CHAPTER 11

Populating Population Health
The Health & Society Scholars and the Young Epidemiology Scholars Programs

Tony Proscio

Editors’ Introduction

The very first grants made by the newly minted Robert Wood Johnson Foundation were for scholarships to enable needy students—minorities, women, and people from rural areas—to attend medical school. These marked the first in a long line of scholarship and fellowship programs to improve the qualifications, credibility, and diversity of those working in the health and health care fields. In fact, although the Foundation takes pride in its strategic planning, clearly stated tactical goals, and quantitatively measurable outcomes, a substantial percentage of its expenditures—some $765 million, or approximately 9 percent, over the past forty years—has gone to fellowships and scholarships whose value, though not so easily measurable in the short run, is indisputable.

The Foundation has used its fellowship and scholarship programs to strengthen fields to which it has given priority. A list of the fields and programs is provided in the appendix to this introduction.

In the late 1990s, in conjunction with dividing its programming into health and health care, the Foundation began focusing attention on the emerging
field of population health (that is, the health of large numbers of people, as contrasted with individuals). Following its practice of seeding academic research in areas that it deems important, the Foundation launched two new fellowship programs to strengthen population health research: the Robert Wood Johnson Foundation Health & Society Scholars and the Young Epidemiology Scholars. In this chapter, Tony Proscio, a journalist and consultant to foundations and nonprofit organizations, examines these programs—their derivation, their activities, their recipients, and their significance.
Appendix: The Robert Wood Johnson Foundation’s Fellowship and Scholarship Programs

Government, Academic, and Nonprofit Health Policy Leadership

- Robert Wood Johnson Foundation Clinical Scholars Program (1972–present) ²
- Robert Wood Johnson Foundation Health Policy Fellows (1973–present) ³

Health Services and Policy Research

- Faculty Fellowships in Health Care Finance (1984–1994)
- Scholars in Health Policy Research Program (1991–present)
- Investigator Awards in Health Policy Research (1991–present)
- Robert Wood Johnson Foundation Center for Health Policy at the University of New Mexico (2007–present)
- Robert Wood Johnson Foundation Center for Health Policy at Meharry Medical College (2009–present)

Nursing

- Nurse Faculty Fellowship Program (1975–1982)
- Robert Wood Johnson Foundation Nursing and Health Policy Collaborative at the University of New Mexico (2007–present)
- Robert Wood Johnson Foundation Nurse Faculty Scholars (2012–present)

Diversity

- Harold Amos Medical Faculty Development Program (1983–present) ⁶
- Summer Medical and Dental Education Program (1987–present) ⁷
Primary Care Physicians

- Primary Care Residency Program (1973–1981)
- Family Practice Faculty Fellowships Program (1976–1988)
- General Pediatric Academic Development Program (1976–1988)
- Generalist Physician Faculty Scholars (1992–1999)

Dental Research

- Dental Services Research Scholars Program (1982–1990)

Public Health

- Public Health Pipeline Program (1997–2006)
- Public Health Informatics Fellows Training Program (2004–2011)

Community Health Leadership

- Ladder to Leadership: Developing the Next Generation of Community Health Leaders (2007–2013)

Notes


8. Note 6, op. cit.

By the end of the current decade, public health systems in the United States will face a shortage of more than a quarter-million skilled employees, according to a 2008 study by the Association of Schools of Public Health. Yet even this estimate, focusing mainly on professionals with health care or public health credentials, probably understates the real talent gap. Promoting and protecting the health of large populations—reducing injury and preventable illness, instilling healthy behavior, identifying and eliminating hazards, and sharpening public policy that affects people’s health and well-being—is too broad a mission to be limited solely to graduates of medical, nursing, and public health schools.

Increasingly, the challenges of public health—more broadly understood in recent years as population health—call for an interdisciplinary network of natural and social scientists, humanities scholars, health professionals, specialists in management and finance, and policy experts, as well as people from the fields more traditionally found in a typical government public health agency. But not only are there too few representatives from most of these fields currently working on health-related issues, the goal of forming a true network among them is still largely a dream. A genuinely interdisciplinary field of population health would encompass multiple centers of cross-disciplinary research and innovation, along with a frontline workforce that routinely combines people of widely differing skills and backgrounds; and it would feature a web of steady, open channels of communication among the many areas of expertise. Some outstanding public health organizations, working groups, and projects have been known to exhibit some of these qualities, but those remain relatively small and noteworthy exceptions in a world still dominated by firmly bounded scholarly disciplines and hermetically separate professions.

One critical part of the problem is that many people with relevant interests and talent—budding sociologists, economists,
anthropologists, public policy experts, business managers and financiers, urban planners, and an array of natural scientists, among others—do not think of themselves as candidates for a career in population health. Many may not even know such a field exists, and others may simply be unable to imagine how their skills would fit into the mosaic of different disciplines and backgrounds that such a field would need. And in truth, there are plenty of influences to discourage them.

Especially en route to an academic career, degree candidates and postdoctoral scholars are often actively dissuaded from pursuing research outside the confines of their own disciplines. It is within those disciplines, after all, that the rules of entry and promotion tend to be written—rules that govern advanced degree programs, fellowships and residencies, scholarly publications, and ultimately the competition for tenure. Gatekeepers of established disciplines may look askance on work that ventures into what, by orthodox standards, amounts to alien territory. “Particularly in more prestigious universities, with more of a research agenda,” says David Kindig, professor emeritus at the University of Wisconsin School of Medicine and Public Health, “departments tend to see the world through their own lens, and it tends to be within their traditional disciplinary boundaries.”

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Investing in a Diversity of Talent

Drawing more disciplines and a greater variety of expertise into health scholarship has been an interest of the Robert Wood Johnson Foundation for most of its history. The earliest and best known of the Foundation’s efforts to develop the “human capital” of individual talent and leadership has been its flagship Robert Wood Johnson Foundation Clinical Scholars program, which annually provides two years of study for roughly two dozen young clinicians to broaden their knowledge of such fields as health services, epidemiology, economics, law, biostatistics, management, and ethics to enable them to become leaders in
Isaac's c11.tex V2 - 08/30/2012 8:23pm Page 256

the field. Incubated at the Carnegie Corporation of New York and The Commonwealth Fund, the Clinical Scholars program moved to the Robert Wood Johnson Foundation shortly after its founding in 1972, and has flourished there for four decades.

In 1973, its second year of operation, the Foundation created the Health Policy Fellows program, which initially sent health professionals, and later behavioral and social scientists, to Washington every year to work on health policy issues in Congress or the Executive Branch. Then in 1991 the Scholars in Health Policy Research Program was launched, aiming more specifically at academic research on health policy by recent PhDs in economics, political science, and sociology. An even broader effort followed a year later, when the Investigator Awards in Health Policy Research began offering up to three years of support for young researchers or eminent scholars from virtually any discipline.

These programs tended to focus more on health care, both practice and policy, than on the broader and more fundamental question of societal health. But the Foundation’s mission called for efforts to improve both health and health care. Beginning in the late 1990s, the Foundation’s president, Steven Schroeder, began taking steps within the organization to right the balance between the two halves of the mission. In 1999, with the Foundation reorganized into a Health Group and a Health Care Group, he hired J. Michael McGinnis, a physician and influential federal health official who had served under four presidents, as senior vice president and founding director of the newly formed Health Group. It was no coincidence that some of McGinnis’s earlier research and writing had helped to demonstrate that medical care is only one, and perhaps the least powerful, of several types of determinants of health, among them genetic, behavioral, social, and environmental factors.

“We can even make a quantitative estimate of the relative importance of each of these,” McGinnis said. “But what’s important is not so much the individual factors as the interaction among them, the intersections of these various domains.”
His work at the Foundation, therefore, focused on developing initiatives that drew on a variety of interlocking fields to promote population health—for example, a group of programs under the umbrella of Active Living, designed to integrate multiple lines of effort—research, community development, leadership training, and networking—to encourage physical activity and develop a field around it. And he sought ways of cultivating leaders from multiple disciplines and forming cross-pollinating relationships among them. Eventually these would form, in his words, “the infrastructure of a fully functioning field.”

To help populate that field—not only to enrich it with outstanding individuals but also to galvanize institutions and networks—McGinnis proposed two new individual-awards programs, fundamentally different in scope and design from any the Foundation had attempted before.

The first of these new programs, known as Health & Society Scholars, had some strategic roots in the earlier Investigator Awards model: not limited to particular disciplines, it was intended to recruit rising stars from many fields. But this time, the purpose went beyond advancing individual careers or specific lines of inquiry; now the goal was also, and more particularly, to expand interdisciplinary research into ways of fostering a healthier society—to “increase the nation’s effectiveness in addressing the multiple underlying determinants of health and disease,” in the words of an early strategy memo. Success would therefore be measured not only by the amount of important work being done by outstanding people; it would also be measured by how much the principle of cross-disciplinary collaboration had penetrated the institutions where those people studied and worked, and ultimately how much it had penetrated American health scholarship as a whole.

The second new human capital effort bore virtually no resemblance to any previous Robert Wood Johnson initiative. The Young Epidemiology Scholars, or YES, program offered college scholarships of varying amounts to high school students who
excelled in a national research competition. By investigating some issue in population health—the definition of eligible topics was intentionally broad—students could win anywhere from $1,000 to $50,000 toward their college tuition. Sixty regional finalists each year also got a trip to Washington, D.C., where they spent time with one another, met influential figures in epidemiology and public health, and presented their projects before elite panels of judges.

The two programs have contributed in different ways to what Pamela Russo, the senior program officer who oversees the programs at the Foundation, describes as “the Health Group’s unifying theme: the social and environmental determinants of health, and the multiple sectors that have to be involved to formulate effective health policies.” Both programs seek to inspire outstanding people, at different but relatively early points on the career ladder, to think broadly about health—and, armed with the tools of many different intellectual fields, to approach the health of whole populations from multiple points of view.

The Health & Society Scholars

The first of the two programs began with a planning phase in 2001 to select six participating universities and to settle on the basic structure, requirements, and curricula. In 2002, the first eighteen fellowships were awarded with $31 million from the Foundation for the first five years of operation (due to the drop in the Foundation’s endowment in 2007–2008, the number of scholarships was reduced to twelve per year beginning in 2011). Between 2002 and 2013, the Foundation allotted more than $92 million. Most of that amount pays for stipends for participating scholars and support to the six universities, with the remainder paying for management by a national program office.

Each year, the Health & Society Scholars are selected to spend two years at one of the participating universities. Most of the scholars are postdoctoral students, though a few are in early stages of
academic careers. During their scholarship years, they take courses, participate in interdisciplinary seminars, and pursue research with the guidance or collaboration of resident faculty. They also work closely with peers from other departments, either in self-organized collaborations or through formal interdisciplinary working groups. They benefit from mentoring by senior faculty members, not only on the substance of their scholarship, but on leadership, career development, competition for research grants, and ways of thriving when they return to regular academic life, which for most will be in traditional disciplines and departments.

“It’s essentially a two-year immersion in interdisciplinary culture,” says the program’s national codirector, Christine Almy Bachrach. “Through much of that time, you’re working alongside people who have been trained in a very different way from you. And that’s a crucial part of the program, because a great deal of the challenge of interdisciplinary work involves human skills: How do you listen to and communicate with someone whose scientific frames of reference have been developed in ways that are foreign to you? How do you get on the same page with that person and speak the same language? How do you combine your methods and approach to research with theirs?”

The six participating institutions are Columbia University, Harvard University, the University of California at San Francisco and at Berkeley (a joint program links the two campuses), and the universities of Michigan, Pennsylvania, and Wisconsin-Madison. They were selected partly for their commitment to cultivating a fertile cross-disciplinary environment and partly for their ability to support that commitment with faculty and programs that can bridge the human, cultural, and intellectual divides among disciplines. Each of the six sites receives $1.1 million a year to administer the program, including the payment of an annual stipend of $80,000, plus some expenses and fringe benefits, to each scholar. The grant also includes $125,000 per site to help the universities strengthen their research in population health and to support the training of faculty and scholars. Program faculty
at the universities use this money to promote work on population health across their campuses and to award small competitive grants to Health & Society Scholars and other students or faculty. These grants help recipients develop promising population-health research that often leads to larger outside funding.

"These were universities that had identified themselves as wanting and needing to expand their interdisciplinary work on the determinants of health and health disparities, all critical to achieving population health," says the program’s other codirector, Jo Ivey Boufford, president of The New York Academy of Medicine. "And at the same time, they also had some strengths to build on. Some had farther to go than others, but all of them had made this basic commitment and had ideas about how to achieve it." At each site, the program typically coalesced around what Boufford describes as "a core set of faculty, the mentors for the scholars, who were the nucleus, in a sense," of the interdisciplinary network interested in issues related to population health. "Then you'd have a next ring of faculty who agreed to be available, come to seminars, give talks—they were more loosely affiliated, but they were involved. And other relationships would begin to extend outward from those."

An essential hypothesis behind the program was that as the circle of affiliation widened, and as people closer to the nucleus became more deeply committed to it, the interdisciplinary climate would improve. The frequency of interaction would begin to create a cohesive enterprise, a hub of cross-disciplinary work that would have identity and purpose beyond the Robert Wood Johnson Foundation initiative. To test this hypothesis and track progress at each campus, the program conducted a social network analysis that mapped the networks of participating departments, centers, and programs at the start and then again eight years later. Connecting lines showed collaborations under way in 2002 and 2010, respectively. "The results," says Boufford, "were pretty spectacular." Sociograms showing one typical university’s progress looked like this:
It seemed, according to Boufford, that the program’s gravitational pull was working exactly as its designers had hoped—at least so far. Not only were more faculty members from more departments drawn to work with one another and with the Health & Society Scholars, but the quality of the scholars themselves, and the diverse perspectives they could bring, were becoming part of the draw. “Faculty members started competing,” she says, “to get these incredible young scholars to come work with them.”

Scholars are selected for each site based on advance interviews in which the finalists and universities assess the “fit” of their possible relationship and begin to envision how each would contribute to the other. The pool of applicant scholars has risen markedly, from approximately 150 in the early years to more than 300 for the 2011 cohort, with roughly 50 chosen as finalists each year. Every applicant must have a doctorate or terminal professional degree in a relevant field, significant research experience, and the ability to articulate a clear connection between their research interests and important issues in population health. Finalists interview at up to three different sites, after which they and the universities rank their interest in one another. The final selection and pairings are designed to ensure a good fit. By the time scholars arrive on campus at the start of the academic year, they are usually well matched to the scholarly community they are joining.

José Pagán, a labor economist and business professor from Texas, was among those selected for the first round of the program, from 2003 through 2005. He was drawn to the University of Pennsylvania, where some faculty members were examining health disparities among different ethnic groups. Pagán chose to spend his scholarship years researching the health effects of living in a community where large numbers of people lack health insurance (such as the border town of McAllen, Texas, near his home), and found evidence of harmful effects even on residents who do have insurance. Because of his interactions at the University of Pennsylvania, he says, “I’m a totally different person in the way I think about problems and the way I look at the world.”
At Penn, all scholars participate in a general seminar in health and society and in a biweekly seminar on their work in progress, where they are exposed to one another’s current research and the work of faculty members from several departments and disciplines. They also typically work in multidisciplinary teams on their own research projects, an experience that Pagan describes as “learning to think in a different language . . . You’re forced to think in the languages of many other fields, from biology to chemistry to urban planning to economics. That forces you to examine your research questions much more carefully and from more angles, knowing you have to communicate your ideas with people in other disciplines. You spend a lot of time in those two years distilling your ideas for that purpose.”

But the program’s influence on Pagan’s later career extended beyond his intellectual interests and research. Individual mentoring and exposure to the work of university schools and departments also opened a critical window onto how multidisciplinary projects work—how they can be funded, how successful centers of interdisciplinary research are organized and managed, and how to retain credibility in one’s own discipline while working across intellectual boundaries. After his time at the University of Pennsylvania, he returned to The University of Texas–Pan American and organized a new Institute for Population Health Policy, drawing on the insights and knowledge he had gained at the University of Pennsylvania.

“I wouldn’t have been able to do that,” he says, “without the networking and mentoring and learning in my two years at Penn—plus all the contacts with people at other sites. I spent a lot of time looking around and seeing how people did what they did. Why were the Penn people so successful getting interdisciplinary grants? How did they put together large projects? How do they structure centers with people from different schools? What I experienced there gave me the idea of going back to South Texas and setting up an institute.” A few years later, he won a grant from the Centers for Disease Control and Prevention (CDC) for
yet another population health venture: the South Texas Border Health Disparities Center. Soon thereafter, he moved to the University of North Texas Health Science Center, where he is chair of the Department of Health Management and Policy in the School of Public Health—and where, he suspects, “I’m more attuned to interdisciplinary work than someone else might have been.”

Pagán’s case notwithstanding, the experience of interdisciplinary population health research, and the possibilities it opens up, do not always lead to academic careers. David Van Sickle, a medical anthropologist who was then an officer in the Epidemic Intelligence Service at the CDC, was selected in the fourth class of Health & Society Scholars, from 2006 to 2008, and at the University of Wisconsin–Madison he continued a career-long interest in asthma research. Although that research had begun in academia (his dissertation on asthma and allergy in India had been funded by the National Science Foundation), Van Sickle says, “I always knew I wasn’t going to be an academic anthropologist.”

Yet he was a strong candidate for the Health & Society Scholarship and a more than usually successful researcher, both during and after his stay at Wisconsin. In his work at the CDC, Van Sickle had become frustrated with the slow, fragmentary, and partial data with which epidemiologists normally have to tackle disease outbreaks. “Public health for asthma was focused on just a tiny fraction of data: hospital data and fatalities,” he says. “There’s information out there that could be identifying incidents, telling us key things like among whom and where, in a timely way. But at CDC we were waiting around on data sets that are years old, and then when they arrived, they’d tell us only about one percent of the events. We were never going to get very far that way. We would always be behind.”

For someone with Van Sickle’s career ambitions, the University of Wisconsin–Madison was an excellent fit, given that the program’s leaders there welcomed scholars interested in applying their research. Not only that, but in one of his earliest experiences
on campus, Van Sickle found evidence of a practical need that had already been troubling him. He recalls:

When I got there, I realized that doctors and patients at the School of Medicine were working with the same scarcity of data that I had found so frustrating at the CDC. Even though patients are being taught to manage the disease, and docs were working in the community dealing directly with patients, none of that actual experience was being used to course-correct treatment. Docs were relying on patients to recall accurately how they’d been doing in the last three to four months since they’d last seen them. And that information wasn’t all reliable. Plus, it was too episodic and dated to be very useful in the day-to-day management of the disease. Well, you could solve both problems by capturing the information on where and when asthma was affecting people in real time. You could help get doctors and communities to coordinate and do a better job working together.

Asthma is a disease with many triggers, often invisible or hard to detect. But knowing where and when patients tend to experience attacks can help doctors in guiding their patients’ management of the disease, as well as in helping community health officials detect and defuse previously unknown triggers and hot spots. So in his years at Madison, Van Sickle worked with graduate students in biomedical engineering to develop a device with a global positioning system that easily attaches to most inhalers. It can instantly report to a data-tracking service the exact time and location when a patient uses the inhaler. The service, called Asthmapolis, was prototyped and tested during the scholarship period and is now part of a new start-up company led by Van Sickle and three business partners. The company has been profiled in—among many other places—a recent book titled *The Coolest Startups in America.*

Although Health & Society Scholars was not designed to lead people away from university research, Van Sickle’s career path is still squarely within the overall purpose of the program: to promote expansive, interdisciplinary research, thinking, and
creativity in addressing the health of large populations. Although he is not likely to resume an academic career, Van Sickle and his company are tackling both practical and intellectual obstacles in society’s response to disease. “Public health lags other sectors of the economy and academia in its ability to deal with data streams,” he points out. “It’s not now designed to make sense of a dataflow coming in in real time the way a credit card company would be, or the traffic arm of a municipality.” More to the point, the solutions his research has developed are testaments to the need for multidisciplinary cooperation and teamwork in the field. They would not have been available to any one of the constituent disciplines—public health, anthropology, engineering, or advanced data management—by themselves.

And that, says Van Sickle, is largely attributable to the influence of the Health & Society scholarship. “When you first get into the program, when you spec out what you want to do and who you want to work with—that’s where I first had the idea. I then vetted it with some other members of my cohort and with people at the university. That was the whole gestation of it. I knew that I wasn’t going to be an anthropologist. But I wasn’t at all clear about what I was going to do, and how I could survive while doing it. In a lot of ways, the program gave me the freedom to figure out what the path was going to look like, and to start making it happen.”

The recession of 2007–2008 and the accompanying financial crash forced cutbacks in many Robert Wood Johnson Foundation programs, including Health & Society Scholars. As a result, research and training grants have been reduced along with the number of scholars, and other restraints may be needed as well. Faculty and alumni of the program have reacted to these reductions with a mixture of regret over the cuts and relief that the program will continue at a still-significant scale. As one person familiar with Health & Society Scholars put it, preferring to speak anonymously: “If the goal here were just to help some promising people do good research, it wouldn’t matter much whether you
supported eighteen or ten or five. But the goal is also to change the environment, the way population health research is pursued and organized and supported in the academy. That’s not something you do with a handful of people on a couple of campuses. If you want real systemic change, as in any field, you have to intervene in many places for many, many years. I would hope that’s still the commitment here, and I believe that it is.”

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**The Young Epidemiology Scholars**

By aiming at relatively recent arrivals in the academic marketplace, some of whom had not yet decided on a firm career path or were willing to step off the traditional career escalator for a time, the Health & Society Scholars program sought to broaden recipients’ ideas about the kind of role they could play in population health. In that respect, it hoped to have an earlier or more fundamental effect on recipients’ career plans than was true in many other fellowship programs. Yet the Foundation’s next step in the effort to influence careers and draw gifted people into population health would seek an even more profound influence. It would focus on an even younger generation: high school students hearing the word *epidemiology*, in many cases, for the first time. “I literally didn’t know how to pronounce it,” said 2010 second-place winner Jessica Hart, an aspiring harpist—and now also a public health major—from Sandy, Utah. “I had no idea what it was.”

Young Epidemiology Scholars—YES for short—was inspired by the two best-known science competitions for American teenagers: the Intel Science Talent Search and the Siemens Competition. Both of these programs aim to attract and encourage the brightest young people to pursue careers in science and technology and, by publicizing the competition and the winners, to cultivate interest in these fields among other young people. Substitute “epidemiology” (or “the basic science behind population health”) for “science and technology” in that description, and the result is a fairly accurate summary of YES’s principal goals.
“There just wasn’t a lot of excitement about a career path in public health,” says senior program officer Pamela Russo, recapping the Foundation’s thinking at the time the program was conceived. “Young people, when they showed some ability in math and science, were tending to go into medical school or the science labs, or maybe the social sciences. Public health wasn’t getting the best and the brightest in the numbers that were going to be needed.” The other science prizes seemed to be helping to generate buzz around careers in physics, chemistry, and biology, demonstrating ways that these disciplines could solve real problems and contribute to a fulfilling life. “So it was natural to think that if we’re interested in developing the seed corn of the future leadership for population health,” says the former senior vice president McGinnis, “then we need to have an analogue to the other scientific prize programs in the field of epidemiology.”

The field’s relative lack of cachet seemed integrally linked to the reaction of students like Jessica Hart: most had never heard of epidemiology or population health and had little idea what possibilities and challenges these fields might offer. To the extent that students (or, more likely, their parents) were acquainted with epidemiology or public health, their ideas were probably bound up with the outdated, disease-centric image of technicians tracking contagions or inspectors patrolling restaurant kitchens. The first purpose of Young Epidemiology Scholars was to introduce young people to the ways that the science of population health could be applied to making their communities healthier, safer, and better places to live.

As McGinnis saw it, the shortage of talent in the field could not be solved solely by supporting the smartest graduate students or newly minted PhDs. The challenge was to attract exceptional minds into the field at an early age—before they had already started traveling down some other career path. That would mean recruiting talented young people at a critical moment in their thinking about their place in the world. And it would involve stimulating their thoughts about what they could do in population
health, what kind of difference they could make, and why it would be exciting and important.

YES began in 2003 with those goals, and it continued for eight rounds, through 2011. It was open to any high school junior or senior who wanted to develop a project in epidemiology and submit a written report on it for the national competition. Out of more than 500 competitors each year, 120 semifinalists were selected to receive at least $1,000. From that number, half progressed to the regional finals and were invited, at the program’s expense, to present their projects at a two-day national event in Washington, D.C. There, the students not only gained experience presenting their research to distinguished judges, but they met and spent informal time with their fellow finalists, the judges, and other invited dignitaries. Of the 60 regional finalists, 48 students annually received $2,000 scholarships. The remaining 12 went on to present their projects one last time, before the whole assembly. Of these, 6 became national finalists and received $15,000 scholarships; two third-place winners received $20,000; two in second place won $35,000; and the top two winners each year received $50,000 apiece.

Nearly five thousand students, from every U.S. state and the District of Columbia, Puerto Rico, and American Samoa participated in the eight rounds of YES. The program was managed nationally by the College Board, which is most famous for administering the SAT, but which also manages other national prizes and scholarship programs, including the Siemens Competition. Students who take the SAT or use other College Board services can sign up to receive regular information about available sources of financial aid, and can express interest in pursuing particular subject areas such as science and health. This provided one means of contacting likely participants about the opportunity to compete in YES. But the College Board also recruited students directly, through the mail and through contact with schools and teachers. It circulated posters and sought to spread the word through media
coverage, including by publicizing the national winners and the regional finalists’ gathering in Washington.

Successful student projects have applied the methods of epidemiology to virtually every aspect of population health. For example, Robert Levine of Lincolnshire, Illinois, studied patterns of indoor tanning among teenagers and their awareness of the health risks; he won one of the two top prizes in the 2003–2004 round. That same year, Alanna Hay of Fort Washington, Maryland, won a $15,000 prize for research on smoking and stress among pregnant women in North Carolina. Three years later, Justin Petrillo of Westfield, New Jersey, also won $15,000 for a study of personal and ambient concentrations of a particulate air pollutant, PM2.5, in Camden, New Jersey. In the 2008–2009 competition, third-place winner Joanna Kao of Iowa City, Iowa, won $20,000 with a study of the possible roles of bilirubin and breastfeeding on retinopathy among premature infants.

“The students are all passionate, analytical, and socially conscious,” says Diane Tsukamaki, director of national recognition and scholarship programs at the College Board and national program director of YES. “Their interests cover a wide range. But they haven’t all been in a science program or entered any competition before. For some, it’s their first. So at the national event, seeing those who are deeply involved in science interacting with students interested in other fields really gives you an idea of what an educational experience this is. The students don’t just learn from their projects; they learn from each other. The experience introduces them to a wider world that many of them probably had no idea existed.”

Jessica Hart, the harpist from Utah, won a $35,000 scholarship in 2010 for a study linking environmental toxins to fertility problems and fetal abnormalities among families in Salt Lake County. One of the affected women was Hart’s older sister. It was that personal connection, more than any interest in science or math, that led Hart to her choice of a project—that plus the availability of a large scholarship, which she hoped to use at the
prestigious Eastman School of Music in Rochester, New York. “I was looking to apply to schools out East,” she recalls, “which can get pretty expensive. So when my mother read an e-mail saying there was a $50,000 scholarship available for something called epidemiology, I said, ‘I have no idea what this is, but if you want, I’ll do it. It can’t hurt.’”

Originally inspired by her sister’s experience, Hart surveyed and interviewed scores of families in the contaminated area, as well as in a comparable but uncontaminated community nearby. In the process she learned many skills, including ways of asking strangers about deeply sensitive health issues. But she also learned about the use of advanced statistics for determining patterns of risks and outcomes. “I loved collecting the data and discovering that the data could tell me something,” she says. “I always hated math. It was a subject I just did because I had to; you just do it and get it over with. But this was about people, including someone I really cared about. And the numbers were telling me something important. That was a new experience.”

Two years later, Hart is in the midst of still another new experience, one she never imagined when she entered the YES competition: in addition to majoring in harp at Eastman, she has declared a dual major at the University of Rochester, in public health. As this is written, she is under consideration for a summer internship at the CDC. As for a career choice, “I could see being an orchestral harpist or working with the CDC in environmental epidemiology. I’m still excited to learn about both, and I love what I’m doing in both of them. Luckily, I won’t have to decide for a while.”

Shoshanna a Goldin of Allentown, Pennsylvania, a first-place winner in the same round of competition as Jessica Hart, had no similar aversion to math or science when she entered YES. She had long set her sights on medical school, and, partly by luck, she already knew perfectly well how to pronounce epidemiology. Her sister Aleah had been a regional YES finalist the year before, with research on why students don’t get flu shots and what kinds of
communication may be effective in persuading them. Shoshanna followed her sister’s entry with a project of her own, in which she studied the widespread consumption of high-energy drinks among high school students and their awareness of the risks involved. It won her $50,000 toward her tuition at Wake Forest University.

Although Goldin already had a scientific and clinical turn of mind, her YES project arose not from any prior research, but from a chance personal encounter. “At the time, energy drinks were relatively new,” she remembers. “Red Bull and Monster had started popping up in my school, and I was curious why. Then one morning a friend of mine walked into my first-period class with an energy drink in his hand and two in his backpack. I asked him, ‘Is that for the week, or just today?’ And he said, ‘No! This is just to get me through the morning!’ I just stared at him.”

Her resulting report, “Energy Epidemic: Teen Perceptions and Consumption of Energy Drinks,” drew attention from public health officials and researchers around the country, who had only recently started documenting the effects of energy drinks on college students and adults, but had not yet focused on teens. The project not only contributed valuable new information to the field, it set in motion ripples of other activity, both in academia and public policy.

Yet for all the recognition the project and prize has won her, Goldin says that the most life-altering aspect of her YES experience was not the project itself, but “the national gathering which brings together so many distinguished people, the speakers and judges, who spend real time with us, people we would otherwise probably never have an opportunity to meet. And we learn from each other, not just seeing everyone’s projects, but the relationships that form there. The scholars stay in touch after it’s over, through Skype and texting and Facebook.”

“These were some of the most amazing students in each academic year,” she adds. “They researched a project that meant
something to them and that could mean a lot to the world. That’s the great thing about YES: It draws all kinds of skills and backgrounds; it’s about bringing together all your skills and developing a project that really speaks to who you are and what you have to offer the community and the world.”

According to James Marks, who succeeded McGinnis as Foundation senior vice president and director of the Health Group, the idea of linking one’s own interests and environment with an opportunity to do something important on a large scale is what made the program work. Its appeal to students, he says, was that it taps into their altruism and idealism, as much as whatever interest in science they might have. They may have some familiarity with chemistry or biology, but if they do, it’s probably just in laboratories. And they don’t necessarily want to work on health and well-being only in laboratories. This allows them to learn the methods of scientific inquiry and population health in ways that are immersed in the difficulties of our society, of the communities where they live, and of vulnerable populations. This says to them: You can be a scientist working with people in your community, your parents with asthma, your grandparents with heart disease. You can ask, “How could I affect this? What in my community might have led to this?”

Directing would-be scholars down this path—or at least exposing them to the possibilities that might lie there—seemed a useful way of expanding the pool of talent to draw from. But the problem with that line of reasoning was that by casting such a wide net at such an early stage in life, the Foundation could have no way of being sure that it was reaching the right people with the right kind of intervention. Some scholarship recipients might well have chosen a population health career anyway, award or no. Others might benefit from the award, learn a great deal from participating, but then pursue different careers entirely. Career decisions at age eighteen tend to change, often profoundly, by age twenty-five. Especially among very bright students, many opportunities will open unexpectedly along the
route to adulthood. So it is difficult, maybe impossible, to know how much one experience, no matter how rich and rewarding, could influence choices made four, eight, or fifteen years later.

Those kinds of uncertainties, which had been raised from time to time since the earliest years of the program, ultimately helped bring it to a close. The demands of fiscal restraint in a harsh economy added to the pressure on YES, as did the awkward fit between a program aimed at teenagers and a foundation whose other fellowships mainly support postdoctoral and midcareer research. Any one of these concerns—shrinking budgets, strategic misalignment, or quandaries over impact and measurement—might have been overlooked in the interest of experimenting with an intriguing (and, many people added, inspiring) new kind of scholarship. But all three together were more than the program could withstand.

Yet many of the people who observed YES most closely remain convinced that it filled an important gap in philanthropy’s effort to draw the brightest young minds into population health. David Van Sickle, the Health & Society Scholar, also served as a judge in every round of the YES competition except the last. He argues that the issue of career choices is less important than the opportunity the program offered to steep young people in the fundamental skills of epidemiology, like methods of inquiry, critical thinking, hypothesis generation, quantitative analysis. Our economy needs—and society needs—more people who understand these basic approaches and methods. Some will use them in epidemiology; some will use them in other fields. But more will use them in epidemiology and public health if we expose them early and inspire them. And in any case, public health isn’t just something professionals do; you get better public health when you have a more thoughtful public. So to me, a focus on high school students was really smart. Maybe this was not the place for it; maybe there are other ways to do it. But the value of it I think is beyond question.
Conclusion: Thoughts on Building a Field from the Bottom Up

Whether aiming at teenagers or early-career researchers, the two fellowship programs described here have sought to recruit early, embryonic talent into a broadly defined field that the Foundation considered generally underpopulated. In the past, most Robert Wood Johnson Foundation programs for scholars aimed at accomplished people already on a specified professional track. The touchstone Clinical Scholars program, for example, is limited to physicians. The Health Policy Fellowships are awarded to health professionals who have completed residencies and are thus steeped in their specialty areas. Later programs, such as Scholars in Health Policy Research, did seek out more junior recipients. But these programs generally helped scholars excel on more traditionally defined career paths to which they were already committed—though many shifted their emphasis to health: for example, from labor economics to health economics. There have been occasional exceptions, to be sure—particularly programs to attract more minority students into medicine and nursing. But these, too, were relatively specific as to the kinds of careers they hoped to inspire young people to join.

By contrast, although Health & Society Scholars and YES clearly hoped to point their recipients toward a commitment to population health, they accepted a high degree of risk that this hope might be disappointed. They actively sought out gifted young people whose career paths were either partly or, in the case of YES, completely unmapped. It is probably significant that this approach took shape at about the same time that the Foundation was seeking to invest more in health, to balance its support for more traditional health care. Population health is still a loosely defined field whose future depends on recruiting talent from many branches of the natural and social sciences and the humanities. Consequently, to many people at the Foundation, moving a step or two away from narrowly targeted fellowships and
toward programs with more open, permissive eligibility criteria seemed natural—even necessary.

As the former senior vice president J. Michael McGinnis recalls it, particularly in designing Health & Society Scholars, “We borrowed quite specifically from the model of the Clinical Scholars program, attracting the best and brightest and funding centers of learning where they could flourish. But it was clear that we needed to move beyond clinicians; in fact we could not start with them. We had to, first, bring in people from multiple disciplines, and second, focus not just on their particular fields of expertise—whether medicine or law or economics or molecular biology—but also on the cross-cutting relationships of people working with one another across disciplines.” The movement beyond individual disciplines was even more pronounced in YES, where participants would not yet have any career path at all.

It is possible, though difficult, to measure the value of these kinds of early-career fellowships. A rigorous evaluation, such as a randomized controlled trial, would be prohibitively difficult if not impossible; yet as evaluations of Clinical Scholars and Scholars in Health Policy Research have shown, there are ways to judge the general effectiveness of investments in individuals, even when the evidence is visible only many years later. David Colby, the Foundation vice president for research and evaluation, notes that such evaluations, though lacking the certainty of a randomized experiment, can track “people’s intellectual contributions, and the interactions of those contributions with other developments in the field, seeing what they write and where they get published, which publications are judged as influential or breakthrough. Given enough time—and this could mean at least ten years in the case of Health & Society Scholars, and more like twenty-five or thirty years in the case of YES—you could follow each individual, see patterns of influence and career trajectory, the grants they’re getting, their leadership positions, where they’re asked to speak, and so on.”
Foundation fellowship programs are all eventually subjected to those kinds of evaluations, and Colby expects that the Health & Society Scholars will be evaluated in roughly this way as well. Meanwhile, the participating universities are steadily compiling many of the indicators relevant to such an evaluation: publications by scholars and alumni in peer-reviewed journals, grants received, and funded research projects under way. Yet without a firm basis of comparison or control, he acknowledges that the results will mostly involve “qualitative, expert judgment and assessment,” drawing from informed observation and surmise, rather than furnishing any kind of numerical certainty. Still, such evaluations produce a sound basis for judgment and decision making, and “the best conclusions you can reasonably reach about programs that are inherently long-term and complex.”

Such imponderables are endemic to the kind of philanthropy that focuses on cultivating individual talent rather than delivering services, solving specific problems, or altering markets. And admittedly, the quandaries only become greater the earlier one tries to intervene in the careers of talented young people. Yet for all the uncertainties, investment in “human capital”—even at very early stages—is probably the world’s oldest and most revered form of philanthropy, as popular now as it was in imperial Rome or Renaissance Florence. (When the Medici supported a fifteen-year-old artist’s apprentice named Leonardo, they had no idea the world would end up with the Mona Lisa, but they must have been satisfied that something good would result.) In these cases, the “expert judgment and assessment” approach has always been the best, and most often the only, root of decision making.

Harvey Fineberg, president of the Institute of Medicine and a close observer of both the Health & Society Scholars program—he is chair of its advisory committee—and YES, says, “We need more of this kind of philanthropy, not less. And by ‘we,’ I mean society. These kinds of programs add a great deal to the life opportunities, knowledge, and experience of people who
in turn are going to add a great deal to society’s well-being. If you can’t say with certainty exactly how much it adds, you can certainly conclude that it makes a difference. I personally think if you quadrupled it, it would not saturate the need or the market. It’s a finite, attractive intervention that can reinforce and shape choices that will shape a lifetime.”

Notes


2. It’s telling that not all population health experts believe the word “field” applies, or even should apply, to their area of work. Some instead view their domain as more of a crossroads where other fields come together. This partly semantic debate is beyond the scope of this article, except to point out that even those who disavow the term “field” still generally hope to build the key assets listed here: communication networks, centers of collaboration, and routinely interdisciplinary modes and standards of practice.


4. Grant amounts have varied over the years; amounts given here are for 2012.