

NIH NEWS

Study Shows World Gains from US Training Aid to Foreign Scientists

A unique program to train young foreign scientists in the United States has had far-reaching effects on health sciences research throughout the world, a new study shows.

For more than 30 years, with a relatively small federal investment, more than 2,500 foreign scientists have come to the United States as International Research Fellows (IRF) to study with leading scientists at top US research institutions.

Now, health sciences research is reaping dividends from the program, according to a study prepared for the Fogarty International Center for Advanced Study in the Health Sciences, the international division of the National Institutes of Health (NIH), which administers the program.

The study shows that, of the foreign scientists surveyed (those who obtained advanced research training in the IRF program between 1958 and 1982), a substantial majority have achieved successful research careers in academia in their home countries. Many also play a substantial role in determining their nations' science policies. For example, a former IRF from Uruguay later became Director of the Primary Health Care Program of that country's Ministry of Public Health. Another is chief scientific chairman of Israel's Medical Research Administration.

These scientists have become accomplished researchers (more than 90% have published articles in worldwide journals and presented papers at international conferences) and, in doing so, have created additional international collaborative opportunities for US and foreign scientists.

The study, entitled "Scientific and Professional Accomplishments of Former International Research Fellows," was conducted by CHI Research/Computer Horizons, Haddon Heights, NJ, and Abt Associates, Inc., of Cambridge, MA, under contract to the Office of Planning and Evaluation of the Fogarty International Center. The study was designed to measure the effectiveness of the IRF program and to determine its future needs.

Congress established the IRF program in 1958 to promote international cooperation in biomedical research by providing postdoctoral grants to promising foreign scientists to study at US institutions in the early years of their research careers.

More than 2,500 scientists from 51 countries in Europe, Canada, Asia, Latin America, the Middle East, and Africa have received advanced research training for one to two years under the program at a total cost of \$50 million. The five universities most frequently selected for their research

training and collaboration were Harvard University, the University of California at San Francisco, the University of California at Los Angeles, Stanford University, and Johns Hopkins University.

At the time of their IRF experience, most respondents were between 30 and 34 years old and held MD degrees, although the more recent recipients have tended to hold both PhD and MD degrees. Western Europe or Canada was home to 55% of respondents; Asia and the Pacific, 20%; Latin America, 16%; the Middle East, 6%; and Africa, 3%.

The most common fields studied during IRF terms were in the biomedical sciences (biochemistry, molecular biology, and physiology) and clinical medicine (neurology, neurosurgery, and endocrinology).

The respondents credited the IRF program for having directly contributed to important research and clinical achievements in their careers, including having stimulated their research to new or different directions, and having advanced their research through collaboration or close cooperation with US research teams.

What fellows took home with them differed according to where they are from. Fellows from developed countries tended to strengthen relationships between their countries' scientific institutions and the United States, to have contributed to research programs of their US hosts, and to have planned future collaborations with US scientists.

Fellows from developing countries were more likely to have learned US experimental techniques or research methodologies and to have made significant contributions to biomedical research and health care in their home countries.

Five major types of scientific achievements were reported by one-third or more of the fellows: introducing new equipment, techniques, or diagnostic procedures to their home countries; establishing new scientific or public health entities; providing solutions to worldwide basic research problems; contributing to local or regional clinical research; and developing new research techniques. An IRF from Brazil, for example, helped establish a new university's science policy in his home country; other former IRFs started nuclear medicine departments in Austria and Finland.

The study also found that most fellows (91%) returned to their countries of nomination for their first jobs after IRF-supported postdoctoral study, and three of four remained there. The majority (70%) assumed academic careers, and almost half achieved the rank of professor. At the first job after the postdoctoral experience, former IRFs devoted 70% of their time to research, primarily in basic research.

As an Argentine participant put it, "It allowed a quantum jump in my understanding of scientific problems."

The selection of about 100 fellows a year is now accomplished through nominating committees in home countries, with scientific reviews being conducted by an NIH study section. The recommendation for final approval comes from the Fogarty Center's Advisory Board.

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NAS Primer

The National Academy of Sciences (NAS) is distributing a 22-page booklet, titled *On Being A Scientist*, which discusses professional standards in science for young researchers. The booklet explains the nature of science and responsibilities of researchers, such as sharing data and assigning credit to scientists in journal articles. The NAS decided to prepare the booklet because of the growing attention to the importance of scientific integrity in research. Although the NAS is distributing some free copies to graduate schools in science, others may obtain copies from the NAS Press, 2101 Constitution Ave. NW, Washington, DC 20418 (\$5 for a single copy, \$4 each for two to nine copies, or \$2.50 each for 10 or more copies).

