A Psychologist in Charge:Croyle Bridges Basic and Applied Research at NCI

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Psychologist **Robert T. Croyle** is director of the National Cancer Institute's Division of Cancer Control and Population Sciences, which has an annual behavioral research budget of $280 million.

Robert T. Croyle, who was appointed director of the National Cancer Institute's Division of Cancer Control and Population Sciences in July of 2003, said he got some excellent insight into how his profession was viewed internally at one of the first conferences he attended after joining the agency in 1998. "I'd only been here a month and I was introducing myself," he said. "And someone said, 'Croyle, you'll go far at NIH. Just, for God's sake, don't tell anybody you're a psychologist.' And, well, that was good advice."

Having a psychologist in charge of a key grant making Institute at the National Institutes of Health is a nightmarish scenario for many researchers, Croyle explained, because it's a reversal of the traditional biomedical research hierarchy. "There are a lot of behavioral scientists working around the country in biomedical research contexts, but they're usually at the bottom of the totem pole," he said. "There was a lot of skepticism, a lot of wait and see, on the part of the more traditional biomedical research community. To be a psychologist in a leadership position at an NIH institute, where people sometimes don't really think of behavioral science as playing a key role, there's a lot of convincing the people in the various research communities that you understand their issues and concerns and you're not claiming to be an expert in what they do but are willing to learn about what they do and appreciate the value of their science."

Croyle appears to have been successful in that regard, but he's also managed to help elevate the role psychologists play in the research being done at NCI. "Everywhere you look in cancer research there are behavioral science questions, but they may not be labeled as such," he said. "So a medical investigator may be completely unaware that there are whole subfields in behavioral science that are rich with

research or methods that could be used. And so one of my most persistent roles here at NCI is to facilitate the interaction and communication between the world of behavioral science and the world of cancer research."

"There are significant benefits for psychologists from this approach, because cancer is the best funded domain of biomedical research: NCI is the largest institute at NIH. So when I go out and talk to psychologists, one of the reasons to convince them to collaborate in research with people in the field of cancer is just follow the money: We have a $4.7 billion budget. In addition, in the field of cancer there are unique research structures that just don't exist in a lot of other fields. For example, our national surveillance system. We have better nationwide tracking of trends in cancer and types of cancer than most any other type of disease. NCI supports over 60 cancer centers around the country. Those are all multidisciplinary research institutions that are terrific contexts within which psychologists can explore research questions in a strongly supported, multidisciplinary environment with access to very large populations of subjects and decades of data. The resources that are available at the typical cancer center dwarf what's available at the typical psychology department."

And Croyle knows what that's like. After getting his doctorate in social psychology from Princeton University in 1985, he spent nine years as a professor of psychology at the University of Utah. His predecessor in his current NCI position, Barbara K. Rimer, who is now Deputy Director for Population Sciences at the University of North Carolina Lineberger Comprehensive Cancer Center at the University of North Carolina at Chapel Hill, said when she brought Croyle in to NIH in 1998 he was filling a huge gap.

"There simply had never been a program on behavioral research at the National Cancer Institute," Rimer said. Getting Croyle named as director of the NCI's behavioral research program, "was one of the best things I've done in my career. So many people are polarized; they do only basic lab psychology or applied psychology. But Bob has an amazing facility for the full range and also thrives in a multidisciplinary environment." When Rimer left, she said, it was only natural that Croyle be promoted to head the entire department last year. "He really understands how to manage. He's got a lot of people saying, maybe having a psychologist in charge of an organization is really good idea."

Other psychologists say it's not just his specialty, but his background that's made Croyle a success at NIH. "I'm sure he misses his research, but it's great to have somebody in an administrative position who really understands basic research," said Bill Klein, an assistant professor of psychology at the University of Pittsburgh who has known Croyle for two decades and is familiar with his work. "It's unprecedented, and it's been great."

Critics of modern American research say that scientists have become too specialized and such experts remain completely ignorant of standard practices used in unrelated fields that could easily solve seemingly intransigent problems. Researchers are only knowledgeable about "silos" of knowledge in their specific field, largely ignoring or misinterpreting information in any neighboring silo, no matter how relevant to their own research.

The silo problem wasn't exclusive to psychologists; it existed throughout NIH. In the August 2003 issue of the New England Journal of Medicine, Director of the National Heart, Lung, and Blood Institute Claude Lenfant succinctly summed up the problem, writing, "Regardless of the reasons cited –

structural, economic, or motivational – the result is the same: we are not reaping the full public health benefits of our investment in research."

Croyle said the problem can be found in all scientific fields. "One of the things a lot of behavioral scientists who spend some time at NIH learn is that the silo problem comes at least as much from psychology as it does from the other disciplines. In the era of big science, most other disciplines, I believe, are far ahead of psychology in terms of building transdisciplinary collaborations and connections. Most academic psychologists still largely read their favorite three or four journals in their subfield of psychology and that's pretty much it."

Croyle said this realization has changed his perception of science: He now sees psychology as just one piece of a larger whole. "It is a little bit scary when I go back to specialized psychology meetings and see that oftentimes people are extremely specific in a sophisticated area of research but the degree to which they are aware of interesting advances in disciplines outside their own varies a lot. But for basic behavioral science to thrive and survive, we have to do a better job of building bridges to other disciplines and particularly other levels of analysis. A lot of bridges that happen in basic behavioral science are to other disciplines at the same level of analysis, but I think in terms of where science at large is going – it's really cutting across levels of analysis, and that's something that a lot of psychologists will really struggle with. When psychologists do on those rare occasions participate in discussions of science at large and public policy and application of research to practice or to public health, in those interdisciplinary settings, they sound very focused on the individual intrapsychic processes as the only level of analysis. And that hurts their credibility and their impact in the larger scientific and science policy world, I think. A contrast would be people in a field like demography or other social sciences where you find within a context of somebody's research they're moving more across levels of analysis between disciplines. And in the behavioral sciences there are pieces of that where it's been done – the development of transdepartmental cognitive science programs or neuroscience programs – but there's still a long way to go."

Croyle's shop has a $280 million annual budget for behavioral research performed under the auspices of five branches: Tobacco Control, Applied Cancer Screening, Basic Bio-Behavioral, Health Communications and Informatics, and Health Promotion. In fiscal year 2005, $75 million is budgeted for the study of tobacco use and tobacco related cancers.

In recent years, Croyle has refocused the way money is spent. "We've tried to move a lot of resources, initiatives, and money into transdisciplinary science, to try and accomplish this goal of bridging the basic with the applied, which is a real challenge," he said. "If you're sitting at the National Cancer Institute, traditionally a lot of the behavioral scientists we fund are doing applied research in health psychology, preventive medicine, or public health. And you get the other problem, which is that people get into an applied context for several years and they lose their connection with basic behavioral science. So they might not be current in terms of theory or methodology. So a lot of our efforts over the last couple of years have involved creating venues within which to connect basic and applied behavioral scientists or basic behavioral scientists with people involved in a variety of disciplines doing research in cancer prevention, cancer control, cancer survivorship – the areas that we cover – and that's been a theme for workshops we've sponsored, working groups we've created, databases we've developed. So clearly there's been a shift of resources in that direction."

Most of the solicitations for grant applications are aimed at transdisciplinary research, he said. “We’ve also focused a lot on centers as a funding mechanism and centers that include a requirement for transdisciplinary training.” Efforts are currently underway to provide researchers a better understanding of communication, technology, public health, psychology, medicine, informatics, and other social behavioral sciences. “It’s been a rabid obsession really. Because I think a lot of the scientific opportunities are in those areas that sit between disciplines.”

As an example, Croyle points to the issue of smoking. Policymakers are frequently frustrated by the complexity of research evidence on the subject, which demonstrates that many different types of expertise, modalities, and intervention are needed to prevent use or wean users away from the product. “Recently our approach with policymakers has been to emphasize the multiple levels of influence. For example, taxation. Economic studies of tobacco use show that price is a key variable. And at the same time, there are biological level factors that require development of better drugs for use in tobacco dependence. Science and politics intermix because every constituency has different preferences based on values, principles, ideology, on different kinds of intervention, regardless of the level of evidence for each of those. But probably the biggest barrier to progress is the scale of the tobacco industry’s resources. And even though that seems obvious, until a few years ago a lot of the scientists – including behavioral scientists – doing research on tobacco use focused on very traditional social psychological variables like peer influence and exposure along with resistance to offers. And it really wasn’t until the individual level of psychological analysis was complemented by analysis of economics, media, policies, and neurobiology that we developed a much more complete picture of the process. Tobacco use is probably a prototypical example of the benefits of going beyond a single discipline and level of analysis. Because as long as each of those disciplines was operating only at their level, progress was slow. Funding a large initiative, like the tobacco centers, puts out a strong incentive for all those disciplines to come together collectively around a single problem.”

Croyle also argues that too many scientists believe their work is done once they get a paper published. “We need to get more basic scientists involved in issues of policy and application,” he said. “Because it’s still the case that there are remarkably few psychologists who are personally engaged in issues relevant to policy and the applications of psychological evidence. All the social behavior science organizations in Washington struggle to get their members engaged in policy issues that can be informed evidence from psychological research. When you see the visible presence of other disciplines and interest groups here in Washington, it’s remarkable what can be done. We have a huge community of academic investigators, and too many don’t see it as their business to contribute part of their time to issues concerning public health and policy.”