

INTRODUCTION.

The influence of behavioral factors in modifying the behavioral effects of a drug has long been recognized. Factors such as the baseline rate of responding can determine whether a drug increases or decreases response rate. Conditioning influences can determine whether a drug is self-administered or not. Further, the history of an animal, both with different behavioral baselines and with different drugs, can greatly influence the effect of a drug. Despite the profound influence behavioral variables can have on a drug's effect, these factors are often ignored when considering a drug's influence on behavior. These behavioral factors take on added importance when studying drugs of abuse, because of their profound central nervous system effects. The purpose of the proposed symposium is to present an up-to-date view of this area of behavioral pharmacology. The focus of the symposium will be on behavioral influences on the effects of abused drugs. An overall view of behavioral influences in drug abuse will be given by Dr. Dews. Drs. Higgins and Nader will discuss how stimulus control and behavioral history can also dramatically alter the effects of abused drugs. Dr. Goldberg will discuss how conditioning of drug effects to environmental stimuli can greatly influence self-administration behavior in animals. Dr. Childress will demonstrate how these influences directly affect human drug self-administration, and how those influences can affect the treatment of drug abuse. All of the proposed speakers are recognized experts in the field, and the proposed topics cover a wide range of issues important to the field. Because of the profound influence of drug abuse on our entire society, the symposium should be of interest to a wide range of APA members, and in particular to those members of APA who are also members of Division 28.

BEHAVIORAL CONTEXT OF ABUSE. Peter Dews. Harvard Medical School, Boston, MA.
(Abstract not available)

MODULATION OF DRUG EFFECTS ON COMPLEX DISCRIMINATED BEHAVIOR. S. T. Higgins, Warren Bickel and J. R. Hughes. University of Vermont, Burlington, VT.
(Abstract not available)

THE INFLUENCE OF EXPERIMENTAL HISTORY ON THE BEHAVIORAL EFFECTS OF DRUGS. Michael Nader. University of Chicago, Chicago, IL.

In most studies using nonhuman animal subjects, experimental history is controlled by using experimentally naive subjects. However, a growing body of data indicates that experimental history can have profound and long-lasting effects on the behavioral effects of drugs. In addition to documenting the malleability of behavior following different experimental histories, evaluation of factors such as baseline schedule, drug type and dosing regimen will help elucidate the interactions of experimental history with ongoing behavior. For example, acute administration of methadone or *d*-amphetamine affected fixed-interval (FI) responding differently depending on whether the subjects were first exposed to a schedule that generated high (fixed-ratio; FR) or low (inter-response times > t-sec; IRT > t-sec) rates of responding. This differential effect of methadone was not due to differences in baseline rate of responding. The current contingencies controlling behavior are also important determinants of the influence of schedule history. In separate experiments, different reinforcement schedule histories did not differentially affect response rates following acute methadone or *d*-amphetamine when behavior was maintained

under variable-interval (VI) schedules. However, when methadone was administered daily before VI sessions, tolerance was more rapid and more complete in pigeons with prior experience under the low-rate schedule. This suggests that the influence of reinforcement schedule histories may be different depending on whether drugs are administered acutely or chronically. Further examination of variables such as interresponse time distributions may help in understanding the long-lasting influence of prior experience. Experimental history may produce effects in addition to changes in response rates or response topography. In a preliminary study (Barrett, J. E.; Nader, M. A. *Drug Dev. Res.* 10: 1990) pigeons were initially trained to key peck under an FI schedule. When responding was stable, each pigeon was implanted with a chronic intraventricular cannula to allow for cerebrospinal fluid withdrawal during experimental sessions. Concentrations of dopamine, serotonin and norepinephrine metabolites were measured during FI sessions, before and after different reinforcement schedule histories. Levels of the serotonin metabolite 5-hydroxyindoleacetic acid were significantly lower in pigeons with an IRT > t-sec history compared to FR-history subjects. Consideration of environmental (schedule of reinforcement) and behavioral (response rates, pattern of responding) variables, in addition to neurochemical changes that may be a consequence of different reinforcement schedule histories, will lead to a better understanding of the determinants of drug effects on behavior.

THE INFLUENCE OF ENVIRONMENTAL STIMULI ON DRUG-SEEKING BEHAVIOR. Steven R. Goldberg and Charles W. Schindler. National Institute on Drug Abuse, Addiction Research Center, Baltimore, MD.
(Abstract not available)

REPEATED EXPOSURE TO DRUG "REMINDER" CUES CAN REDUCE CRAVING AND AROUSAL IN DRUG ABUSERS. Anna Rose Childress. University of Pennsylvania, Philadelphia, PA.
(Abstract not available)

SYMPOSIUM

Aids Prevention Policy for IV Drug Users When Politics and Science Meet

Chair: *William A. Bailey*, American Psychological Association, Washington, DC

DOES STREET-BASED AIDS PREVENTION WORK?: THE CASE OF SYSTEMATIC INTERVENTION WITH IVDUs. John K. Watters. University of California, San Francisco, CA.

Data will be presented from San Francisco examining the role AIDS education has played in self reported risk behavior and HIV seroprevalence among heterosexual intravenous drug users (IVDUs). In collecting the data, seven cross-sections of IVDUs were recruited in both clinical and street settings from 1986 through 1989. The first cross-section antedates the implementation of a street-based community outreach program to IVDUs. Subsequent cross-sections were sampled at six month intervals beginning six months after implementation of the intervention. Interviews were conducted by trained interviewers independent of any outreach program. A targeted sampling procedure was used netting approximately 500 interviews per cross-section. Questionnaires focused on demographics; drug use and medical histories; and knowledge, attitudes, beliefs, and behaviors relevant to HIV transmission. Data on key behavioral variables (e.g., needle hygiene, use of condoms during intercourse, number of needle-

sharing partners, sources of information about AIDS) were examined both over time and between major ethnic groups and has been related to HIV infection rates observed in this population. The data suggest that while Blacks tended to have higher HIV infection rates than Whites or Hispanics, Blacks consistently reported lower risk involvement than Whites. Behavior change in most key areas of risk were dramatically improved over the course of the study among all ethnic groups. The greatest improvements were in the area of self-reported needle hygiene. Prior to implementation, safe needle hygiene (as defined) was reportedly used about 13% of the time on average. By early 1989, this figure had jumped to approximately 79%. Over the course of the study HIV infection rates remained below 15%. This research effort shows that community outreach in San Francisco has been, and continues to be a major source of AIDS information for IVDUs including those who remain outside of the treatment system. Greatly reduced behavior, and low rates of HIV seroincidence and seroprevalence strongly suggest that street-based outreach programs have been an important factor in lowering the overall ecology of risk for HIV infection among IVDUs in San Francisco.

BLEACH AND AIDS. POLICY AND SCIENCE: A VIEW FROM NIDA. Charles R. Schuster. National Institute on Drug Abuse, Rockville, MD.

One of the critical social characteristics of IV drug use that has made the transmission of the AIDS virus so prevalent is the habit of sharing needles or "works," which often contain blood residue. Bleach, which can be distributed in small vials to IV drug users by outreach workers, can kill any of the live AIDS virus that may be lining the needle. The need for behavior change within IV drug culture has made bleach research an important psychological contribution to the war on AIDS. Since 1986, the National Institute on Drug Abuse (NIDA) has been investigating the role of bleach distribution as part of a comprehensive strategy for AIDS prevention among the IV drug-using population. Preliminary data from these prevention demonstrations have indicated very positive results. From one project site, for example, the disinfection of syringes with bleach has become a common practice, with safe needle hygiene up from 16% in 1986 to 79% in 1989. Similarly, demand for drug treatment is up among the population reached by bleach distribution, as is condom use. Unfortunately, during Senate consideration of the FY 1990 appropriations bill for the Departments of Labor, Health and Human Services, and Education, Senator Jessie Helms (R-NC) offered an amendment that was adopted (99 to 1) banning the use of federal funds for programs that distribute needles or bleach to IV drug users. During Congressional reconsideration of the issue, the prohibition was overturned. The Administration played a critical role in this policy reversal, with Assistant Secretary for Health, James Mason, M.D., issuing a letter to the Congress in support of the bleach program. This critical turnaround in the Senate's approach to AIDS prevention will permit NIDA to continue funding its \$35 million AIDS prevention demonstration outreach research grants. This presentation will focus on the important data emerging from these studies, the central role NIDA is playing in fostering such prevention activities, the process by which research data informed the Administration's position on this issue and the future of these important demonstration efforts.

INTERESTED PARTIES: THE NATIONAL ACADEMY OF SCIENCE AND THE NATIONAL COMMISSION ON AIDS. Don C. Des Jarlais. Beth Israel Medical Center, New York, NY.

The translation of scientific data into public policy is rarely a straightforward, "logical" process. Some examples of the policy process, however, are sufficiently complex that they serve as illuminating case histories of the weight of scientific information, institutional factors, budgetary concerns, extraneous concerns, and fortuitous factors (timing) in the process of translating data into policy. This presentation will describe the roles of two of the most prestigious institutional advisors to the federal government in AIDS policy formulation (the National Academy of Sciences and the National Commission on AIDS) in the recent Congressional controversy regarding syringe exchanges and bleach distribution as AIDS prevention programs for intravenous drug users. Data was collected through participant observation. The author serves as a member of the Committee on Behavioral, Social and Statistical Research on AIDS of the NAS and as a Commissioner of the National Commission on AIDS. Data will also be presented on bleach and syringe distribution as AIDS prevention strategies in other developed countries to provide a context for examining the United States situation. The National Academy of Sciences has recommended research on bleach distribution in all of its reports on the AIDS epidemic. The proposed legislation would thus be in direct opposition to the NAS position. Additionally, the proposed legislation would have prohibited federal support for research until a political leader (without scientific qualifications) had analyzed the available research and determined that bleach distribution and/or syringe exchanges were safe and effective. This was considered a potentially disastrous precedent for science policy by staff and NAS AIDS Committee members. The by-laws of the NAS, however, prohibit lobbying on legislative matters, so that no action was taken by the NAS to influence the bill. The National Commission on AIDS was specifically organized to provide advice to both the executive and legislative branches on AIDS policies. The Commission has held only a few meetings, however, and had not had time to examine issues related to bleach distribution and syringe exchanges in depth. A commission meeting had been scheduled in Washington at the time of legislative action on bleach and syringe exchanges, and these topics were added to the agenda. The Commission adopted a resolution in strong support of continuing bleach distribution. This resolution was released to the press and supplied to relevant House and Senate members. Compared to the European and Australian situations, AIDS policy in the United States appears much more politicized, with less importance given to current scientific opinion. Additionally, the separation of powers into an executive and legislative branch appears to create opportunities for change factors to influence policy making on health issues.

AIDS PREVENTION AND THE U.S. CONGRESS: THE BLEACH DISTRIBUTION DEBATE. William A. Bailey. American Psychological Association, Washington, DC.

In a dramatic upset, APA played a major role in securing a reversal of the U. S. Senate's policy on distributing bleach for the prevention of AIDS transmission among IV drug users. As the first session of the 101st Congress drew to a close, the issue of bleach appeared to be resolved for the time being. This case study shows, however, how a small cadre of committed scientists from around the country can effectively influence the course of public policy through some intensive and committed efforts. APA led the effort to draw attention to the issue and developed a national consensus around the need to defend the bleach program. Prior to APA action very few policy makers were aware of the grave implications of the Helms amendment language. Through APA's leadership in the National Organizations Responding to AIDS (NORA) over 30 national organizations signed a letter in support of ongoing bleach