

Teen drug use—except cocaine—falls

The level of cocaine use among U.S. high school seniors has not changed since 1979, although there is a growing aversion to marijuana, cigarettes and alcohol, according to an annual nationwide survey released last week.

Self-reports of cocaine use sharply increased between 1976 and 1979, but since then the rates of use have been relatively stable, says Lloyd D. Johnston of the University of Michigan in Ann Arbor, one of three social psychologists who conducted the study of approximately 16,000 high school seniors in 140 public and private schools throughout the United States. "Still, usage levels are troublingly high," he notes.

Of the seniors surveyed last year, 16 percent had used cocaine at least once, 12 percent had used it during the previous year and 6 percent were monthly users of the drug. Monthly use increased the most in the northeastern states, from 7 percent in 1983 to 11 percent in 1984.

At the same time, monthly use of all illicit drugs among seniors dropped to 29 percent in 1984, down from 33 percent in the previous year. This is the lowest reported level since the government-sponsored survey began in 1975.

Monthly use of marijuana fell to 25 percent in 1984 from 27 percent in 1983.

Daily use was reported by 5 percent of the seniors, continuing a steady decline from the 11 percent reported in 1978.

"While most seniors do not view experimental or occasional use of marijuana as particularly risky, between one-half and two-thirds of all seniors personally disapprove of these behaviors," says Johnston. Marijuana's loss of popularity in the face of its widespread availability shows that "drug abuse can be dealt with effectively through reducing the demand for drugs, not just the supply," he adds.

The percentage of seniors reporting alcohol use in the prior 30-day period continued to decline from a peak of 72 percent in 1979 to 67 percent in 1984. The number drinking daily, or almost daily, fell from 7 percent to 5 percent over the same period. "Binge drinking" (5 or more drinks in a row during the last two weeks) declined to 39 percent last year from 41 percent in 1983.

Cigarette smoking by seniors fell to the lowest level ever reported, with less than 19 percent smoking half a pack or more a day.

In addition, there were moderate declines in monthly use of LSD, sedatives, stimulants and PCP. The use of heroin and other opiates remained stable between 1983 and 1984. —*B. Bower*

Aspirin and Reye's: Industry responds

Parents of children and teenagers may want to think twice before doling out the aspirin to treat chicken pox and flu this winter. And if the aspirin industry lives up to its word, consumers may find a reminder to that effect on bottle labels.

Taking aspirin for viral infections like chicken pox or flu may lead to the development of Reye's syndrome, according to a study conducted last year by the Centers for Disease Control (CDC) in Atlanta. Reye's syndrome is a childhood disease that often appears after the onset of viral infections. Symptoms include vomiting and fever, progressing to convulsions and coma. About one out of four victims dies.

Aspirin manufacturers agreed Jan. 11 to develop labels warning of a possible link between aspirin and Reye's syndrome, said Joseph White, Aspirin Foundation president. The statement came after a request Jan. 9 by Health and Human Services Secretary Margaret M. Heckler for voluntary warning labels. The Aspirin Foundation represents companies including Sterling Drug, Inc., the Bristol-Myers Company, Miles Laboratories, Inc., Whitehall Laboratories, E. R. Squibb & Sons, Inc., the Burroughs Wellcome Company and Procter and Gamble, among others. Plough Inc., manufacturer of St. Joseph children's aspirin, also said it would cooperate with the secretary's request for label changes "pending further studies."

The Washington, D.C.-based Public Citizen Health Research Group last week released data from the unpublished CDC study showing that children given aspirin for chicken pox or flu are 25 times more likely to develop Reye's syndrome than similar children not given aspirin. The consumer organization, founded by Ralph Nader, has been pressuring government to require warning labels since 1982. The first suggestion of a link between Reye's syndrome and aspirin came in late 1981, when three state health departments reported increased incidence of Reye's syndrome among children and teenagers who had taken aspirin for chicken pox and flu (SN: 6/19/82, p. 406).

The recent CDC study was a pilot study designed to test the feasibility and methodology of a large-scale study to clarify the relationship between aspirin and Reye's syndrome. Yet the Institute of Medicine (IOM), the group monitoring the study, found its results so compelling it recommended that "steps should be taken to protect the public health before the full study is completed."

"It became apparent that while it was even more essential than before to accumulate more data, this [preliminary] study shows a clear statistical association between aspirin and Reye's syndrome," said Michael Thaler, member of the IOM

Antidote for a heart stopper

When cardiac surgeons stop the heart during an operation, they sometimes hurt the organ they're trying to help. A new chemical regimen may help stop the damage caused by surgery-induced cardiac arrest.

"Much of the success [of cardiac surgery today] is derived from the fact that we can stop the heart and make it bloodless, so during this time intricate operations can be performed," John E. Foker of the University of Minnesota in Minneapolis said this week at the American Heart Association Science Writers Forum in Monterey, Calif. "But there's a price to be paid."

When the heart is cooled and stopped during an operation, its metabolism slows but does not come to a complete halt. During this time, the concentration of its main energy source, the molecule adenosine triphosphate (ATP), is depleted. What Foker and his colleagues have done is find a quick way to restore ATP levels.

In the process of providing energy, ATP loses one of its phosphates and becomes ADP, which in turn becomes AMP. The heart cells usually recycle AMP into ATP, but during heart-stopping surgery, enzymes destroy the AMP.

The goal, then, is to resupply the heart with ATP. But injected ATP is broken down

in the blood and doesn't cross the cell membrane. "So the problem," says Foker, "is to regenerate the precursor." He and his colleagues first tried adenosine, the backbone of the ATP molecule, but found that it cut blood flow to the kidney. They went back one step farther, to adenine and ribose, the precursors of adenosine. In experiments on dogs, they found that administering these two chemicals as the heart was being restarted cut the time it took ATP levels to return to normal following surgery from 10 days to only a couple of days.

The heart's physical recuperation paralleled the biochemical change. The organ doesn't immediately recover its ability to pump blood when it is turned back on; Foker and his colleagues found that it ordinarily takes 10 days to relax fully during each beat. Without fully relaxing, the heart doesn't take in as much blood, and so it doesn't pump as much blood. When adenine and ribose are given, the recovery of full heart function takes one to two days.

After further refinement of the procedure, they expect to try it in humans. Says Foker, "I would hope that we could be under way with this in about six months' time." —*J. Silberman*

committee and medical adviser for the National Reye's Syndrome Foundation.

The pilot study compared 29 children who developed Reye's syndrome following chicken pox or flu with 143 similar children who did not. Ninety-six percent of the children who developed Reye's syndrome had been given aspirin, compared with 45 percent of control group children. Sidney Wolfe, director of the Public Citizen Health Research Group, calls the results "one of the largest risk ratios found in any recent epidemiological study."

Some believe that release of the pilot study's results may complicate implementation of the full study. "It is ironic that with all the publicity that's out, it may not be possible to conduct the full study because we may not be able to get enough kids who have taken aspirin," Thaler said.

Use of aspirin by young children has declined in recent years, possibly accounting for a lower incidence of Reye's syndrome during 1984, according to the Jan. 11 MORBIDITY AND MORTALITY WEEKLY REPORT. There were 190 cases of Reye's syndrome in the United States last year, down from 548 in 1980.

Although a mechanism explaining aspirin's role in the development of Reye's syndrome has not been worked out, Thaler cautions that it may not be a cause-and-effect relationship. Aspirin, he says, may merely exacerbate Reye's syndrome in children who already have the disease.

— D. D. Bennett

Star Wars defense: Is it legal?

It is widely held that a major factor fostering the Soviets' willingness to meet with Secretary of State George P. Schultz in Geneva, Switzerland, last week, to resume discussion of arms controls, was their concern over President Reagan's Strategic Defense Initiative (SDI). Also known as the "Star Wars" program (SN: 7/14/84, p. 26), SDI aims at developing a defense against incoming intercontinental ballistic missiles (ICBMs). The Soviets have repeatedly denounced SDI as being militarily destabilizing. Lately, U.S. critics have begun charging that, besides threatening to accelerate the arms race, SDI is illegal. Together, these charges are catalyzing a whole new round of debate over the future of space weapons development.

The Geneva talks resulted in SDI being made a bargaining chip for future arms negotiations. In fact, one of the three sets of negotiations agreed to by Schultz and Soviet Foreign Minister Andrei Gromyko will focus exclusively on space weapons. In a Jan. 14 interview on Soviet television, Gromyko made it known what his government's gambit will be: Unless the United States abandons SDI as part of some space weapons accord, Gromyko said, talks on strategic and intermediate-

range nuclear weapons will be in jeopardy.

SDI's legality was challenged in the leadoff discussion at a space weapons symposium in Washington, D.C., last Saturday sponsored jointly by the Pasadena, Calif.-based Planetary Society and the Cambridge, Mass.-based American Academy of Arts and Sciences. Explained Harvard Law School treaty expert Abram Chayes, the Anti-Ballistic Missile (ABM) Treaty of 1972 "is the only arms control treaty in full force and effect between the superpowers." That treaty prohibits signatories from deploying ABM systems — or their components — for the defense of their lands. "So we start with the notion that the stated goal of the [SDI] — to provide [an ABM] defense of the country — is presently illegal under the treaty," Chayes said.

Secondly, he notes, Article 6 of the treaty prohibits giving any missile except a designated ABM interceptor the ability to counter ICBMs or their elements in flight. Yet in a recent U.S. Homing Overlay Experiment (HOE), he says, a modified Minuteman-1 ICBM was successfully used to intercept an incoming Minuteman. Since the interceptor was an ICBM, Chayes says, HOE violated Article 6 by giving ABM capabilities to a non-ABM missile.

Finally, he charges that since the treaty rules out development, testing and deployment of anything but a fixed, land-based system at one designated site in each country, SDI is bound to violate the treaty in other areas soon if it hasn't already. Though the treaty permits research on anything — even the proscribed sea-based, air-based, space-based or mobile land-based ABM systems — Chayes asks, "How far do you have to get out of the lab

for it to stop being research?" Similarly, he asks when a part will become so integral as to become an outlawed "component." To claim it isn't violating the treaty, he says, the U.S. exploits ambiguities in the treaty's language.

Arms control consultant Sidney Graybeal of Arlington, Va., who helped negotiate the ABM treaty, was also at the symposium. He challenged many of Chayes's assertions. While acknowledging that the goal of SDI is inconsistent with the treaty, Graybeal points out that "there's nothing in the ABM treaty that limits goals," just certain specified activities. Regarding HOE, he notes that it involved a fixed, land-based system at a designated test range, Kwajalein Island — all perfectly legal. However, he says, the administration may have made a tactical error by calling its Minuteman interceptor a Minuteman, instead of just a test vehicle. "Technically, if the administration calls it a Minuteman 1," he told SCIENCE NEWS, and if it ever gets deployed, "we will have violated the treaty's Article 6."

But the technicality is "a gray point," and certainly not an important potential violation if it is one at all, Graybeal believes. Chayes notes that the Soviets probably have their own infractions to play down — such as the radar being constructed in Siberia that, owing to its location and orientation, seems to be an "early warning" radar that could be useful for ABM battle management.

What most worries SDI's critics and supporters alike is that if the program isn't violating the ABM treaty yet, it probably will soon — as research on space weapons matures into the field-testing phase.

— J. Raloff

Reagan names 3 for cabinet vacancies

President Reagan nominated three new cabinet-level secretaries last week. Energy Secretary Donald P. Hodel would succeed William P. Clark as secretary of the interior. John S. Herrington, now White House personnel director, would take Hodel's place at the Energy Department. And William J. Bennett, chairman of the National Endowment for the Humanities, would take over the top Education Department post. Former Education Secretary Terrel Bell vacated his post last December. All three nominations are expected to win Senate confirmation.

Hodel, best known of the three, served as undersecretary of the interior for two years under Clark's predecessor, James Watt. Hodel is considered an advocate of energy resource development, both on federal lands and offshore. Prior to joining the Interior Department, Hodel, a lawyer, headed the Bonneville Power Administration in Portland, Ore., and his own energy consulting firm.

Herrington, also a lawyer, is described by the White House as a "longtime member of the Reagan team," who, as a management specialist, "brings to the Energy Department a combination of the knowledge of defense and civil management and organization."

Bennett is a back-to-basics, back-to-classics advocate. He has gone on record saying that Greco-Roman and European history, philosophy and literature should be the foundation of American education. Last year he raised the ire of some groups for eschewing federal quotas or goals on the number of women and minorities to be employed by the National Endowment. Bennett explained that his approach advocates that affirmative action be "color blind," not "color conscious." He also supports merit pay and competency tests for teachers.

The President has asked that each nominee, once he is installed in his new post, assess how his agency might be reorganized.

— J. Raloff