

available to early-career scientists as well as seasoned practitioners (see 'Mechanisms of support'). But if they fail to win such grants, physician-scientists can be required to fall back on their medical training to see more patients, thereby diminishing their time in the lab. Down-on-their-luck physician-scientists can thus become progressively less competitive in research.

TOUGH TRANSITION

Supporting both research and clinical priorities is not easy, as Melina Kibbe, a vascular surgeon at Northwestern University in Chicago, Illinois, found out. Kibbe started her career using a K08 grant from the National Heart, Lung, and Blood Institute (NHLBI) in Bethesda, Maryland. She spends two days a week working in the operating theatre; for the remaining three days she runs a lab focused on the interaction of vascular implants with the body, and the development of therapeutic materials. Her grant required that she spend at least 75% of her time on research, yet provided only \$75,000 in salary support — not nearly enough to cover three-quarters of a year of surgeon's pay at a university hospital, which often far exceeds \$100,000. "Who is going to come up with the rest of the salary?" she asks. Kibbe was lucky; she managed to win a matching grant from the Society for Vascular Surgery in Chicago to cover the cost inequities between the NHLBI grant cap and her salary. "The matching grants make all the difference in the world," she says. Grant salaries vary across NIH institutes. Although NHLBI caps its grantees' pay at \$75,000, others allow salaries up to the current legislative cap of \$199,700. A spokesperson for the NIH office of extramural research says that the physician's institution is expected to supplement the awardee's salary as an "important indication of its commitment to the development of the physician-scientist's career".

It takes real commitment and great mentoring and support to resist the pressures to spend too much time in the clinic, says Nancy Andrews, dean of the Duke University School of Medicine in Durham, North Carolina, and former head of the MD-PhD programme at Harvard University and the Massachusetts Institute of Technology in Cambridge.

Women, especially, seem vulnerable during early-career transitions, says Schafer. Although they represent a growing fraction of the MD-PhD pool, they are less likely than men to remain physician-scientists, possibly owing to a lack of role models, or to a perception that such a career is incompatible with having children. "Unless major changes occur in academe to make research careers more attractive to women physicians, the overall pool of competitive physician-scientist prospects will continue to decline in the job market," he says.

Physician-scientists have historically been

in high demand, and that demand should continue, says Schafer. A 2007 AAMC survey² suggests that there are plenty of open positions for physician clinical investigators, with a little more than half of all departments surveyed unable to fill all their positions, and a quarter of positions overall going unfilled. According to Lawrence Brass, director of the Medical Scientist Training Program at the University of Pennsylvania, only about 550 students enter MD-PhD programmes in the United States each year. "That's not enough to sustain the number of physician-scientists working now, let alone expand it," he says. Although this is bad news for medical schools and research universities, it could be good for soon-to-be physician-scientists, who will find themselves very employable once they graduate.

Yet economic realities are adding new



"The matching grants make all the difference in the world."

Melina Kibbe

research and not clinical work," says Steven Gabbe, chief executive of the Ohio State University Medical Center in Columbus, and former chair of the AAMC's Clinical Research Task Force II, which authored a report on promoting translational and clinical science³.

Still, says Gabbe, there will "always be a place for the creative, well-trained physician-scientist to find a faculty position". And for those who secure such positions, the rewards can be substantial. "As a physician-scientist, you really get to craft your career, if you are thoughtful about it," says Brass. "I get to discover new things, take care of patients with problems that interest me, and work with students who are eager and bright. That sounds like a great job description, doesn't it?" ■

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1. Association of American Medical Colleges 2010 GQ Medical School Graduation Questionnaire, All Schools Summary Report FINAL (AAMC, 2010). Available at go.nature.com/tyer27
2. Fang, D. et al. Recruitment of New Physician Investigators in Clinical Research (AAMC, 2007).
3. Task Force II on Clinical Research Promoting Translational and Clinical Science (AAMC, 2006).

UNITED STATES

International funding

A graduate fellowship will fund 48 international doctoral students in the United States and is seeking another 50 awardees in early September. Recognizing that graduate students from abroad often have trouble securing funding, the Howard Hughes Medical Institute (HHMI) in Chevy Chase, Maryland, established the programme, an annual US\$2-million commitment, this year. The fellowship provides \$43,000 a year for science and engineering PhD students in their third, fourth and fifth years of graduate school. Candidates, who must demonstrate creativity and innovation, are nominated by their institution. "We're looking for superstars," says Maryrose Franko, HHMI senior programme officer for graduate science education. "We expect these people will become scientific leaders."

ITALIAN ACADEMIA

What's in a name?

Nepotism is a widespread problem in Italian academic institutions, according to a statistical analysis of professors' last names. The study — which examined a database of more than 61,000 tenured professors from 94 institutions across 370 subdisciplines — found that the diversity of last names was lower than would be expected from unbiased hirings (S. Allesina *PLoS ONE* 6, e21160; 2011). Study author Stefano Allesina, an Italian ecologist at the University of Chicago in Illinois, says the index probably underestimates the incidence of nepotism because it identifies the problem only in father-child and sibling relationships. Allesina says he accounted for unrelated people with the same last names.

EDUCATION

Upward physics trend

Physics PhDs conferred by US institutions rose 38% between 2004 and 2008, the sharpest upswing in more than a decade, according to the latest survey data released by the American Institute of Physics in College Park, Maryland. Patrick Mulvey, lead research associate for the institute's statistical research centre, says the increase corresponds to a rise in enrolments in the early 2000s that was driven by an uncertain international economy and by improvements in the undergraduate culture of physics departments. Preliminary PhD totals for 2009 and 2010 show a similar trend, Mulvey says.