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 turnabout 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

distribution research. APA also acted as a central coordinator of the grassroots lobbying effort that was undertaken by the 65 NIDA-funded research sites across the country. Working with the White House, APA also proved instrumental in getting HHS to issue a statement of support for the program. This ultimately proved essential in turning the Senate around. The parliamentary effort involved a significant amount of fancy foot work. Although they had originally opposed the bleach distribution program at the outset by large margins, by the time the bill got back to the Senate for the last time, enough Senators had heard the educational message from the scientific community, and the supportive letter from HHS had arrived. These factors provided the needed political cover, and the funding of the bleach distribution programs was retained. Continued vigilance is critical in this area of AIDS policy. The IVDU community, unlike some of the other AIDS-affected populations, does not have an organized presence in Washington. Given this and their stigmatized and vulnerable position leaves them open to regular political attack. Without the help of the scientific community in this example, a major tool of AIDS prevention would have been lost.

SYMPOSIUM

The Current Status of Human Drug Discrimination Research
Chair: *Alison H. Oliveto*, University of Vermont, Burlington, VT
Discussant: *Donald Overton*, Temple University, Philadelphia, PA

DISCRIMINATIVE STIMULUS EFFECTS OF DRUGS IN HUMANS: STIMULANTS AND SEDATIVES. Stephen J. Heishman. Addiction Research Center, National Institute on Drug Abuse, Baltimore, MD; Richard J. Lamb. University of Medicine and Dentistry of New Jersey, Camden, NJ; Jack E. Henningfield. Addiction Research Center, National Institue on Drug Abuse, Baltimore, MD.

Much research has evaluated the discriminative stimulus effects of psychoactive drugs in animals. Recently, analogous drug discrimination paradigms have been developed for human testing. In two similar studies, subjects were trained to discriminate *d*-amphetamine 30 mg PO (Drug A) from placebo using a color tracking procedure with second-order scheduling. Daily experimental sessions tested one oral drug dose or placebo. All subjects readily acquired the discrimination and reported increased subjective ratings of drug liking, drug strength, and good drug effects after *d*-amphetamine compared to placebo. In the first study, subjects were then tested with *d*-amphetamine (3.75–30 mg), diazepam (5–40 mg), and methylphenidate (7.5–60 mg) to determine if the discriminative stimulus effects of these drugs would substitute for Drug A. In the second study, generalization testing involved the same doses of *d*-amphetamine and hydromorphone (2–12 mg). In both studies, *d*-amphetamine produced dose-related *d*-amphetamine-appropriate responding. Methylphenidate also substituted for the Drug A stimulus in a dose-dependent manner. In contrast, neither diazepam nor hydromorphone engendered Drug A-appropriate responding. These generalization data indicate that the learned drug discrimination was pharmacologically specific. Subjective drug effects collected concurrently with generalization testing revealed interesting data on the relationship between subjective and discriminative stimulus effects. In the first study, subjective effects produced by the drugs generally covaried with the discriminative stimulus effects. For example, *d*-amphetamine and methylphenidate, which substituted for Drug A, produced dose-related increases in ratings of drug liking and scores on the MBG, BG, and A scales of the Addiction Research Center Inventory, whereas diazepam did not. However, in the second study, *d*-amphetamine and hydromorphone dose-dependently increased reports of drug liking and scores on the MBG and A scales, although hydromorphone failed to substitute for the Drug A stimulus. These data indicate that drug discrimination procedures are useful for studying the discriminative stimulus effects of drugs in humans and that the subjective and discriminative stimulus effects of drugs do not necessarily parallel one another.

CAFFEINE AS A DISCRIMINATIVE STIMULUS IN HUMANS. Alison H. Oliveto, Warren K. Bickel, John R. Hughes, Stephen T. Higgins and Pam Shea. University of Vermont, Burlington, VT.

Although caffeine is the most widely used psychoactive compound in the world, its behavioral effects have not been investigated extensively. The present study examined the ability of caffeine to serve as a discriminative stimulus in humans. Briefly, 8 healthy male and female subjects (aged 18–45 years) having some prior experience with caffeine were employed. During the experiment, subjects were required to abstain from alcohol and caffeine for 12 hr and solid food for 4 hr prior to each session. The following procedure was used to determine whether subjects could learn to discriminate between 320 mg/70 kg of caffeine (e.g., drug A) and placebo (drug B): During the first 4 daily sessions (Training Phase), drug A and drug B were administered orally in capsule form 90 min prior to the session on alternate days and subjects were informed of the drug label at the time of drug administration. Over the next 20 sessions (Test of Acquisition Phase), drug A and drug B were administered in a randomized-block fashion, such that each drug was administered twice every four days, and subjects were informed of the drug label after the session terminated. Discrimination was assessed by measuring: 1) percentage of points accumulated using the appropriate drug label manipulandum under a concurrent fixed-interval 1-sec schedule; 2) identification of the appropriate drug label under a discrete choice procedure; and 3) number of points out of 100 placed on the appropriate drug label. Thus far, 2 of 3 subjects learned the discrimination within 20 sessions. A caffeine stimulus generalization curve was obtained, such that caffeine at doses of 56 and 100 mg/70 kg generally produced placebo-appropriate responding, whereas caffeine at doses of 180, 240 and 320 mg/70 kg generally produced caffeine-appropriate responding. Triazolam (0.10–0.56 mg/70 kg) produced predominantly placebo-appropriate responding. These preliminary results indicate that the caffeine stimulus is discriminable and has pharmacological specificity.

DISCRIMINATIVE STIMULUS PROPERTIES OF DIAZEPAM IN HUMANS. Chris E. Johanson. Uniformed Services University of the Health Sciences, Bethesda, MD.

Nineteen normal human volunteers participated in an experiment designed to investigate the discriminative stimulus properties of 10 mg diazepam. On each experimental session, participants filled out a series of mood questionnaires, ingested a capsule, and then were free to leave, i.e., they returned to their normal daily activities. At 1, 3 and 6 hr after leaving, subjects filled out additional sets of the mood questionnaires. During phase 1, the participants were trained to discriminate between 10 mg diazepam and placebo by identifying the capsule to the participant prior to ingestion using letter codes (A or B). Each subject received two sessions with diazepam and two with placebo under single-blind conditions. During phase 2, subjects were not told which capsule they received prior to ingestion and were asked to telephone the experimenter 6 hr after ingestion to report their discrimination