

Unearthing Interdisciplinary ‘Gems’ in Addiction Research

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At a time when legislators are questioning the extent to which state appropriations should be covering the costs of higher education, an innovative research program at Indiana University (IU) is demonstrating the role university-generated scientific research can play in addressing important real-world issues. IU’s Responding to the Addictions Crisis Grand Challenges are bringing the work of psychological scientists out of the ivory tower and into scientists’ communities, said APS Fellow Bill Hetrick, chair of IU’s psychological and brain sciences department.

The \$50 million partnership between IU and the Indiana governor’s office was announced in October 2017. Since then, the first phase of the Grand Challenges has funded a range of projects focused on data analysis, education, policy, addiction science, and community development. Highlights include a series of policy simulations modeling the impact of potential legislation on substance abuse and a social network analysis of doctor shopping designed to identify narcotic “hubs” where doctors may be inappropriately dispensing addictive compounds.

“It’s very important for universities to position themselves to make sure the intellectual capital of the university can be, at least in part, captured to effect change and progress on major societal problems,” said Hetrick, a member of the Grand Challenges steering committee who studies the cognitive neuroscience of schizophrenia and substance use.

The opioid epidemic is central to the addiction crisis gripping the United States, said Hetrick, but it’s far from the only issue in play — in many states, including Indiana, cigarette smoking, alcohol abuse, methamphetamine use, and the possibility of legalizing marijuana for medical and recreational use are all grabbing attention.

Across the Campus and State

These interdepartmental and interdisciplinary collaborations involve contributors from across IU’s schools of medicine, informatics and computer science, law, public health, and education, as well as

healthcare practitioners and criminal justice professionals throughout Indiana, and more than a few psychological scientists.

“It’s great to have new faces at the table and at the same time it’s a challenge to bring them up to speed with regard to the addiction literature,” Hetrick said. “There’s a lot of learning, a lot of being willing to sit down and work through differences in order to work effectively together to address a pressing societal challenge.”

In one of these collaborations, APS Fellow Brian D’Onofrio, a professor of psychology and director of clinical training at IU, works with colleagues at IU and the University of Chicago to test an online substance use and mental health-risk screening tools in courts, hospitals, and mental health facilities throughout Indiana. In contrast to a set questionnaire, computer-adaptive testing allows an algorithm to select the best questions to use in an assessment based on each user’s previous responses.

People with conditions such as depression, anxiety, and existing substance-use disorders are more likely to receive a long-term prescription for chronic pain or injury, D’Onofrio explained. Providing doctors with a fuller picture of their patients’ mental health can help them tailor treatment based on addiction risk.

Additionally, he noted, the digital interface can help reduce staff burden because it can be administered online or via a tablet instead of face-to-face by a practitioner.

D’Onofrio, whose previous research has focused on the role of childhood adversity and genetics in developmental psychopathology, said the Grand Challenges have opened up a new line of research for him.

“I’m coming to a realization that we need to start intervening and doing better assessment in real-world settings if we really want to reduce the burden of behavioral health problems,” D’Onofrio said. “The problems are so large that we are going to need a multifaceted approach.”

Research in the Fast Lane

In addition to offering opportunities for cross-collaboration and graduate training, the Grand Challenges allow researchers to dive into the research process much more quickly than they would if they were funded by more traditional grants, said Ken Mackie, a professor of psychological and brain sciences at IU. Mackie, who researches how the social and therapeutic use of cannabis influences the endocannabinoid system of the brain, serves on the Grand Challenges scientific leadership team, cochairing the basic, applied, and translational research pillar.

In the traditional grant application process, he said, going from idea to grant submission to funding in 9 to 10 months is considered swift progress. On the other hand, researchers who submitted applications for the first phase of Grand Challenges funding in June 2018 were funded in October — a 4-month turnaround.

The Grand Challenges also offer an opportunity for researchers to propose ideas that are “a little more out of the box,” Mackie said.

“Not everything is going to be successful, but out of some of those things you’re going to find real gems,” he said.