

# The Effectiveness of Mandatory- Random Student Drug Testing: Executive Summary

# The Effectiveness of Mandatory- Random Student Drug Testing: Executive Summary

**July 2010**

**Susanne James-Burdumy**  
**Brian Goesling**  
**John Deke**  
Mathematica Policy Research

**Eric Einspruch**  
RMC Research Corporation

**Marsha Silverberg**  
*Project Officer*  
Institute of Education Sciences

**U.S. Department of Education**

Arne Duncan

*Secretary*

**Institute of Education Sciences**

John Q. Easton

*Director*

**National Center for Education Evaluation and Regional Assistance**

Rebecca Maynard

*Commissioner*

**July 2010**

The report was prepared for the National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences under Contract ED-04-CO-0041. The project officer is Marsha Silverberg in the National Center for Education Evaluation and Regional Assistance.

IES evaluation reports present objective information on the conditions of implementation and impacts of the programs being evaluated. IES evaluation reports do not include conclusions or recommendations or views with regard to actions policymakers or practitioners should take in light of the findings in the reports.

This report is in the public domain. Authorization to reproduce it in whole or in part is granted. While permission to reprint this publication is not necessary, the citation should be: James-Burdumy, Susanne, Brian Goesling, John Deke, and Eric Einspruch (2010). *The Effectiveness of Mandatory-Random Student Drug Testing: Executive Summary* (NCEE 2010-4026). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

**To order copies of this report,**

- Write to ED Pubs, U.S. Department of Education, P.O. Box 22207, Alexandria, VA 22304.
- Call in your request toll free to 1-877-4ED-Pubs. If 877 service is not yet available in your area, call 800-872-5327 (800-USA-LEARN). Those who use a telecommunications device for the deaf (TDD) or a teletypewriter (TTY) should call 800-437-0833.
- Fax your request to 703-605-6794.
- Order online at [www.edpubs.gov](http://www.edpubs.gov).

This report also is available on the IES website at <http://ies.ed.gov/ncee/>.

Upon request, this report is available in alternate formats such as Braille, large print, audiotape, or computer diskette. For more information, please contact the Department's Alternate Format Center at 202-260-9895 or 202-205-8113.

## ACKNOWLEDGEMENTS

Many people have contributed in significant ways to the Mandatory-Random Student Drug Testing Evaluation. First, we wish to thank members of the evaluation's Technical Work Group—Michael Fendrich, Linn Goldberg, Rob Hollister, Mark Lipsey, Patrick O'Malley, Lawrence Scheier, and Jeffrey Smith—who imparted valuable input at critical junctures.

At Mathematica Policy Research, important contributions were made by Tim Silva, who helped lead the site coordination and recruitment efforts; Leonard Brown and Valerie Williams, who helped manage the student roster data collection; Peter Schochet, who provided advice on technical issues; Zhanyun Zhao, who provided statistical support; Mason DeCamillis, Elizabeth Petraglia, and Xiaofan Sun, who managed the survey data and programmed the impact models; Mark Dynarski, who provided helpful comments on the draft report; and Jennifer Baskwell, Bill Garrett, Cindy George, and John Kennedy, who expertly edited and produced the report.

At RMC Research, we thank Steve Murray for his leadership as a senior advisor to the project; Chandra Lewis and Kelly Jarvis for coordinating data collection; Keith Lafortune for developing and managing project databases; Pamela Raya-Carlton for coordinating data collection and assisting with the staff interview, school-wide records, and drug testing data; Margaret Beam for managing the student survey data; and Mollie O'Ryan Rawson for administrative support.

We thank Jennifer Scherer (currently at Danya International, Inc.) for her work in the early stages of the project to coordinate the process of obtaining consent from parents of students sampled for the study.

Finally, we would like to extend a special thanks to the staff and students at each participating district. Without their strong support and participation, this study would not have been possible.

This page is intentionally left blank.

## **DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST**

The research team for this evaluation consists of a prime contractor, RMC Research Corporation, and one major subcontractor, Mathematica Policy Research. None of these organizations or their key staff members have financial interests that could be affected by findings from the study. None of the members of the Technical Working Group, convened by the research team to provide advice and guidance, have financial interests that could be affected by findings from the study.

This page is intentionally left blank.

## EXECUTIVE SUMMARY

Despite a decline in adolescent substance use over the past 10 years, the prevalence of illicit substance use among youth remains high and a cause of concern. Recent national estimates indicate that 47 percent of students report having ever used illicit drugs and 72 percent report having ever drunk alcohol before leaving high school (Johnston et al. 2008). The negative consequences associated with substance use in adolescence include low academic outcomes, delinquency, and risky sexual behaviors (Baskin-Sommers and Sommers 2006; Ellickson et al. 2003; Roebuck et al. 2004).

One approach to addressing student substance use is school-based mandatory-random student drug testing (MRSDT). Under MRSDT, students and their parents sign consent forms agreeing to the students' random drug testing as a condition of participation in athletics and other school-sponsored competitive extracurricular activities. The programs are designed to supplement existing school-based substance use prevention strategies and have the twin goals of (1) identifying students with substance use problems for referral to appropriate counseling or treatment services and (2) deterring student substance use. Recent national estimates indicate that 14 percent of U.S. public school districts conducted random drug testing in at least one of their high schools during the 2004–2005 school year (Ringwalt et al. 2008); since 2003, the U.S. Department of Education's Office of Safe and Drug-Free Schools (OSDFS) has operated a grant program to support MRSDT programs in schools.

To help assess the effects of school-based random drug testing programs, the U.S. Department of Education's Institute of Education Sciences (IES) contracted with RMC Research Corporation and Mathematica Policy Research to conduct an experimental evaluation of the MRSDT programs in 36 high schools within seven districts that received OSDFS grants in 2006. This report describes the implementation of the MRSDT programs and their impacts on students—focusing primarily on student-reported substance use but also examining other outcomes.

The study's key findings indicate that:

1. Consistent with the goals of the program, students subject to MRSDT reported less substance use than comparable students in high schools without MRSDT. Specifically, student-reported past-30-day use of substances tested under their districts' MRSDT policies was lower in schools implementing MRSDT than in schools without such policies. A similar, though not statistically significant, pattern was observed on other student-reported substance use measures.
2. However, the MRSDT program had no “spillover effects” on the substance use reported by students who were not subject to testing and had no effect on any group of students' reported intentions to use substances in the future.
3. Contrary to concerns raised about the possible unintentional negative consequences of random drug testing, the MRSDT program had no effect on the proportion of students

participating in activities subject to drug testing or on students' attitudes toward school and perceived consequences of substance use.

4. There was some evidence that impacts of the MRSDT program were related to the ways in which the programs were implemented. Both testing for a larger number of substances and testing for alcohol and tobacco were significantly correlated with lower substance use in the treatment schools relative to the control schools. However, it was not possible to distinguish between these two factors due to the fact that districts that tested for a larger number of substances were also those districts that tested for alcohol or tobacco. Impacts were not significantly related to other implementation characteristics examined.

### **Background on MRSDT Programs and Evaluation**

In 2003, the MRSDT grant program sponsored by OSDFS began supporting MRSDT in schools. The goal of the MRSDT grants is to reduce substance use among students enrolled in high schools whose districts apply for and receive funding to implement MRSDT programs. The programs are meant to supplement—not replace—other school-based prevention strategies, so in order to receive grant funding, districts must document the other policies and programs that they already have in place to prevent substance use.

The OSDFS grant program leaves a number of implementation decisions to the discretion of individual grantees. All districts are required to follow a basic set of testing procedures, including administering tests to a minimum of 50 percent of eligible students; testing for a minimum of five substances (marijuana, amphetamines, cocaine, methamphetamines, and opiates); and establishing procedures to maintain the confidentiality of test results. However, within these basic requirements, individual districts determine the following four criteria: (1) the list of competitive extracurricular activities that will be covered by their drug testing policies, (2) the frequency of testing and proportion of eligible (covered) students to be tested during each testing event, (3) any additional substances for which testing will be conducted beyond those required by the grant, and (4) the period of the school year during which eligible students may be subject to testing. The study examined whether and how these various implementation decisions relate to the effectiveness of the MRSDT programs.

The evaluation of these programs is guided by a logic model predicting that MRSDT may reduce student substance use in three ways:

1. ***By Deterring Substance Use.*** If students are sufficiently aware of the possibility of drug testing, the threat of testing may cause students to stop using substances or give them a reason to refuse offers from peers to use substances.
2. ***By Detecting Substance Use.*** Students who test positive for drugs can be identified by school staff and referred to appropriate drug treatment or counseling services.

## OVERVIEW OF EVALUATION

**Intervention:** MRSDT, funded by OSDFS grants, requires that students consent to random drug testing as a condition of participating in covered activities. A parent or guardian must also consent to the student's testing.

**Study sample:** 7 grantees, 36 high schools, and 4,723 9th through 12th grade students. Participating districts and their schools received MRSDT grants from OSDFS in fall 2006.

**Research design:** After baseline data collection, about half the schools within each grantee district were randomly assigned either to the treatment group that was permitted to begin implementing MRSDT immediately (and during the 2007–2008 school year) or to the control group that was not permitted to begin implementing MRSDT until after the follow-up student survey was conducted in spring 2008.

**Key outcomes:** Students' self-reported substance use, perceptions of the consequences of substance use, connectedness with school, intentions to use substances in the future, and participation in activities covered by MRSDT; number of disciplinary incidents reported by school officials.

3. *By Having Spillover Effects on Nonparticipants.* Although MRSDT is most likely to affect the substance use of students who participate in activities subject to drug testing, it may also have spillover effects to other students in the school, as they observe and are influenced by the behavior of their peers.

### Study Design

The study was designed as a rigorous program evaluation focused on assessing the effectiveness of MRSDT programs implemented in real-world settings. Schools were randomly assigned within districts either to a treatment group that was permitted to begin implementing MRSDT immediately after random assignment was conducted in spring 2007 (and to continue implementation during the 2007–2008 school year) or to a control group that was not permitted to implement MRSDT until after the study's spring 2008 follow-up survey was administered. Thus, impacts for this study are calculated over a one-year period (spring 2007–2008) and do not represent longer-term effects.

Within the treatment and control schools, students in grades 9–12 were randomly sampled to participate in data collection. As shown in Table 1, the evaluation is based on data collected from six sources: (1) student rosters provided by each district, (2) student surveys administered at baseline (spring 2007) and follow up (spring 2008), (3) school-records information collected from each study school, (4) forms documenting the drug testing procedures used in the study's treatment schools, (5) structured interviews with a key staff member at each study school, and (6) structured interviews with a staff member from each district. Active parental consent, which was required for study participation, was not obtained for all students sampled for the surveys, and thus the study's results are not necessarily generalizable to the schools as a whole.

The study's impact analysis focuses on comparing rates of self-reported substance use among students in the treatment and control schools based on data from the spring 2008 follow-up survey. Results of the drug tests conducted in the treatment schools are described in aggregate

TABLE 1

## DATA COLLECTION INSTRUMENTS

Data Source	Time Collected	Description of Data
Student Rosters	January 2007 (baseline sampling), August 2007 (second sampling), March 2008 (follow up)	These rosters provided personal identifying information used to sample students and track the study sample, such as the student's name, gender, grade level, date of birth, and home address.
Student Survey	April-May 2007 (baseline), March-April 2008 (follow up)	This survey included questions about student demographics, participation in school activities, retrospective substance use (lifetime, 6-month, and 30-day), attitudes toward substance use, attitudes toward school, and awareness of school policies.
Schoolwide Records Collection Form	April-November 2007 (baseline), March-May 2008 (follow up)	This form gathered data on student demographics, school policies, substance use incidents, prevention programs, teacher training, and student mobility.
Drug Testing Collection Form	September 2007 – July 2008	This form collected data on the demographics of tested students, testing procedures, substances for which tests were conducted, and aggregated test results.
School Staff Interviews	May 2008	These interviews gathered two types of data. In both treatment and control schools, the interviews collected information on substance abuse prevention strategies, school policies regarding suspicion of student drug use, and student awareness of drug testing. In treatment schools, the interviews also collected information on the procedures used for mandatory random-student drug testing.
District Staff Interviews	March 2009	These interviews collected data on the period in which students were subject to drug testing and the information students received about the substances covered by the tests.

as a part of the study's implementation analysis, but do not factor into the study's impact analysis as the drug tests were not administered to students in control schools.

To determine whether MRSDT affects the substance use and attitudes reported by students who are subject to testing, we compared students in the treatment and control schools who participated in activities covered under their districts' MRSDT policies. For example, if football and soccer were covered activities, we compared rates of substance use reported by football and soccer players in the treatment and control schools. Due to the experimental design used in this study, differences in outcomes of students in the treatment and control groups are attributable to the effect of the MRSDT program (not other factors). To determine whether MRSDT has spillover effects to other students in the school, we estimated impacts for students who did *not* participate in covered activities.

## Findings from the Study's Primary Impact Questions

The study's primary research questions were shaped by two factors. First, because the MRSDT programs are intended to affect most directly students who are subject to drug testing, the primary research questions focus on students who participate in athletics or other extracurricular activities covered under their district's testing policy. Second, although the study is primarily concerned with impacts on student substance use, to capture the full range of effects of MRSDT programs the study also examines impacts on other student outcomes, such as participation in activities subject to drug testing and attitudes toward school. Accordingly, the study's five main research questions and the study's findings on each question are:

**1. Do students who are subject to MRSDT report less use of alcohol, tobacco, and other illicit substances than comparable students in high schools without MRSDT?**

Sixteen percent of students subject to MRSDT reported using substances covered by their district's MRSDT policy in the past 30 days, compared with 22 percent of comparable students in schools without MRSDT (see Figure 1). Similar patterns were observed on other student-reported substance use measures (see Figure 1), but those differences were not statistically significant.

**2. Are students who are subject to MRSDT less likely to report that they will use illicit substances in the future than comparable students in high schools without MRSDT?**

No, 34 percent of students subject to MRSDT reported that they "definitely will" or "probably will" use substances in the next 12 months, compared with 33 percent of comparable students in schools without MRSDT.

**3. Do students who are subject to MRSDT report different perceptions of the consequences of substance use than comparable students in high schools without MRSDT?**

No, on two measures of students' perceptions of the positive and negative consequences of using substances, students subject to MRSDT did not report having different perceptions of the consequences of substance use relative to comparable students in high schools without MRSDT. The lack of statistically significant impacts on students' perceived consequences of substance use in this study differs from prior research suggesting that MRSDT may have unintended negative consequences on these outcomes (Goldberg et al. 2003, 2007).

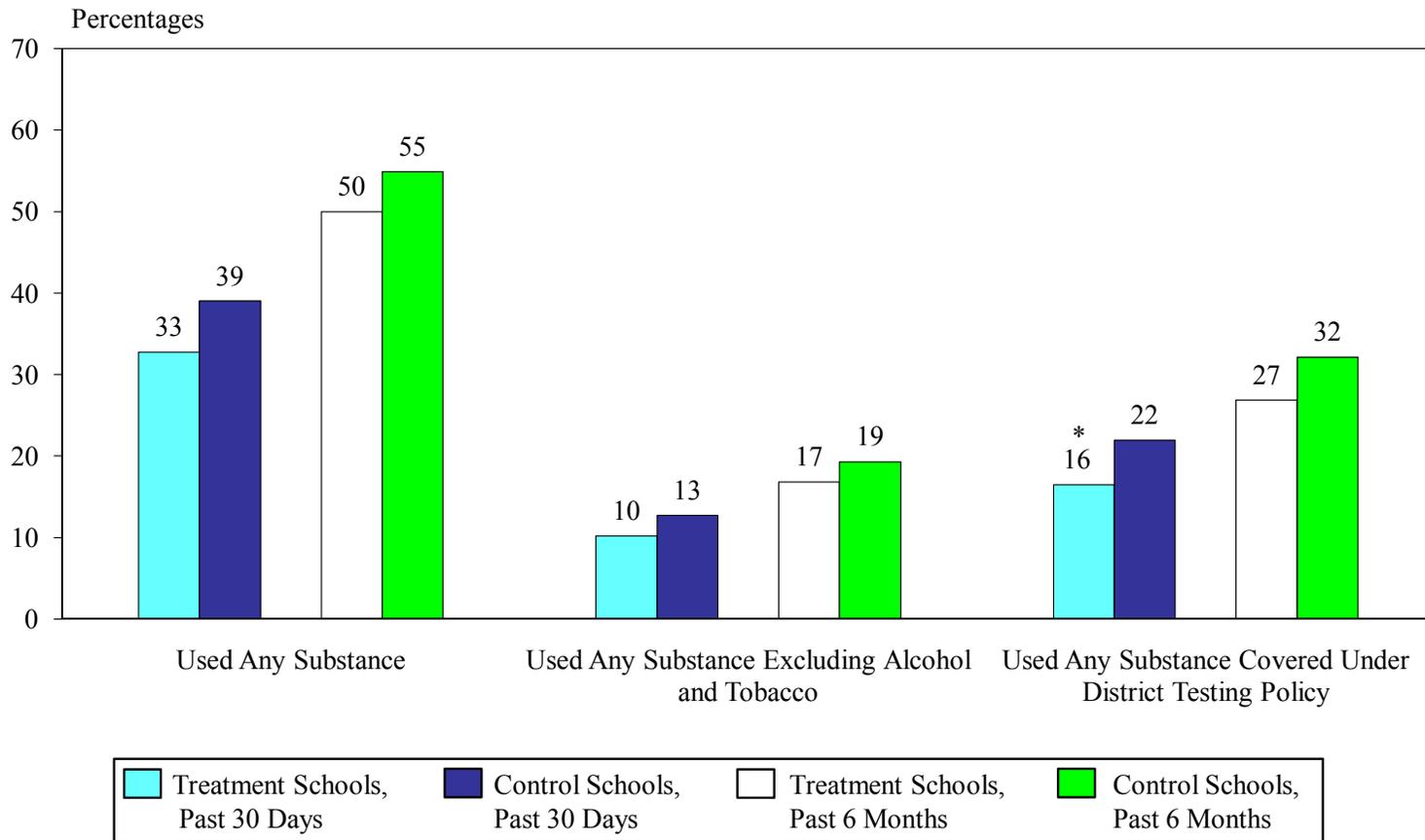
**4. Do students in high schools with MRSDT have different participation rates in extracurricular activities than comparable students in high schools without MRSDT?**

No, 53 percent of students in treatment schools reported participating in an activity covered by MRSDT, relative to 54 percent of comparable students in high schools without MRSDT.

FIGURE 1

IMPACTS OF MRSDT ON RETROSPECTIVE SUBSTANCE USE  
FOR PARTICIPANTS IN COVERED ACTIVITIES

ix



\*Statistically different from the control group at the .05 level.

**5. Do students who are subject to MRSDT report different attitudes toward school than comparable students in high schools without MRSDT?**

No, there was no impact on the extent to which students reported feeling connected to their schools. The lack of statistically significant impacts on students' attitudes toward school in this study differs from prior research suggesting that MRSDT may have unintended negative consequences on these outcomes (Goldberg et al. 2003, 2007).

**Findings from the Study's Secondary Impact Questions**

Secondary research questions examined possible spillover effects of MRSDT to other students in the school who are *not* subject to testing, and the impact of MRSDT on the number of reported disciplinary incidents in schools. Other secondary questions examined whether the impacts of MRSDT were related to differences in program implementation and other grantee characteristics. For example, impacts might be larger for programs that test for a broader range of substances, conduct testing more frequently, subject a larger number or higher proportion of students to testing, or that have a higher level of student awareness of the testing program.

The three main secondary research questions and the study's findings on each question are:

**1. Does the MRSDT program have spillover effects on the substance use or other outcomes of students who are not covered by the MRSDT policies?**

No, the MRSDT program had no spillover effects. For example, 36 percent of students not covered by the MRSDT policy in treatment schools and 36 percent of comparable students in control schools reported using a substance in the past 30 days (see Figure 2).

**2. Does the MRSDT program affect the number of disciplinary incidents reported by schools?**

No, the MRSDT program had no impact on school-reported disciplinary incidents. For example, treatment schools reported an average of five instances per 1,000 students of distribution, possession, or use of illegal drugs compared with four such instances in control schools.

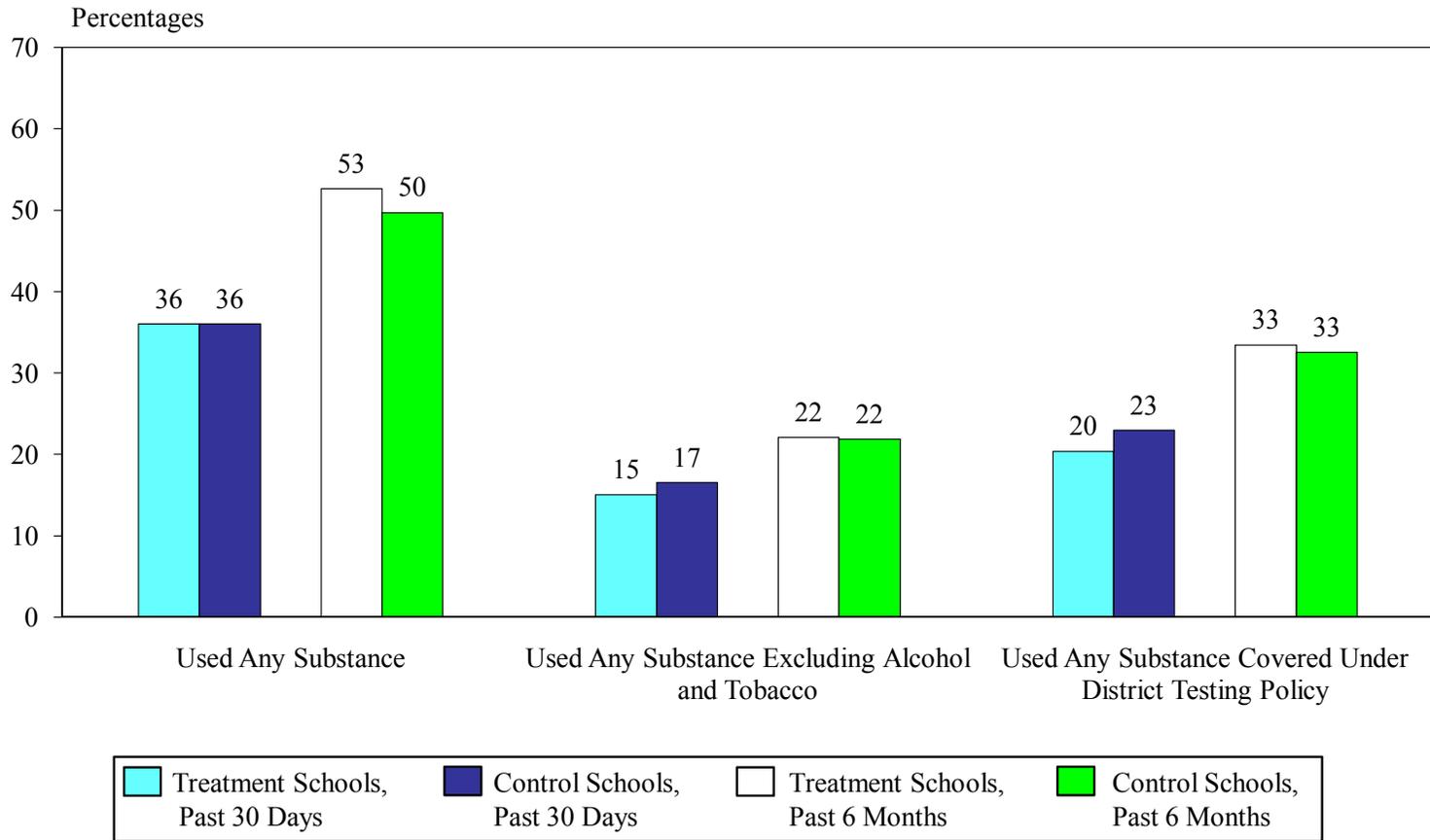
**3. Are the impacts of the MRSDT program associated with the way in which the program was implemented?**

There was some evidence that impacts of the MRSDT program were related to implementation characteristics. Both testing for a larger number of substances and testing for alcohol and tobacco were significantly correlated with lower substance use in the treatment schools relative to the control schools. However, it was not possible to distinguish between these two factors due to the fact that districts that tested for a larger number of substances were also those districts that tested for alcohol or tobacco. Impacts were not significantly related to testing frequency, number of drug tests conducted, or level of student awareness of MRSDT.

FIGURE 2

IMPACTS OF MRSDT ON RETROSPECTIVE SUBSTANCE USE FOR NONPARTICIPANTS

xix



## **Description of the MRSDT Program**

The study examined the characteristics of the MRSDT programs being implemented by participating schools. One purpose of the implementation analysis was to describe the key features of the drug testing programs implemented by treatment schools. Understanding how the programs were implemented is important for two reasons: (1) this study is an evaluation of MRSDT programs as they were carried out in real-world conditions, rather than an efficacy study carried out in more tightly controlled conditions; and (2) variation in program implementation may be correlated with the impacts of the program (as noted earlier).

The key characteristics of the MRSDT programs implemented by the participating treatment schools include:

- Five of the seven study districts chose to cover both sports and other competitive extracurricular activities in their MRSDT policies. Two districts limited MRSDT to student athletes.
- The frequency with which treatment schools conducted drug testing through their MRSDT grants ranged from four times per year to five or six times per month.
- Six of the seven districts tested for the five substances required by their grant award (marijuana, amphetamines, methamphetamines, opiates, and cocaine). The remaining district tested for three of the five required substances.
- Across the study's 20 treatment schools, a total of 3,476 drug tests were conducted during 324 testing events.
- The rate of positive drug tests—38 of 3,476 tests—was lower than the rate at which students reported using substances, a finding that is consistent with prior research (DuPont 2008a, 2008b).

Because MRSDT is thought to deter substance use through the threat of testing, the implementation analysis examined the extent to which students were aware of the MRSDT program. At follow up, students' awareness of the presence of MRSDT was higher in treatment schools than in control schools. In particular, 84 percent of treatment school students reported

that students in their schools who participated in sports or other activities could be randomly tested for drugs, compared with 50 percent of students in the control schools.<sup>1</sup>

### **Other Substance Use Prevention Activities in Study Schools**

The analysis also examined the other substance use prevention strategies that were used in treatment and control schools—information that is important for understanding the context within which the MRSDT programs operated and for assessing whether control schools attempted to compensate for their control group assignment through the implementation of other substance use prevention programs or policies during the evaluation period. There was no evidence that control schools attempted to compensate for their assignment to the control group through the implementation of other substance use prevention strategies. At follow up, the implementation of other substance use prevention strategies—for example, policies for students suspected of being under the influence of drugs or for students found in the possession of drugs—was no higher in control schools than in treatment schools. In addition, there was no evidence that the implementation of MRSDT in the treatment schools influenced the substance use of students in the control schools. In particular, over the one-year evaluation period (spring 2007–2008), trends in student substance use were no different in control schools than in a similar set of schools outside the study districts recruited by the study team to serve as a nonexperimental comparison group.

---

<sup>1</sup> The study team expected some reported awareness of MRSDT in the control schools, for two reasons. First, as part of the OSDFS grant requirements, schools assigned to the control group were instructed not to announce, promote, or implement MRSDT until after the study’s spring 2008 follow-up survey was administered. However, it is possible that, through school board or community meetings, the grant application process, or the implementation of MRSDT in the districts’ treatment schools, students in control schools became aware of the testing program. Second, the study team also found evidence that even in schools *without* MRSDT programs, some students mistakenly believe that extracurricular activity participants can be randomly tested for drugs. In particular, in data the study team collected from a nonexperimental sample of seven high schools outside the study districts, 32 percent of students reported that students in their schools could be randomly tested for drugs, even though none of the seven schools had MRSDT programs.

## REFERENCES

- Baskin-Sommers, A., and I. Sommers. "The co-occurrence of substance use and high-risk behaviors." *Journal of Adolescent Health*, vol. 38, no. 5, 2006, pp. 481–483.
- DuPont, R. L. "Low Positive Drug Testing Rates in Random Student Drug Testing." Rockville, MD: Institute for Behavior and Health, Inc., 2008a.
- DuPont, R. L. "Random Student Drug Tests: Are They Effective for Identifying Occasional Drug Users?" Rockville, MD: Institute for Behavior and Health, Inc., 2008b.
- Ellickson, P. L., J. S. Tucker, and D. J. Klein. "Ten-Year Prospective Study of Public Health Problems Associated with Early Drinking." *Pediatrics*, vol. 111, 2003, pp. 949–955.
- Goldberg, L., D. L. Elliot, D. P. MacKinnon, E. Moe, K. S. Kuehl, L. Nohre, and C. M. Lockwood. "Drug Testing Athletes to Prevent Substance Abuse: Background and Pilot Study Results of the SATURN (Student Athlete Testing Using Random Notification) Study." *Journal of Adolescent Health*, vol. 32, no. 1, 2003, pp. 16–25.
- Goldberg, L., D. L. Elliot, D. P. MacKinnon, E. L. Moe, K.S. Kuehl, M. Yoon, A. Taylor, and J. Williams. "Outcomes of a Prospective Trial of Student-Athlete Drug Testing: The Student Athlete Testing Using Random Notification (SATURN) Study." *Journal of Adolescent Health*, vol. 41, no. 5, 2007, pp. 421–429.
- Johnston, L. D., P. M. O'Malley, J. G. Bachman, and J. Schulenberg. "Monitoring the Future National Survey Results on Drug Use, 1975–2007: Volume I, Secondary School Students." Bethesda, MD: National Institute on Drug Abuse, 2008.
- Ringwalt, C., A. A. Vincus, S. T. Ennett, S. Hanley, J. M. Bowling, G. S. Yacoubian, and L. A. Rohrbach. "Random Drug Testing in U.S. Public School Districts." *American Journal of Public Health*, vol. 98, no. 5, 2008, pp. 826–828.
- Roebuck, M. C., M. T. French, and M. L. Dennis. "Adolescent Marijuana Use and School Attendance." *Economics of Education Review*, vol. 23, no. 2, 2004, pp. 133–141.