



Institute for the Study of



Healthcare Organizations & Transactions

Health and Healthcare Research Training in the Behavioral and Social Sciences: Reflections on the NRC report.

The September 8, 2000 issue of *Science* contained a report (p. 1667) concerning research training in the biomedical and behavioral sciences. The report, entitled *Addressing the Nation's Changing Needs for Biomedical and Behavioral Scientists*, was released by the National Research Council (NRC), the operating arm of the National Academy of Sciences, on August 29, 2000. [Link to the report.](#)

I served on that committee, and dissented with respect to its recommendations concerning the training of behavioral and social scientists. [Link to my dissent](#), published as Appendix F in the report.

This following is transcribed from an article entitled "'Several things went wrong': Commentary on the NRC report on research training in the behavioral and social sciences", which appeared in the *APS Observer*, 13(10), 1, 17-18 (Kihlstrom, October 2000). [Link to a response from Pamela Sutton, the NRC staff director of the study, which appeared in the February issue of the Observer, followed by my rejoinder.](#)

What Was the Report and What Did It Say?

Under the terms of the National Research Service Award Act of 1974, Congress periodically asks the National Academy of Sciences to review the research training activities of the National Institutes of Health (NIH), Agency for Healthcare Research and Quality (AHRQ), and Health Services Research Administration (HRSA), particularly those activities which fall under the aegis of the National Research Service Award (NRSA). The report published in 2000 is the 11th in a series of such reports published since 1975. It was prepared by the Committee on National Needs for Biomedical and Behavioral Scientists, under the Education and Career Studies Unit of the NRC's Office of Scientific and Engineering Personnel.

The report's major findings and recommendations may be summarized as follows:

- Research training and overall PhD production in the basic biomedical sciences (e.g., biochemistry and molecular biology) should not be increased.

- Research training and overall PhD production in the basic behavioral sciences (e.g., psychology and sociology) should not be increased.
- PhD production in clinical sciences (e.g., patient-oriented research such as clinical trials, epidemiology, and health-services research) should not be increased, but there should be intensified efforts to train and retain physicians in clinical research.
- NIH should expand its funding of NRSA training grants and fellowships, especially for multidisciplinary training, and correspondingly decrease its funding of graduate research assistantships.
- Increased efforts to engage ethnic minority scientists in basic biomedical and behavioral research, and to engage both minority and nonminority investigators in research on social disparities in health.
- The NIH, AHQR, and HRSA should enhance their oversight of research training in the basic biomedical and behavioral sciences.

Traineeships versus Assistantships

I strongly concur with the Committee's recommendation that research training funds be balanced between multidisciplinary traineeships and fellowships and assistantships on specific investigator-initiated grants. While some degree of training almost necessarily occurs whenever a graduate student is involved in a specific research project, the use of graduate students as research assistants does little to ensure that the new generation of researchers will receive the multidisciplinary training needed to work on the cutting edge of health and healthcare research. Graduate research assistants may learn specific techniques, such as magnetic resonance imaging or gene mapping, but multidisciplinary training grants and fellowships will ensure that students acquire a broad view of health and healthcare. (This assumes, of course, that the training programs in question are genuinely interdisciplinary.)

There are other reasons, as well, to favor traineeships over assistantships. Research assistantships may conflict with students' obligations to their coursework. A student who devotes too much time to a research assistantship may not complete coursework in a timely fashion, and a student who strives to keep pace with his or her coursework may not be able to work effectively or efficiently on the research project. Rather than turning to graduate students as a convenient source of cheap labor, it would probably be better for principal investigators to hire research specialists with appropriate bachelor's- or master's-level training. Finally, employment of students as research assistants effectively takes them out of the pool of students available to serve as teaching assistants, to the detriment of the university's teaching function. Long ago, Everitt Needham Case, then President of Colgate University, warned that the development of the research university, and with it the practice of buying "released time" from teaching through research grants, would create two classes of faculty -- those who teach and those who do research. Offering research assistantships to graduate students, in lieu of teaching assistantships, may well create this same class distinction among graduate students.

Basic versus Clinical Researchers

The Committee was also correct to underscore the importance of clinical, patient-oriented research, such as clinical trials of new drugs, epidemiological research, and health-services research. At the same time, I believed that it erred in recommending increased efforts to train and retain MDs, MD-PhDs and other "health-care doctorates" (p. 2) for clinical research, as opposed to recruiting PhDs into these fields. While it is probably true that the "mounting indebtedness" of medical students, and other "economic disincentives" (including those associated with the growth of managed care) prevent more MDs from moving from the clinic to the laboratory, or from acquiring the additional training required to obtain a PhD, it is not altogether clear that this is a bad thing.

This recommendation is an excellent example of a committee perspective which I call physician-focused. Almost without exception, NIH is run by physicians for physicians, and so when the Committee looked at things like clinical research, or clinician-investigators, its focus was almost entirely on medicine and physicians. The report attempted to exclude clinical psychologists from consideration, ostensibly because so many of them are engaged in the direct provision of services, but also called for increased efforts to train and retain physicians in the clinical research workforce. Nurses, dentists, and doctoral-level researchers in such "clinical" fields as social work, public health, and health-services research are barely mentioned in the report. It is as if, ultimately, health and healthcare were solely the province of physicians.

Frankly, however, the policy of directing more physicians into research seems misguided. As a matter of ideology, physicians consider themselves to be the only professionals who can provide the full range of healthcare services (witness, e.g., their opposition to psychologists who want to obtain prescription privileges). There aren't enough of them, at least in many areas of the country, and at least in some specialties such as primary care and family medicine. At the same time, the American Medical Association carefully controls the number of seats in American medical school, with an eye to the market for healthcare services. This policy, in turn, results in the recruitment and increasing numbers of foreign medical graduates to practice in the United States. And then we are supposed to divert an increasing proportion of American-trained physicians into *research*? This simply seems like a bad use of expensive medical training. If people want to do research, they should go to graduate school, not medical school. And if MDs want to do research, they should collaborate with PhDs who have the training and skills to carry it out. Similarly, PhDs who want to conduct patient-related research should collaborate with MDs and other clinicians who have ready access to patients. That way, everybody would do the work for which he or she is best trained.

Biomedical versus Behavioral Science Training

My principal objection, however, is to the Committee's recommendations with respect to the behavioral and social sciences. These contradict those of previous incarnations of the Committee, which have generally called for increases in research training in these areas. For example, the last such report, published in 1994, recommended a substantial increase (approximately 40%, depending on the program involved) in research training in the behavioral

and social sciences, in recognition of the contributions that these fields can make to health and health care. However, the NIH did not implement this recommendation, and with a few exceptions (notably the National Institute of Mental Health), the behavioral and social sciences are not well represented in the training portfolios of the various NIH institutes. Nevertheless, the current Committee declined to repeat or reinforce its predecessor's recommendation. In fact, the Committee concluded that "At present, the overall size of the behavioral and social science workforce seems sufficient to fill existing national needs, and current levels of research training appear to be adequate to maintain that supply". The implication is that NIH does not need to take any further action to increase the size and scope of its training activities in the behavioral and social sciences.

In this respect, I believe that the Committee has made a serious mistake. Even if the overall size of the behavioral and social science workforce is adequate, the NIH should take steps to encourage more behavioral and social scientists to engage in research directly relevant to health and healthcare. Accordingly, I prepared a dissent that provided another perspective on NIH training activities in the behavioral and social sciences, a rationale for increased involvement of the behavioral and social sciences in health and healthcare, and a set of alternative recommendations to be considered by policymakers and successors to this Committee.

What Conclusions Have Others Reached?

I was not alone in reaching the conclusions summarized in my dissent. In 1999, an independent analysis of NIH research training, reaching similar conclusions, was published by the Center for the Advancement of Health (www.cfah.org). This nonprofit organization seeks to promote greater recognition of the influence of psychological, social, behavioral, and environmental factors on health and illness, and to integrate these factors into the national health research agenda and health care delivery. This report, entitled *Cultivating Capacity: Advancing NIH Research Training in the Health-Related Behavioral and Social Sciences*, recommended that NIH:

- increase the probability of funding high-quality health and behavior research training grants;
- educate behavioral and social scientists about training opportunities;
- improve mentoring and training quality in NIH-funded training grants in the behavioral and social sciences;
- target funding to particular types of behavioral and social science research training, particularly in interdisciplinary areas and for minorities;
- address and correct existing disincentives to grant applications by behavioral and social scientists; and
- gather accurate data on health-related behavioral and social science research.

The full report may be obtained from the CFAH (2000 Florida Avenue, N.W., #210, Washington, D.C. 2009-1231), or read on the CFAH Website (on their homepage, click on "View/Order Publications" in the menu on the left). [Click here to read the CFAH report.](#)

The United States Senate has also expressed concern that the behavioral and social sciences have been underfunded at NIH. As the Senate Appropriations Committee noted,

There is a growing public awareness of the behavioral and social underpinnings of disease.... Yet NIH has never fully incorporated behavioral research as part of its core public health mission ((Senate Report No. 106-166)p. 174).

In response, in May 2000 Acting Director Ruth L. Kirchstein released her own report, prepared by the NIH Office of Behavioral and Social Science Research. The OBSSR report charted funding of behavioral and social science research by each of its constituent institutes and centers, and concluded that NIH funding in these areas has increased over the past five years. The OBSSR has now asked the NAS to help it identify research priorities in the behavioral and social sciences. [Click on to read the NIH response.](#)

While it is true that NIH funding for behavioral and social science research and research training has increased, that was not the issue raised in my dissent. Rather, the issue was the *distribution* of this funding, and Committee's erroneous conclusion that no more funding for research training was needed. As documented in both my dissent and the CFAH report, the bulk of behavioral and social science research and research training is funded by only a few institutes, such as the National Institute of Mental Health and the National Institute of Alcoholism and Alcohol Abuse. Additional funds are needed to enable other NIH institutes and centers to expand their portfolios of behavioral and social science research and research training, without redistributing funds already put to this purpose by institutes such as NIMH and NIAAA.

Given the Actual and Potential Contributions of the Behavioral and Social Sciences to Health and Healthcare, Why Did the Committee Recommend a Steady State for Funding of Behavioral and Social Science Research Training?

In retrospect, several things seem to have gone wrong in the report process, resulting in the Committee's lack of enthusiasm for training in the behavioral and social sciences.

Procedural Issues

There was not much involvement by social and behavioral scientists in the Committee's deliberations. Aside from labor economists, there were only two behavioral or social scientists on the Committee. Both of these were psychologists, and neither psychologist had much prior involvement in issues relating to health and healthcare. Therefore, the Committee didn't have internal input from health psychology, health-service research, or other social sciences, such as sociology and anthropology, or even political science, who have an interest in health and healthcare.

Moreover, the Committee also did not receive much input from the outside, in terms of "public comment". Alan Kraut, Executive Director of the American Psychological Society, made a powerful presentation to the Committee on behalf of his discipline, but so far as I am aware the American Psychological Association failed to play a role in the Committee's deliberations. Nor

did professional societies representing other behavioral and social sciences, such as the American Sociological Association and the American Anthropological Association.

This Committee meets every couple of years, and the next time it meets the associations representing the behavioral and social sciences should be better prepared and organized to make the case for their increased involvement in health and healthcare research training.

Organizational Issues

The Committee itself noted the paucity of data on behavioral and social scientists involved in research on health and healthcare, and I underscored this problem in my dissent. The fact is, while it can be assumed, almost by definition, that biomedical scientists are involved in research relevant to disease and medicine, and interest in health and healthcare can't be assumed for psychologists (who might study speech perception in bilingual children), sociologists (who might study race relations in high-school cafeterias), demographers (who might study immigration from Eastern Europe), and anthropologists (who might study kinship patterns in the South Pacific). But there *are* psychologists, sociologists, demographers, and anthropologists who study health and healthcare, and economists who study health economics, and there are political scientists who study the formation of health policy and healthcare. NIH just doesn't have a good idea who they are.

Moreover, the Committee labored under a popular but false dichotomy between basic and applied research. Within psychology, for example, it sought to exclude clinical psychologists from consideration, on the grounds that clinical psychologists were engaged in the provision of mental-health services, rather than in research. But many clinical psychologists do research, sometimes to the total exclusion of practice, and many of them are important contributors to health psychology. In addition, there are interdisciplinary fields, such as health-services research, that were also pretty much excluded from consideration -- in part, at least, because these fields come under the auspices of the AHRQ and HRSA. But it is in precisely these areas that we need more behavioral and social scientists, and more interdisciplinary efforts uniting these fields: studying the costs and benefits of health care, access to healthcare services, measuring the quality of services, and the documenting the impact of changing organizational forms in the very dynamic environment of contemporary healthcare. Healthcare research should be driven by, and contribute to, theories in the behavioral and social sciences, just as research on diseases such as cancer and HIV/AIDS is driven by, and contributes to, theories in the biomedical sciences.

Methodological Issues

The report is based on a highly abstract analysis of the scientific workforce in terms of labor economics. There is an overproduction of PhDs in the behavioral and social sciences (and in the biomedical sciences as well, for that matter), and so the committee concluded that the Nation didn't need any more of us. But that's not the point. The point is how many behavioral and social scientists are doing work related to health and healthcare. And there aren't enough. What the Committee should have done, and failed to do, was to call for a redirection of training and

resources within the behavioral and social sciences toward health and healthcare. This is the main thrust of my dissent -- that the Committee failed to consider the need for increasing the number of behavioral and social scientists devoted to research on health and healthcare. This failure, in turn, seems to have been grounded in the particular way in which most Committee members view health and healthcare.

Conceptual Issues

Most physicians think of the behavioral and social sciences as not sciences at all, but as something to do until the *real* doctor comes along. We have a health-care environment that is dominated by the machine and the pill -- advanced diagnostic methods like MRI, and medications for everything. In such an environment, it is natural for people to discount the role of behavioral, psychological, social, and cultural factors, and emphasize biological processes.

Two anecdotes from the Committee's discussions illustrate the point.

One Committee member, who suffered from stomach ulcers, was greatly impressed when his gastroenterologist showed him a culture slide full of *helicobacter pylori*. *That's* where his ulcer came from, in the traditional medical view, and there's a medication for that; problem solved. But work by Bruce Overmier and Robert Murison has clearly documented the role of stress, in interaction with *h. pylori*, in causing ulcers. Ulcers can represent genuine psychosomatic effects, one of the few that are well documented. But this individual was not interested in the role of stress in disease, or in reducing the amount of stress in his life -- he was just interested in getting rid of the bugs in his gut, figuring that that would take care of everything.

At another point, I was discussing the importance of compliance with medical regimens, outlining the potential significance of research on illness cognition by Howard Leventhal and his students, and work on extrinsic and intrinsic motivation by Judith Harackiewicz, Carol Sansone, and their colleagues. Compliance is a big problem in both prevention and treatment. We can develop all the pills we want, but then we have to get people to *take* their pills. Compliance is a *behavioral* problem, mediated at the individual level by cognition, motivation, and affect. And it is a *social* problem that runs up and down throughout the healthcare system, involving healthcare providers as well as consumers, professional organizations and insurance companies. When healthcare providers fail to wash their hands between patients, or fail to write legible prescriptions, they are failing to comply, just as they complain that their patients do. But another Committee member, when confronted with the problem of compliance, retorted that "We'll make a pill for that, too!".

It was a good joke, I suppose, but I am afraid that this individual wasn't just joking. A major theme running throughout health and healthcare, and especially within the biomedical community, is that the behavioral and social sciences are "soft" sciences, and not to be taken

seriously in light of advances in genetics, neuroscience, and molecular and cellular biology.¹

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¹A Footnote on Health Psychology

There are trends within psychology itself that aid and abet this tendency among physicians. Between behavior genetics, evolutionary psychology, and brain imaging, we're going through a period of intense interest in reductionism in psychology. In a recent article in the *APS Observer*, the house organ of the American Psychological Society, a prominent psychologist was quoted as saying that psychology was no longer a social science, but was now a *life* science -- meaning, of course, that it is a *biological* science. As if psychology were just something to do until the neurologist comes -- as if being a biological science should be something we aspire to, and being a social science should be something we outgrow. Of course, psychology has connections to biology: the brain is the physical basis of mind, after all. But psychology has, or should have, equally strong connections to the social sciences. After all, humans are social beings, and our thoughts, feelings, desires, and actions take place in expressly social contexts. So psychology needs to connect itself *up* to the other social sciences, as well as *down* to the other biological sciences. This is because, in the final analysis, psychology is both a biological and a social science. This either/or, this-not-that thinking is very dangerous for a field as broad as psychology.

We see the problems of psychology in general reflected in the current state of health psychology, which is almost totally dominated by the problem of stress and disease. Now, psychosomatic interactions are among the most interesting problems in psychology. Psychologists *should* be connecting with to the biological sciences, and there's a tremendous amount of interesting work going on in fields like psychoneuroendocrinology and psychoneuroimmunology. When the Committee calls for greater involvement of the behavioral and social sciences in interdisciplinary research, it mostly means involvement in *biomedical* research. But interdisciplinary research can also involve the individual and social levels of analysis, without involving the biological level.

The simple fact is that biology doesn't offer us any solutions to compliance and many other problems of individual health and illness behavior. It does not offer us any solutions to the interpersonal and organizational problems created by the profound changes we're experiencing in the healthcare system. Nor does it offer any solutions to the problem of third-party payers interposed between providers and consumers, or that of pharmaceutical advertising directly to consumers, or that of increased consumer access to health and medical information on the Internet. Nor does it provide any solutions to the problem of providing adequate healthcare in a multicultural society like the United States, where healthcare consumers hold such a wide range of tacit theories of health and illness. These are all behavioral and social problems, and they have to be approached at the individual and societal levels of analysis. Psychology is a social science as well as a biological science, and it needs to join with other social sciences, such as sociology and anthropology, as well as multidisciplinary fields like health services research, to promote the role of the behavioral and social sciences in understanding and promoting health and healthcare.