NIMH to Reorganize Extramural Research

Some fear that categorical emphasis on mental illness will be deleterious to training, treatment research

In keeping with his announced intention to focus the agency unequivocally on basic research, Shervert Frazier, director of the National Institute of Mental Health (NIMH), has proposed an extensive reorganization of the institute's extramural programs. Although most observers see merit in the plan, it has aroused worries in the field about the future of treatment research, particularly research on psychotherapy, which will no longer have its own branch.

The new scheme, to go into effect in October, is based on categorical disease-oriented divisions not unlike the pattern that prevails at the National Institutes of Health. Treatment, training, and special mental health programs will no longer be separate but will be dispersed among three research divisions: on basic sciences, clinical research, and biometry and applied sciences.

Frazier, who has been working on the plan since he assumed the directorship last January, has presented it as a consolidation and streamlining measure. He felt there were "too many small boxes," says deputy NIMH director Frank Sullivan. It is designed to make better use of the agency's shrinking personnel base. Politically, it represents a further distancing from "social" research (which NIMH publicly abdicated in 1981) and an attempt to demonstrate to Congress and, particularly, the Office of Management and Budget, that NIMH is second to none when it comes to basic biology. There is so much concern with promoting a "hard science" image that the words "mental health" were kept out of a mission statement recently drafted by the National Advisory Mental Health Council.

The American Psychological Association (APA), which is far and away the largest mental health lobby group, leapt on Frazier for that one and was given assurances that the statement would be amended. But additional, more substantive concerns have been voiced by mental health professionals.

One relates to research training. Observers fear that appending these programs to branches devoted to particular mental illnesses will turn them into "research assistantships" by associating them too closely with research trends of the moment and robbing them of flexibility. (NIMH officials say this won't happen.) On the other hand, says Alan Kraut of the APA, it will be an improvement to have the review committees organized according to discipline rather than, as now, according to type of research award.

Another problem has to do with the dissemination of activities from the to-be-dissolved Division on Prevention and Special Mental Health Programs. Everyone likes the fact that disorders of the young and of the old will both be raised to branch status within the new Division of Clinical Research. But qualms have been expressed about the minority mental health program, which will be replaced by a branch devoted to minority research resource development in the Division of Biometry and Applied Sciences. Sullivan explains that 80 percent of minority-related research goes through the regular research branches anyway. The APA is still "very concerned," says Kraut, and is seeking reassurances that there will be systematic attention paid to both minorities and women in all program areas.

> There is concern that psychotherapy research is being pushed out of the nest.

The two programs that the Administration perennially tries to do away with—community support programs and clinical training—will be huddled together in the same box: the Division of Education and Service Systems Liaison. Some people are suspicious that these are being set up to be knocked off; again, NIMH officials demur, saying Congress won't let that happen.

The proposed disbanding of the psychosocial and pharmacological treatment research branches is presently the matter that is stirring the greatest amount of anxiety in the NIMH research constituency. The American College of Neuropsychopharmacology, according to its president, Herbert Meltzer of Case Western Reserve University, is worried about the clinical center program, which is to be transferred from the Research Resources Division into the Clinical Research Division. "The personnel will have such broad responsibilities that we are not certain the expertise will be adequate for the task," says Meltzer. He adds that center directors fear proposals will not be adequately evaluated if they have to compete with project grants in the review process.

Probably the sharpest concerns are those that have been expressed about the future of psychotherapy research, which is still a fledgling field. Although there have been striking advances in recent years, the experts tend to feel that it is being pushed prematurely out of the nest and that it will face a damaging competitive situation when unprotected by its own administrative structure.

Psychotherapy research has undergone a virtual revolution in less than a decade. Among major advances are findings that family therapy is very effective with schizophrenics, and that psychotherapy works better than drug counseling with addicts on methadone maintenance. There have been extensive improvements in methodology: objective measurements have been developed of key therapeutic concepts such as patient "insight" and the "therapeutic alliance" (the therapist-patient relationship), and manuals have been developed that describe various psychodynamic (including analytic and interpersonal) and behavioral therapies, thereby making it possible to compare the effects of the same approach on different populations. Researchers are beginning to address one of the most difficult questions, relating to whether it is the therapy or the therapist that is most important in achieving favorable outcomes.

Some researchers, such as psychiatrist Peter Knapp of Boston University Medical Center, believe that NIMH is seeking, inappropriately, to duplicate the NIH formula for success by patterning most activities according to disease categories. He observes that this works for NIH, where "therapy techniques are pretty well established," but that it is unwise with regard to mental disorders where "treatments are still evolving" and there are crosscutting methodologies that do not readily fit in the categories for schizophrenia, affective illness, or disorders of children or the aged.

(Continued on page 367)

(Continued from page 362)

"There is much to learn" in psychopharmacology as well as psychotherapy "independent of any immediate application," he says.

One reassuring factor is that the Initial Review Groups will, contrary to early reports, stay as they are: one for psychosocial and biobehavioral treatments; the other for pharmacological and somatic treatments. However, Knapp and others say this is not enough and stress the need to have a critical mass of expertise at administrative levels to evaluate and guide the design of treatment research. "There will be no unified leadership in Washington," laments University of Pennsylvania psychologist Lester Luborsky.

Luborsky says he and many of his colleagues are afraid that, with the emphasis on major mental illnesses, therapy for disorders that do not require drugs or hospitalization will get short shrift. Families of schizophrenics are developing a substantial political presence, he notes. But there is no lobby for neurotics, and it is hard to make a case for the treatment of lesser disorders on the basis of economics, since the costs—in terms of physical illness, social strife, loss of productivity, and drug abuse—are difficult to trace and quantify.

A decrease in emphasis on nonbiological research is also apparent in the NIMH intramural research program. Melvin Kohn, head of the Laboratory of Socio-Environmental Studies, recently announced plans to move to Johns Hopkins University after he failed to get funds sufficient to continue the lab's pathbreaking studies on the relationship of employment to values and intellectual functioning. The lab's future is in doubt, says Kohn's assistant, psychologist Carmi Schooler, even though "this is basic research" that is "definitely connected to mental illness."

Everyone agrees that explosive advances in the neurosciences inevitably mean that NIMH tilts more toward biology these days; nonetheless, many behavioral scientists feel that Frazier's approach, while politically astute, goes too far. As one lab director told the Consortium for Social Science Associations, "I don't care how much good lab science gets done, mental illness isn't going to be cured by a vaccine or gene splicing."

—CONSTANCE HOLDEN

New Doubts About Star Wars Feasibility

Some critics charge that a comprehensive missile defense is doomed to failure because the computing requirements cannot be met

The resignation of a highly regarded consultant to the Pentagon's "Star Wars" program has brought to light a controversy within the computer science community over the program's feasibility. Charging that the goal of the program is unattainable because of inherent limitations in software reliability, David Parnas, a professor of computer science at the University of Victoria in British Columbia, has resigned from an advisory panel on battle management.

"In March 1983 the President asked us, as members of the scientific community, to provide the means of rendering nuclear weapons impotent and obsolete," Parnas noted in a lengthy letter to program officials dated 28 June. "I believe that it is our duty, as scientists and engineers, to reply that we have no technological magic that will accomplish that."

Parnas, who served as head of the Software Engineering Research Section at the Naval Research Laboratory in Washington from 1979 to 1982, notes that unlike some other academic critics of the program he does not object to it on political grounds, nor does he have any reservations about defense-related work. "My conclusions are based on more than 20 years of research on software engineering, including more than 8 years of work on real-time software used in military aircraft."

Specifically, he says, the computing demands of a comprehensive missile defense system are such that no existing technology or innovation on the horizon is capable of ensuring its reliability. New developments in highly touted tools of the trade, such as artificial intelligence, automatic programming, and program verification, will be incapable of appreciably altering this situation.

Parnas, who has also been a consultant to TRW and Bell Labs, explains that one problem is ineradicable uncertainty about the exact nature of the enemy threat. Another is uncertainty about the survivability of various computing hardware. "We have no techniques for proving the correctness of programs in the presence of unknown hardware failures and errors in input data," he says. But the biggest problem is that an elaborate missile defense can never be realistically tested. "In operational software for military aircraft, even minor modifications require extensive ground testing followed by flight testing in which battle conditions can be closely approximated. Even with these tests, bugs can and do show up in battle conditions," he explains.

Similar criticism had previously come from Anthony Ralston, a professor of computer science at SUNY-Buffalo and a former president of the Association for Computing Machinery. "Quite aside from any other technical, political or economic objections which might be raised about the Star Wars system, its computer software problems doom it to failure," he told *Science* in a recent letter. "In no foreseeable future . . . is there any valid prospect of writing 10 million or 100 million or anything approaching this number of correct lines of code."

And on the day that Parnas's remarks first garnered attention in the United States, Larry Smarr, director of the National Center for Supercomputing Applications at the University of Illinois, also denounced the program as unrealistic. At a press conference organized by a group of 47 physicists at the school who have pledged not to "apply for or accept" research grants from the "Star Wars" program because of political and technical concerns, Smarr said that the software will inevitably be subject to two flaws: "it will not do what it was meant to do, and it will not anticipate everything that the enemy might throw at it."

Officials of the program, formally known as the Strategic Defense Initiative (SDI), counter that they are optimistic about creating a network of space-based computers capable of choreographing an elaborate missile defense. At a recent forum organized to enlist academic participation, Edward Wegman of the Office of Naval Research acknowledged that