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Drug Abuse Policies and Treatment Efficacy

Advocating prevention and treatment accessibility

Drug abuse and its extensive, negative impacts are pressing problems in today’s society. For most of his career at Andrews University, Duane McBride, director of the Institute for Prevention of Addictions, chair of the Department of Behavioral Sciences and research professor of sociology, has been addressing that problem in his research. In the past, he has researched juvenile delinquency, AIDS infection of IV drug users, the efficacy of state and federal drug legislation, and the role of public health institutions in prevention and treatment programs. McBride, long-time chair of the Berrien County Board of Health, has found that public health organizations are effective avenues for providing treatment of drug abuse and offering educational programs designed to prevent substance abuse. One of his recent papers, “Reflections on Drug Policy,” outlines a brief history of drug policy in the United States and analyzes different approaches to treatment, while advocating prevention and diversion to treatment instead of incarceration.

His recent projects address current drug policies and their effects. The first project, funded by the National Institute of Justice, focused on the impact of state laws on reducing the number of small toxic laboratories used to cook methamphetamine. Many states have recently passed legislation requiring identification for anyone wishing to purchase certain over-the-counter medicines containing pseudoephedrine. Home labs often use large quantities of the ingredients in these medicines to produce the illegal drug methamphetamine. These home labs have a damaging effect on communities, including the physical danger of an unstable lab blowing up and the toxic effects of harmful chemicals on the environment. These “small toxic labs” are also accompanied by increased rates of child abuse and an increased incidence of violence and identity theft, as well as harmful consequences of the drug itself.

States have tried a number of ways to counteract this problem, such as limiting the quantity of medicine that can be purchased, requiring identification and monitoring each purchase. McBride’s research data indicates that methods of requiring identification combined with monitoring and regulating purchase of over-the-counter medicines containing pseudoephedrine leads to the most noticeable decrease in home labs. This evidence supports the conclusion that monitoring and regulation programs are most effective when all purchases are documented at one centralized location, instead of collected and kept in individual stores. A qualitative component of this project led by Curt Vanderwaal, chair of the Department of Social Work, found that law enforcement officials and pharmacists preferred regulation and monitoring over criminalization.

The second project, funded by the Robert Wood Johnson Foundation-funded Substance Abuse Policy Research Program, focuses on the impact of drug abuse treatment made available through Medicaid, particularly treatment available to African-Americans. The current analysis explores the availability of ancillary/transitional programs, such as transportation to and from treatment and childcare, as well as programs to transition users back into the community. The study found treatment programs that accepted Medicaid provide greater access for African-Americans, because the programs are also more likely to provide supplementary programs that help patients stay in treatment. Often, African-American women patients in court-ordered treatment do not have childcare or transportation to the facilities. Drug treatment is often seen as secondary to these needs and many patients stop treatment because of these issues. When these supplementary services are available, the programs see increased retention and smoother transitions to the community. Additional post-treatment transitional programs, available through Medicaid, further a successful outcome. In both of these projects, McBride worked with an Andrews alumnus, Yvonne Terry-McElrath. McBride works hard to include students in his projects, which gives them greater access to strong graduate programs and future careers in research.

Analyzing Biblical Narrative

Applying common research methods in new ways

“In studying a document that’s 2000 years old, how do you come to new insights? You apply common research methods in new ways.” Tom Shepherd, professor of New Testament in the Seventh-day Adventist Theological Seminary, has been involved in such research, and it is paying off in better understanding of both the early manuscripts of the New Testament and the history of early Christian communities.

He recently co-organized a conference in Belgium titled “Resurrection of the Dead: Biblical Traditions in Dialogue” along with New Testament professor Geert Van Oyen of Université Catholique de Louvain. The conference brought together an international group of scholars who presented papers on the topic. Peeters Publishers, a well-known publisher of religious scholarly articles, will release a compilation of papers presented at the conference, which Shepherd will co-edit. Included in the book will be Shepherd’s most recent paper, analyzing the ending of the Gospel of Mark in Codex Vaticanus and Codex Washingtonianus.

Using a new methodological approach, he combines narrative analysis and textual criticism to better understand Scripture. Textual criticism involves looking at variations of wording in Biblical manuscripts and, through the use of carefully formulated guidelines, determining as closely as possible the original text. Narrative analysis is used to examine literature, studying settings, characters, stylistic features, actions and historical context to determine what point the story is trying to make. Shepherd analyzes the same story in different manuscripts and then compares how
Biosensor Technology

Detecting viruses and genetic disorders

“Engineers are the people who connect science and society,” says Hyun Kwon, assistant professor of engineering and technology, as she describes the philosophy of her current research. The discoveries biologists make have practical and beneficial applications in human life, but how does that knowledge become tangible and helpful? One application in this interdisciplinary approach is the field of biosensor technology. Biosensors use living organisms or organic molecules to detect the presence of any given substance. Kwon and her team of students are currently working on a biosensor that will detect viruses and genetic disorders from a small sample of human fluids.

Currently, this process often requires many complicated and time-consuming lab tests. A biosensor of the type Kwon’s team is developing could make testing for viruses or disorders as simple as a tool touched to a small sample from the patient. The team is currently running tests on consistently smaller concentrations, in order to see accurate results in the smallest possible samples. The science behind this technology relies on the properties of the protein calmodulin, which controls many biological functions by binding to hundreds of other proteins. Calmodulin “changes its configuration depending on the presence of Ca²⁺,” as a recent research presentation states. In Kwon’s research, calmodulin molecules are placed on a quartz crystal disk and can indicate abnormalities in the bloodstream or genes.

Together with researchers at the University of Maryland-Baltimore and the University of Notre Dame, she hopes to make an already-tiny device even smaller. Utilizing Notre Dame’s nanotechnology laboratory, she envisions biosensor technology being developed at the ultra-microscopic level. In addition to shrinking the size of the device, she intends to reduce the amount of sample needed to obtain accurate results.

Kwon’s student assistants are primarily senior undergraduate students, with one notable exception: Michael Hernandez, an incoming freshman from Andrews Academy, who recently began working on the project. He believes that the project will give him “a headstart into the next year,” when he plans to enter the mechanical engineering program. “I plan on learning a lot,” he says. Sandra Prieto, a graduate engineering student, is currently working as a lab assistant on the project. She “helps with the solutions and experiments,” but will also learn “how to read and interpret the data,” she says.