infected with multiple parasites are more susceptible to other diseases—including the big killers.

The payoffs for malaria control might be especially worthwhile. Intestinal parasites are a leading cause of anemia—exacerbating one of the main complications of severe malaria. Hotez points to a study in Senegal that found that deworming medicines significantly reduced malaria cases.

There is also preliminary evidence that HIV patients infected with multiple parasites ▶

* U.N. Millennium Project: A Malaria and Neglected Tropical Diseases Quick-Impact Initiative, 30–31 January, Stockholm, Sweden.

GLOBAL WARMING

Climate Change Demands Action, Says U.K. Report

CAMBRIDGE, U.K.—As climate change climbs up the political agenda, researchers have pooled much of the most recent research into what many believe is a compelling case for the immediacy of global warming.

This week's report,* based on a meeting convened last year at the request of U.K. Prime Minister Tony Blair, warns of catastrophic consequences if steps are not taken now. It says a range of measures, from emissions trading to nuclear power, are needed to both minimize future impacts and cope with those that cannot be avoided. "It is clear from the work presented that the risks of climate change may well be greater than we thought," says Blair in a foreword to the report. "The U.K. government is taking this issue very seriously," says glaciologist David Vaughan of the British Antarctic Survey, "and it's nice to see the government consulting scientific opinion."

During 2005, Blair was both chair of the G8 leaders of industrial powers and president of the European Union and pledged to use his twin roles to combat global poverty and climate change. To advance the climate initiative, 200 researchers from across the globe met at the Hadley Centre for Climate Prediction and Research in Exeter last February. The meeting came 4 years after the last assessment report from the Intergovernmental Panel on Climate Change (IPCC)—the benchmark for global warming—and the scientists chewed over new results. "It was a good time to take stock," says steering committee chair Dennis Tirpak, head of the climate change unit at the Organisation for Economic Co-operation and Development in Paris.

According to the meeting report, "compared to the [IPCC's 2001 assessment], there is greater clarity and reduced uncertainty about the impacts of climate change." The report contains models showing how the acidity of the oceans will increase as a result of more carbon dioxide in the atmosphere. It also forecasts a 1000-year rise in sea levels as a result of thermal expansion of the oceans and melting of the Greenland and Antarctic ice sheets, even if greenhouse gas emissions are stabilized. "Once peripheral melting is under way around Greenland," Vaughan says, "the ice sheet may enter a state where it can't sustain itself."

Tirpak says politicians need to realize that time is running out and that the next generation may live on a planet that has no icecaps in the summer months. "It will be a profoundly different world, and we cannot imagine what that will mean," he says. "Do you want to risk the consequences?" **–DANIEL CLERY**

* *Avoiding Dangerous Climate Change*, www.defra.gov.uk/environment/climatechange/internat/dangerous-cc.htm

CREDITS: PETER HOTEZ/GEORGE WASHINGTON UNIVERSITY

have higher viral loads and lower immune cell counts than their counterparts who are worm-free. And several studies have shown that worm infections can lessen the effectiveness of vaccines against other diseases. "Unless we do something about polyparasitism, we are not going to have a big impact on the Big Three," Hotez says.

On a practical level, the infrastructure for distributing deworming drugs could also be used to deliver antimalarial bed nets. The researchers hope to put their ideas into practice soon. At this week's meeting, researchers and public health leaders from eight African countries met to devise a "quick impact initiative" that would create national programs to tackle malaria and the neglected diseases together.

Getting drugs where they are most needed is the greatest challenge, says William Lin of Johnson & Johnson. Lin is in charge of his company's effort to donate 50 million doses of mebendazole, used to treat hookworm and other helminths. "I've asked them to ramp up production," he says. "I don't want to be left at the end of the year with stores in the warehouse—and egg on my face." **–GRETCHEN VOGEL**

BIOMEDICAL RESEARCH POLICY

NIH Lends a Hand to Postdocs Seeking to Become Independent Researchers

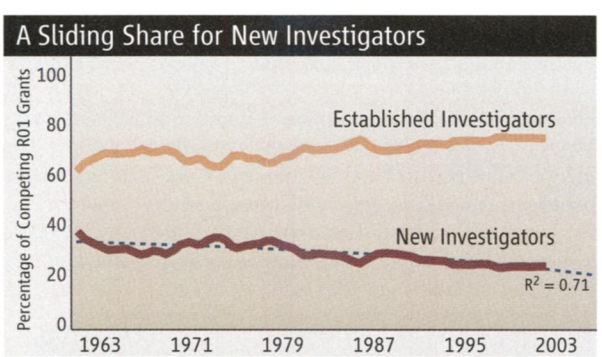
Concerned about the graying of the investigators it funds, the National Institutes of Health (NIH) last week unveiled a new "bridge" grant to help postdocs become independent researchers. Individuals could receive nearly $1 million over 5 years to cover research and training expenses. The first awards will be made next fall.

Even in tight budget times, "nothing is more important than supporting the new investigators early," said NIH Director Elias Zerhouni of the $390 million program. The funding will come from taking a "sliver" of each institute's overall budget, Zerhouni says. The chair of a 2005 National Academies panel that recommended the award's creation is delighted with the result. "This is exactly the sort of thing we were hoping for," says Thomas Cech, president of the Howard Hughes Medical Institute in Chevy Chase, Maryland.

The average age of a Ph.D. investigator winning his or her first research grant, called an R01, has risen from 37 to 42 in the past 25 years. Nearly a decade ago, NIH abandoned a smaller research award for young investigators because it didn't seem to help scientists get R01s. Now NIH is trying again.

The Pathway to Independence award combines traditional training and research grants (*Science*, 9 December 2005, p. 1601). The first 1 or 2 years cover the completion of a postdoc, at $90,000 per year (including 8% for overhead costs). Grantees who win a position as a tenure-track assistant professor can then apply for up to $250,000 a year for 3 more years for research. NIH says non–tenure track research faculty members are also eligible. The hope is that these investigators will then be in a good position to win R01s.

The research portion of the grant will cover full overhead costs, which can be as high as 50%. That feature should give universities a strong incentive to create positions for these investigators, Zerhouni says. "This is going to make it a lot easier for postdocs to get a faculty position because they're bringing so much money with them," adds Alyson Reed, executive director of the National Postdoctoral Association, which had also recommended the award's creation.



Bucking a trend. NIH hopes new grants will boost the share of competing research grants now going to new investigators.

SOURCE: NIH

NIH hopes to award 150 to 200 fellowships a year in the next 6 years to postdocs sponsored by their institutions. "That's enough to really make a difference," says Cech. Indeed, NIH hopes that the new award will help boost the share of R01s going to new investigators from 20% to 25% (see graph). Cech says it's also important that non-U.S. citizens are eligible and that the grants can be transferred to other institutions.

NIH is still weighing another recommendation from the academies panel for a new-investigators R01 program with grants based on experience rather than data. NIH's environmental health institute has begun a pilot project to test the idea. **–JOCELYN KAISER**

Chinese HIV Offensive

BEIJING—Although China has fewer people with HIV than previously estimated, the health ministry is about to expand efforts to curb new infections.

Last week, the ministry and two U.N. bodies announced that China in 2005 had approximately 650,000 HIV carriers, including 75,000 AIDS patients. That's 190,000 fewer than in 2004, a decline largely attributed to better data collection. But the number of new infections is increasing, with 70,000 having contracted the virus last year. The ministry now plans to expand condom distribution and methadone and clean needle provision for heroin addicts. One high-risk group that will get extra help is China's 120 million migrant workers who travel from villages to cities, says ministry official Yao Deming. **–GONG YIDONG**

Biotech Knockoffs Hit Europe

LONDON—A synthetic human growth hormone called Omnitrope—a generic version of an out-of-patent drug by New York–based Pfizer called Genotropin—may soon be available in European pharmacies. It's expected to be the first so-called biosimilar drug to be marketed here or in North America and could lead to a flood of less costly biotech products. Pfizer had argued that regulators should be wary of approving any such biosimilar drugs because quality and safety depend on unique properties and exquisite control of batch processing. But a scientific panel of the European Medicines Agency gave the green light last week, and the European Commission will likely follow in 90 days.

The European vote raises the stakes at the U.S. Food and Drug Administration, which has been sitting on a similar appeal from Sandoz. **–ELIOT MARSHALL**

Clouds of Silence?

The chair of the House Science Committee has criticized NASA for what he sees as its heavy-handed treatment of James Hansen, director of NASA's Goddard Institute for Space Studies in New York City, a longtime voice on the dangers of global warming. "Good science cannot long persist in an atmosphere of intimidation," says Representative Sherwood Boehlert (R–NY) in a letter to NASA Administrator Michael Griffin sent this week after news reports that the agency is trying to muzzle Hansen. "NASA is clearly doing something wrong," wrote Boehlert. NASA officials insist that all agency employees are subject to the same rules, and that Hansen is not being singled out. **–ANDREW LAWLER**