

NIAAA Puts Science Into Real-World Treatments

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America has a drinking problem and the National Institute on Alcohol Abuse and Alcoholism is helping the scientific community do something about it.

There is a great deal of knowledge gained in laboratories about the abnormal behaviors of alcohol abuse and how to treat and prevent them and the suffering they cause. NIAAA is now promoting a pair of program announcements that urge researchers to answer key questions that will help build bridges across which that knowledge can travel between the laboratory and “real world” treatment settings. (See Page 12.)

Investigators funded by the Institute have been learning a great deal about the neuroscience and biology of the problem, for example charting the brain activity of binge-drinking laboratory animals to discover what changes in neurotransmitter pathways affect the craving and reward systems that contribute to at-risk drinking behaviors. Animal models are also revealing the progression of fetal alcohol syndrome through pregnancy and birth, and clinical/human data expose the susceptibility of adolescent brains to damage by alcohol.

“We’re very excited about being able to do this,” said NIAAA Director Ting-Kai Li, a biochemist and internist who has been at the center of advances that have transformed both our understanding of alcoholism and how alcohol’s effects are investigated. Translating science into people-helping behavioral interventions is particularly important in alcohol-related research, he notes, because behavior is one of the important roots of this problem. “It has biological and genetic roots as well, but they are all integrally involved. The study of behavior is key, looking at the genetic basis of behavior and at how this behavior is modified by the environment.”

By way of example, Li cites evidence in both animals and humans that early exposure to alcohol produces abnormal drinking behavior in later years. “As a result of early drinking, they have a higher risk of alcoholism. And because their brains are still growing, some also suffer immediate consequences in cognition, in their schoolwork, and what comes downstream from that. This is a new initiative that we are focusing on. The basic science gives you the evidence you need to mount an intervention project for children. That’s one initiative we would like to advance.”

But the science often has difficulty finding its way out of the laboratory and into real-world treatments.

“When they get published in journals, a lot of scientific results look good on people’s cv’s,” said Harold Perl, chief of NIAAA’s health services research branch, “but that doesn’t help the world become a better place; it doesn’t help those who suffer from alcohol; it doesn’t help avoid the costs associated with that suffering, and it doesn’t help families avoid the suffering caused by their loved one’s problems. For those things to happen, service providers and policy makers need to be able to translate the research findings into actual treatment and prevention interventions. Journals on library

bookshelves don't do that by themselves.”

The translation is truly a bridge between two different worlds, Perl said. “In the first stages of clinical research, questions are very circumscribed, they're tightly focused, and the populations studied are homogeneous and tightly controlled. The real world doesn't work that way. Physicians and counselors have caseloads. There are demands on their time that a research setting does not impose, and the patients they work with are not the very clearly defined, highly selected patients enrolled in research studies; rather, they're working with whomever walks through their door. One of my branch's jobs is to see how well these interventions that are shown to work in the ideal setting work in settings that are less than ideal, where everyday clinicians work with everyday patients.”

Pressure to find new ways to translate science into practice began mounting during the 1990s, Perl said, as “we started to understand both in and outside of the Institute that prior methods of knowledge diffusion were not working as well as we would have liked.” In 1997, the need was made explicit when a subcommittee of the National Advisory Council on Alcohol Abuse and Alcoholism recommended that NIAAA support investigations into ways to get research findings adopted in the real world.

That reinforced a variety of efforts, including the two recent program announcements, NIAAA-sponsored training forums, a Researcher in Residence program, NIAAA's Alcohol Research-to-Practice Network, and full-day workshops at the annual conferences of the Research Society on Alcoholism tailored specifically for alcohol treatment providers in the host city. At these workshops, the world's top alcohol researchers teach frontline clinicians “in a very pragmatic, very usable way how the scientific findings can help them in their everyday work,” Perl said. “We want to get investigators to meet and interact with the clinicians who will be the beneficiaries of their research findings, to develop the communications channels in both directions.”

“Translational research is bi-directional,” Li emphasized. “Typically in the old days, there were the clinicians who identified a problem and took it to their laboratory colleagues and said, ‘Could you look into the causes of this disease?’ The other direction was for the basic scientists to find the [mechanisms] involved and translate that back to the clinicians so they could develop treatment and prevention strategies. This is the classic translational research cycle.”

It's the “next step” in the collaborative process, says Perl, noting that more and more NIAAA-funded research projects are collaborative. “The day of the lone scientist in a white coat working at a bench until midnight doesn't happen anymore. Science is now collaborations across research interests, even across institutions. The next step in the collaborative process is doing more to bring in the end users – clinicians, community-based people, and policy makers who have to make decisions about how resources are allocated.”

That collaboration, he says, should start at the very outset, in development of the research question, “because you want to ask questions that are useful to people, to look at how the research enterprise will fit into the community setting.” The idea is to get more scientists and community-based providers working together in long-term relationships. That Perl said, “inherently will make research findings more useful to the people who actually treat persons with alcohol disorders.”

Changing the behaviors of researchers, even behavioral researchers, isn't as easy as it may sound. “The

institutional and societal pressures on an academic researcher are very strong,” Perl acknowledges. “They must get articles into journals. They don’t get credit for developing a useful manual for their intervention; it doesn’t count on their cv. But if institutionally we recognize that as important, then the scientific folks would be more inclined to include it.

“As a funding agency, perhaps we can influence investigators by encouraging that very strongly as part of what makes their application more attractive or more scientifically robust. We’re doing it implicitly, in terms of the technical assistance we provide prospective applicants, but there’s no formal mechanism for it. It is not one of the criteria on which applications are judged. Whether that will change in the future remains to be seen.”

NIAAA has already scored some successes along those lines. Perl cited the promotion of brief interventions in doctors’ offices and clinics for problem drinkers – those who are not alcoholics and thus are unlikely to show up in an alcohol treatment program. “Most of them go to their doctor or to a health clinic for other medical reasons,” he pointed out. “When they do, if a physician or other clinician screens for the presence of risky drinking behavior and does a brief intervention – for as little as five or 10 minutes – it can be effective. We have supported a number of projects that have studied the effectiveness, cost-effectiveness, and benefits of these brief interventions. And now we’ve started translating scientific findings into places where they can be implemented, such as physicians’ offices, emergency rooms and ob/gyn clinics.”

Judith Ockene of the University of Massachusetts Medical Center in Worcester, developed one of those models, a patient-centered program she used successfully in smoking and diet behavior change programs. She applied it to screening and counseling for alcohol abuse as well and found it effective. The method is now taught throughout the medical school curriculum in Worcester and she will take it to any health care provider willing to listen and try it – physicians, nurse practitioners, health counselors, managed care organizations and community health centers.

“Physicians are very open to it,” Ockene said. “We also help them figure out how they can fit it into their system of care. How do you set up a system that makes it happen, that makes it easier for you to do it? That’s where you get into translating it into practice in the real world. There are lots of challenges if we really want to make this something that everybody picks up. But I think physicians buy into it. They all want to do the right thing and help their patients be happy and healthy. The big challenge is how you put prevention into practice in the regular medical care system.”

The story of Naltrexone is a case in point. The Food and Drug Administration approved it in 1994 for use in conjunction with psychosocial therapy to reduce the craving for alcohol, but health care providers were slow to adopt it, despite proof of its effectiveness. NIAAA funded a study to find out why. Investigators discovered that neither physicians nor non-physician providers were well educated about its effectiveness and availability; the systems in which they worked were not receptive to it; Medicaid and insurance companies were reluctant to reimburse for it and, “rightly or wrongly, the providers believed their patients couldn’t afford it,” Perl said.

Pharmaceutical companies typically promote their brand name drugs, but Naltrexone has “gone generic,” so it has no marketing impetus. Enter NIAAA’s Researcher in Residence Program, which sends a nationally recognized researcher to a treatment clinic for an intensive two-day session of

teaching front-line health-care staff and policy makers about a scientifically supported intervention. In 2000, Stephanie O'Malley of Yale University visited St. Mary's Hospital in Amsterdam, New York, and taught its alcoholism service about using Naltrexone in its protocol.

"She had good support from the leadership and from community leaders," Perl said. "The clinic staff found it useful and successful. That built up the momentum to use it as part of their treatment package." O'Malley and the hospital's clinic director now often participate in conference symposia together promoting both use of the drug with psychosocial therapy and the teaching process itself.

Traffic is slowly increasing across the bridge between research and practice, Perl says, but it still has a long way to go. "When people start to understand the importance of it, they become much more interested in doing it. Our job has been to try to get the investigators to understand that this is an important area that needs to be addressed, and also that we're willing to support it with dollars. It started slow, but it is starting to pick up. We're getting more applications that are looking at how research findings can be adopted. But we're not there yet. We're still interested in getting a lot more."

This is the second in a series on translational research at various NIH institutes.