DEWS Maryland Drug Early Warning System

DEWS INVESTIGATES

Identifying Maryland Public School Students Who Have Tried Multiple Drugs   June 2005

HIGHLIGHTS

Using data from the 2002 Maryland Adolescent Survey (MAS), we studied the patterns of drug use among Maryland students and ways to identify youth at risk for multiple drug use.

Key Issues: How common is multiple drug use? What combinations of drugs do students use? How can we identify students likely to have tried a variety of drugs? What are the implications of our findings for parents, educators, and other interested professionals?

Findings:

- An estimated 69,000 students in 8,th 10,th and 12th grades in Maryland in 2002 have ever tried two or more drugs.

- Alcohol, tobacco, and marijuana are the three most commonly used substances by Maryland 8,th 10,th and 12th grade students, and most students used one or more of these three substances and no other drugs.

- Twelfth grade students who used any of the other less common drugs—about 24%—are likely to have used an average of 5.5 different drugs.

- Multiple drug users do not appear to specialize in their selection of drugs; students who use any of the less common drugs almost always used a large variety of drugs.

- We found no evidence of "ecstasy only users" or "heroin only users." Prevention messages may be more effective if they acknowledge and address general drug use as well as specific drugs.

- Youths found to be using any drug other than alcohol, tobacco, and/or marijuana should be assumed to be at high risk for multiple drug use and should be appropriately screened and monitored for signs of drug abuse.

The Maryland Adolescent Survey

The Maryland State Department of Education has conducted the Maryland Adolescent Survey (MAS) since 1973 to monitor drug use trends in public school students. The survey includes questions on topics such as: lifetime, past year, and past month use of various substances; student attitudes toward substance use; knowledge about the consequences of substance use; parenting and peer influences; and other questions to assess risk and protective factors. In 2002, nearly 34,000 students in the 6,th 8,th 10,th and 12th grades completed the anonymous survey. (See sidebar, page 4 for a description of the sample and study methods.)

Table 1. Drug Use Among Maryland Students, by Time Period and Grade, 2002.

Drug Category*	8th Grade (n=67,952)			10th Grade (n=65,050)			12th Grade (n=55,324)		
	Ever Used %	Past Year %	Past Month %	Ever Used %	Past Year %	Past Month %	Ever Used %	Past Year %	Past Month %
Alcohol	32	28	17	57	52	37	71	65	47
Marijuana	12	11	7	30	27	17	44	36	22
Tobacco	19	12	7	31	20	14	41	28	21
Stimulants	5	4	3	10	8	5	13	11	7
Hallucinogens	4	3	2	8	7	5	12	10	5
Designer Drugs	3	2	1	6	6	3	10	8	4
Narcotics	2	1	1	5	5	3	9	7	4
Cocaine/Crack	3	2	2	4	4	3	7	6	4
Barbs/Tranquilizers	1	1	1	4	4	2	7	5	3
Inhalants	6	5	3	5	4	3	5	4	3
Methamphetamine	2	2	1	4	4	2	5	4	2
Heroin	1	1	1	2	2	1	2	2	1

*See page 2 for description of drug categories.

We thank the Maryland State Department of Education for sharing data from the 2002 MAS, which made this study possible.

In a prior *Dews Investigates* report (June 2004), we used the 2002 MAS dataset to develop nine warning signs of early marijuana use (see page 4). In the current report, we extend our analyses to examine patterns of multiple drug use. Because multiple drug use is rare among 6th grade students (less than 6% in 2002), our analyses focus solely on students in 8,th 10,th and 12th grades. We hope that this report will aid parents and interested professionals in addressing multiple drug use among Maryland youth.

What drugs are most commonly used by Maryland students?

Drugs were divided into twelve classes: (1) alcohol; (2) marijuana; (3) tobacco; (4) stimulants (includes amphetamines and Ritalin®); (5) hallucinogens (includes LSD, PCP, and "other hallucinogens," such as mescaline and 'shrooms); (6) designer drugs; (7) narcotics (includes codeine, morphine, methadone, and Percodan®); (8) cocaine/crack; (9) barbiturates and/or tranquilizers (includes downers, reds, Valium®); (10) inhalants (includes amyl or butyl nitrates); (11) methamphetamine; and (12) heroin. Table 1 (see page 1) shows that the three drugs most likely to have been used in each of the time periods studied are alcohol, marijuana, and tobacco products. Almost one-third (32%) of 8th graders reported having used alcohol at least once in their lifetime, compared with 57% of 10th graders and 71% of 12th graders. Lifetime marijuana use ranged from 12% of 8th graders to 44% of seniors and tobacco use ranged from 19% to 41%. The use of the other drugs was much less common; however, it is important to note that even the 2% estimate for lifetime heroin use translates into about 1,100 seniors who have ever used the drug.

How common is multiple drug use?

About one in five (21%) 8th graders, 39% of 10th graders, and 53% of seniors had ever used two or more drugs in their lifetime (Figure 1). This translates into an estimated 69,000 students. Moreover, 8% of 10th graders and 13% of seniors had ever used five or more drugs in their lifetime (not shown). Not surprisingly, the highest prevalence of multiple drug use was found among seniors with 5%, or an estimated 2,800 students, having used eight or more drugs (not shown). Multiple drug use was less frequent in the past month but still ranged from 10% of 8th graders to 28% of seniors. We cannot tell from our data how

Figure 1. Percentage of Maryland Students Who Used Two or More Drugs, by Time Period and Grade, 2002.
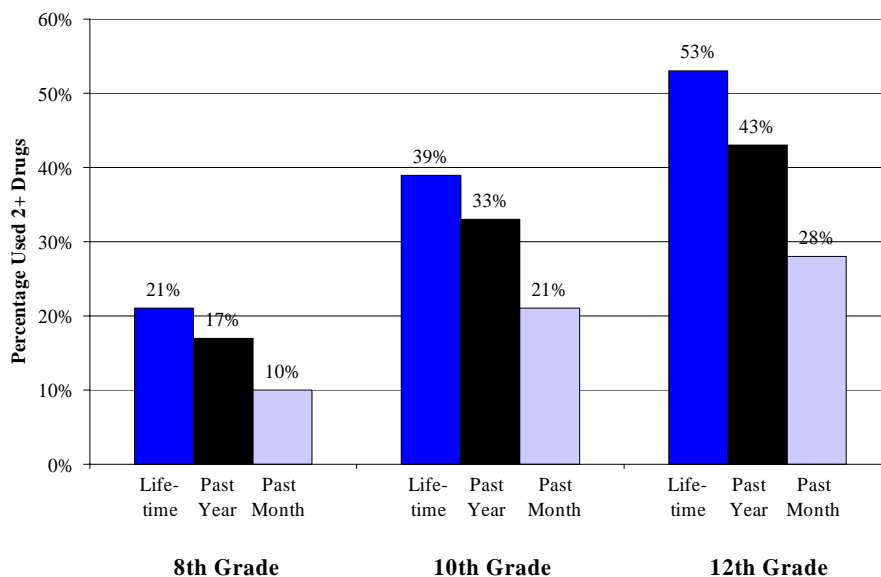
much of the multiple drug use was concurrent use. However, the considerable amount of multiple drug use reported in the past month leads us to infer that much of this use could be combined use of drugs. Because of the higher prevalence of multiple drug use among

Figure 2. Combinations of Lifetime Drug Use Among Maryland 12th Graders, 2002.
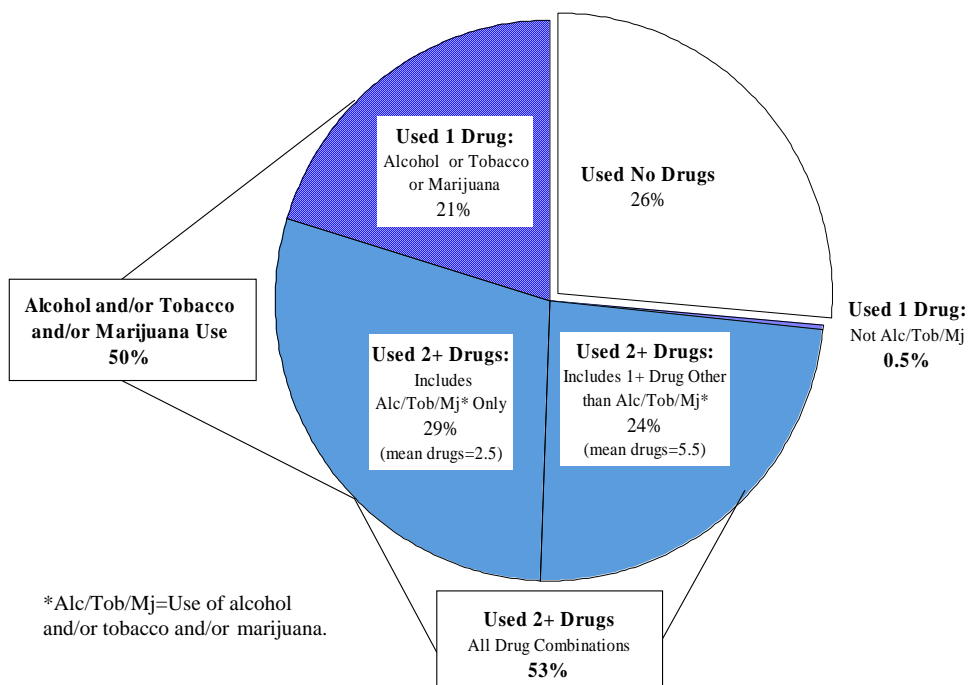
seniors, we limited most of the subsequent analyses of the specific combinations of drugs used, to them.

What combinations of drugs have high school seniors used?

As Figure 2 shows, one-half of the seniors used at least one of the three most common drugs (alcohol, tobacco, and/or marijuana) during their lifetime. About 21% of the seniors used only one of these three drugs. Twenty-nine percent used two or more of these drugs and had used an average of 2.5 of them in their lifetime. Another 24% of the seniors used a drug other than alcohol, tobacco, or marijuana and virtually all of them used 2 or more drugs. In fact, this group of seniors had used an average of 5.5 drugs in their lifetime.

However, students who had used a relatively large number of drugs exhibited no predominant combination of drugs. Table 2 shows the drugs used by seniors who had used various total numbers of drugs in their lifetime. As one would expect, alcohol—the most commonly used drug—was used by most students who had used only 1 drug (87%), as well as by nearly all multiple drug users (at least 98%). Four percent of seniors who used only 1 drug had used marijuana, compared with 72% of those who had used 2 or 3 drugs and more than 90% of those using more than 3 drugs. The likelihood of tobacco use also rose with the total number of drugs used.

In contrast, the less common drugs were used almost exclusively by youths who had used many different drugs. For example, stimulants were only used by about 6% of those who used two to three drugs, but by at least 51% or more of seniors who had used five or more drugs. And methamphetamine, a drug rarely used by seniors (5%), was used by most (80%) of the seniors who had used nine or more drugs. Use of heroin—the least commonly used drug by seniors (2%)—was found primarily among seniors who had used nine or more drugs.

Average Number of Drugs Used

The above analyses of lifetime use demonstrate that seniors who have used a large number of drugs are most likely to have used the less common drugs. It therefore seemed logical that the use of rare drugs might serve as a good indicator of multiple drug use.

Table 2. Maryland 12th Graders' Lifetime Use of Drugs, by Number of Drugs Ever Used, 2002.

Drug Category*	All 12th Graders (n=55,324) %	Total Number of Drugs Ever Used (out of 12)					
		1 Drug (n=11,501) %	2 or 3 Drugs (n=18,617) %	4 Drugs (n=3,436) %	5 or 6 Drugs (n=3,458) %	7 or 8 Drugs (n=1,713) %	9-11 Drugs (n=1,598) %
Alcohol	71	87	98	100	99	98	100
Marijuana	44	4	72	93	94	99	99
Tobacco	41	7	66	91	93	94	95
Stimulants	13	1	6	38	51	70	88
Hallucinogens	12	0	2	24	55	86	94
Designer Drugs	10	0	2	20	42	70	88
Narcotics	9	0	2	12	30	59	89
Cocaine/Crack	7	0	1	5	23	56	85
Barbiturates	7	0	1	7	20	47	82
Inhalants	5	0	1	7	16	32	55
Meth**	5	0	0	3	10	31	80
Heroin	2	0	0	1	4	8	31

NOTE: Students who used no drugs and students who used 12 drugs are excluded from the table.
* See page 2 for description of drug categories. ** Meth=Methamphetamines

Table 3 shows that seniors who used the most common drug, alcohol, had used an average of 3.1 drugs (including alcohol) in their lifetime and 1.7 drugs in the past month. However, students who used a designer drug had used an average of 7.2 drugs in their lifetime and 4.2 drugs in the past month. Users of the least common drugs, methamphetamine and heroin, had, on average, used nine or more drugs in their lifetime and had used more than 5 drugs in the past month.

The correlation between the lifetime prevalence of a drug and the average number of drugs used by seniors was r = -.99, indicating that the prevalence of the use of a drug was almost perfectly correlated (inversely) with the number of drugs used. These patterns also applied to students in grades 8 (r=-.97) and 10 (r=-.99). Even more striking was the finding that similar high correlations were found for use of drugs in the past year and past month for the three grades studied. Thus, students

Table 3. Maryland 12th Graders, Lifetime Use of Drugs and Mean Number of Drugs Used in Lifetime and Past Month, by Lifetime Drug Use, 2002.

Drug Category*	Ever Used (Prevalence) %	Mean Number Drugs Ever Used	Mean Drugs Used Past Month
Alcohol	71	3.1	1.7
Marijuana	44	4.2	2.3
Tobacco	41	4.2	2.3
Stimulant	13	6.2	3.5
Hallucinogens	12	7.0	4.3
Designer Drugs	10	7.2	4.2
Narcotics	9	7.5	4.6
Cocaine/Crack	7	8.2	5.2
Barbiturates and/or Tranquilizers	7	8.1	5.0
Inhalants	5	7.8	5.1
Methamphetamines	5	8.9	5.4
Heroin	2	9.8	7.1

* See page 2 for description of drug categories.

who used one of the less common drugs were more likely to use multiple drugs in their lifetime, past year, and past month.

Implications and Recommendations

While most students have used one or more of the three most common drugs—alcohol, marijuana, and tobacco—substantial minorities of students have extensive drug histories. We estimate that more than 15,000 students in grades 8 (2,700), 10 (5,200), and 12 (7,200) had at least tried 5 or more of the 12 drugs examined. And about 5,000 of them, mostly seniors, had used 8 or more of the 12 drugs (not shown).

Most youths (50%) used only alcohol and/or tobacco and/or marijuana. These are the drugs that students first encounter. Students who used a larger number of drugs did not appear to use a common subgroup of drugs. Patterns of multiple drug use were extremely diverse. But the choice of drugs used did not appear to be random or unsystematic. It was clear that drugs like cocaine, methamphetamine, and heroin were likely to be used only by those who used almost all of the other more common drugs. A self-selection process appears to exist, with a relatively small minority of students trying the less common drugs. It

may be that such youths are more likely to seek out a wide variety of drugs.

The almost perfect inverse correlation between the prevalence of a drug and the number of drugs used by students in 8,th 10,th and 12th grades suggests to us that this association is very real. This strong association between less common drug use and the number of drugs used has a number of critical implications.

First, there is no such thing as the "heroin only user" or the "ecstasy only user." There are no drug "specialists" among students who use any of the less common drugs. We, therefore, must focus our efforts on the entire person and their patterns of multiple drug use and not just on the particular drug that brought the youth to our attention. Prevention messages may be more effective if they acknowledge and address general drug use as well as specific drugs. Parents need to know that if they detect that their child is using a drug other than alcohol, tobacco, or marijuana, they have probably identified only the tip of the drug iceberg.

Youth referred to student assistance programs like the Maryland Student Assistance Programs[1] should be assumed to be at high risk for multiple drug use if they use one of the less common drugs. They need to be thoroughly assessed and monitored closely for signs of drug abuse and impairment. Special attention should be given to the individual, environmental, and familial influences that might predispose these youths to drug abuse.

Finally, our findings have important implications for health policy. The MAS survey questions did not enable us to discern how often youths took drugs together. Combined drug use could result in serious physical and neurological consequences. Moreover, it is difficult to determine which of the drugs the youth is using is causing problems. One should not conclude, for example, that the symptoms experienced by a methamphetamine user are caused solely by the use of that drug, when they could be caused by the panoply of drugs that the youth is taking. When assessing substance abuse in students, health professionals need to obtain complete history of drug use and screen for a variety of drugs of

abuse in biological specimens (urine, hair, oral fluid).

Limitations

The MAS database contained no information on the frequency of use of the drugs studied and grouped the ages of onset. Our findings therefore only inform us of the likelihood that students have tried one of these drugs in their lifetime, past year, or past month and tell us nothing of the level of use, the sequence in which students initiated use of specific drugs, or whether they used the drugs concurrently. We recommend that future administrations of the MAS add questions about these topics so that we may better understand the patterns of multiple drug use uncovered here.

The 9 Warning Signs For Early Marijuana Use

The June 2004 DEWS Investigates, *Warning Signs for Early Marijuana Users Among Maryland's Public School Students,* found the following 9 warning signs of using marijuana before age 15. See the full report at http://www.cesar.umd.edu/cesar/pubs/20040602.pdf.

Five Student Behaviors
- Cigarette use before age 15
- Alcohol use before age 15
- 20 or more unexcused absences
- Drug arrest
- Alcohol arrest

Four Student Attitudes/Opinions
- Smoking marijuana is safe
- Smoking cigarettes is safe
- My parents think it's okay to smoke marijuana
- My parents think it's okay to smoke cigarettes

Study Methods

The Maryland Adolescent Survey (MAS) is conducted by the Maryland State Department of Education (MSDE) with support from the Department of Health and Mental Hygiene, the Maryland Alcohol and Drug Abuse Administration, and the Maryland Highway Safety Office. The MAS is administered in alternating school years to public school students in the 6,th 8,th 10,th and 12th grades. In 2002, completed surveys were obtained from 7,997 12th graders, 8,317 10th graders, 8,687 8th graders, and 8,978 6th graders. The data presented in this report are weighted to represent the total population of students in each grade. Further details on the sampling design are available in the 2002 MAS report.[2,3]

[1]Lehder, D., Artigiani, E.E., Winters, C., Westover, M., & Wish, E.D. (2002). *Maryland Student Assistance Program: Pilot Evaluation in Baltimore and Montgomery Counties.* College Park: University of Maryland, Center for Substance Abuse Research. This report can be found on www.cesar.umd.edu.
[2]Maryland State Department of Education. (August 2003.) *2002 Maryland Adolescent Survey.* Baltimore, MD.
[3] Note: The number of students in our dataset differed slightly from those given in the 2002 MAS report.