

# **POLICIES TO PREVENT DRUG PROBLEMS: A RESEARCH AGENDA FOR 2010-2015**

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**SUBSTANCE ABUSE POLICY RESEARCH PROGRAM (SAPRP) IS A  
NATIONAL PROGRAM OF THE ROBERT WOOD JOHNSON FOUNDATION**

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## Introduction

This document focuses primarily on policy research needed to prevent problems associated with illegal drugs in the United States. Illegal drugs, by definition, are outside the bounds of legitimate sales and regulation and therefore cross over into criminal justice policies. Illegal drugs include prescription drugs when used or sold outside the regulated environment via licensed physicians and pharmacies. Illegal drug prevention policies and programs have largely fallen under two categories: those that seek to reduce demand for drug use and those that seek to reduce the availability of drugs for misuse. Criminal penalties for possession and sales apply punishment (arrest, incarceration, community service, fines) as a deterrent to reduce demand and as a way to disrupt drug markets by removing traffickers from the community. In some cases of illegal drug possession, alternatives to punishments are attempted first, such as mandatory drug treatment.

In the U.S., a major focus for demand reduction is to prevent the initiation of youth drug use through such programs as the Department of Education's Safe and Drug Free Schools and Communities Act (SDFSCA). Other programs have been administered by the Substance Abuse and Mental Health Services Agency (SAMHSA) and its sub-agency the Center for Substance Abuse Prevention (CSAP) to reduce demand for drugs.

The Substance Abuse Policy Research Program (SAPRP) has funded many of the landmark studies in drug use prevention policy during the last 15 years. The program, as funded by the Robert Wood Johnson Foundation, is coming to a close. But the focus on drug use prevention policies needs to continue. SAPRP has helped create a field of drug prevention policy researchers. This research agenda will guide their efforts, the efforts of new researchers entering the field, and those of the many federal and private funders who have a stake in reducing the harm caused by drugs in the United States.

## Key Drug Prevention Policy Issues for 2010 to 2015

Prevention strategies typically target youth in one of three categories: universal, or all members of a population; selective, or specific subpopulations deemed to have predisposing risk factors; and indicated, including persons who are already engaging in drug use or drug-related behaviors that increase the risk of drug use (NIDA 1997, 2003; IOM 1994). Behavioral prevention research, largely funded by NIDA and to a lesser extent, SAMHSA, has sought to develop and test theory-based prevention programs. Despite the growth of such studies, there is no systematic repository of effects or meta-analysis of outcomes to assess theory or specific approaches (Hallfors and Cho 2007).

Another problem in assessing the research evidence is that few programs have been independently tested by scientists other than their developers, giving rise to a concern about conflict of interest in evaluation of outcomes (Gorman and Condi 2007). In addition, some “evidence-based” programs have been found ineffective when tested in other settings (e.g., Komro et al. 2008), when tested independently (e.g., Hallfors et al. 2006), or when scaled up across many schools and communities (Tobler et al. 2000). One of the major problems cited for erosion in efficacy with scale-up is the lack of fidelity to essential elements when programs are implemented in the field.

In response to these problems, NIDA’s Prevention Branch is funding several large studies to determine the best ways to scale up evidence-based programs within states. These include Communities that Care (Hawkins et al. 2008), PROSPER (Feinberg et al. 2007), and Project STEPP (Riggs et al. 2008). These prevention diffusion trials seek to determine optimal delivery mechanisms (e.g., community coalitions) and improve the functioning of such mechanisms in the selection and implementation of evidence-based programs.

While drug prevention programs have received the lion’s share of scientific attention, much less research has been done to examine the prevalence of school policies related to drug use. Studying school policy response to actual behavior events is particularly critical because federal drug prevention programs are likely to be severely cut back in light of the economic crisis (that began in 2008). SDFSCA has already been the target of such cutbacks. Instead of relying only on expensive curriculum-based programs, an alternative approach may be to focus on youth environments and develop practical, evidence-based responses that reinforce positive behavior, alter antecedents, or use positive discipline principles to shape youth behavior and help young people successfully navigate the adolescent years and avoid drug use and harms (Embry and Biglan 2008; Gottfredson et al. 2005; Emmer et al. 2003).

As drug prevention strategies gain and lose popularity, a larger issue to consider is accountability of policies, based on drug outcomes and the costs to achieve these outcomes. Several national surveys have been used to track trends in drug use over time. These include Monitoring the Future (Johnston et al. 2009) and the National Survey on Drug Use and Health (SAMHSA 2007). However, more systematic methods of testing the effectiveness of policy strategies are clearly needed.

In this section, the critical gaps in drug prevention policy knowledge are addressed in light of what we have learned over the past two decades. We begin with criminal justice policies, and particularly mandatory minimum sentencing, because of the magnitude of impact these have had on American society. We then consider drug prevention policies affecting schools, local communities, traffic safety, and prescription drugs. Finally, we discuss new ways to enhance and support a rational drug policy based on research science.

## I. Criminal Justice Policies to Deter Use and Sales

### What we know.

In the 1980s, state and federal governments declared a broad “War on Crime,” with massive expansion of the criminal justice system and increased punishment for illegal behaviors (Western and Beckett 1999; Mauer 2003). In 1986, Speaker of the House “Tip” O’Neill announced a national “War on Drugs” in reaction to the cocaine-related death of basketball star, Len Bias. That same year, President Reagan signed the Anti-Drug Abuse Act of 1986, which set mandatory minimum penalties for drug offenses. Between 1980 and 2002, the incarcerated population rose from 500,000 to over 2 million (Harrison and Beck 2003). Much of the increase in admissions to prison was for drug offenses, explained in large part by mandatory sentencing statutes (Bewley-Taylor et al. 2005). Marijuana is the most common illegal drug and states differ greatly in their legal treatment of marijuana use and sales, according to the National Organization for the Reform of Marijuana Laws (NORML Website accessed August 2008). Some enforce mandatory minimum sentences while others extend the option to suspend incarceration for possession of specified small amounts or for first time offenders.

Although drug-related crime, such as theft and violence, is harmful to communities, excessive incarceration has its own negative effects on public health. An estimated 2.5 million children in the U.S. have a parent who is currently incarcerated, and an additional 5 million have a parent who is under probation or parole (Mumola 2006). With parental incarceration, the lives of these children are severely disrupted, and there is evidence that they are more likely than peers to endure poverty, parental substance abuse, poor academic performance, aggression, anxiety, depression, adolescent drug use, delinquency, and incarceration (Krisberg 2001; Roettger 2005; Solomon and Zweig 2006). A high prevalence of imprisonment is destabilizing to communities

and may exacerbate HIV and other sexually transmitted infection (Thomas and Torrone 2006). Minority communities are particularly affected. Estimates indicate that 6% of white males, 17% of Hispanic males, and 33% of black males will spend a year or more in state or federal prison during their lifetime (Bonczar 2003). Since the average length of stay in state prison is about 30 months (Harrison and Beck 2004), an increase in incarceration means growing numbers of people eventually return to the community after prison. Over 600,000 state and federal prisoners are currently released into the community each year after serving time in prison, four times more than the number released 20 years before (Harrison and Karberg 2004). Within three years, a majority of those released are re-arrested (68%), re-convicted (47%) and re-incarcerated (52%) (Langan and Levin 2002).

Drug courts represent an important alternative to incarceration. More research has been published on drug court than on virtually all other interventions for drug-abusing offenders combined, including reviews of more than 100 program evaluations (Belenko 1998, 2001). Drug courts are known to reduce criminal recidivism by roughly 15-20% as compared to the traditional adjudication of drug-related offenses; they enhance offenders' exposure to drug treatment nearly six-fold as compared to standard or intensive probationary conditions; and robust effects have been sustained under stringent experimental research conditions (Marlowe et al. 2006; Belenko 1998; GAO 2005).

Several modified versions have been developed from the central adult criminal drug court model, including juvenile drug courts, mental health drug courts (for dually-diagnosed offenders), and family drug courts (for parents charged with non-violent child maltreatment who have substance use disorders). Research on the nature and effectiveness of each of these offshoot models is less mature and conclusive than that regarding adult criminal drug courts but is growing (Worcel et al. 2007; Green et al. 2007; DHHS 1999). There is also growing evidence that probation drug testing that focuses on the swiftness and certainty of sanctions instead of severity can reduce consumption and probation violations (Hawken and Poe 2008).

## What we need to know.

Additional information is needed in the areas of the role of drug courts, the impact of policy on families, and evaluating state-level policy. There is a need to determine how to tailor drug court program resources most efficiently, how to target inclusion criteria, and how to modify interventions to elicit more robust and long-term effects. A national research agenda has been developed and vetted among key stakeholders by the National Drug Court Institute (Marlowe et al. 2006). Some of the key research questions from that agenda are included here.



Other critical research questions address the wider impact of criminal drug policies on families. Although little is known about the impact on children and youth when their mothers are incarcerated, even less is known about the impact of incarcerating fathers, except that the problem is huge, hidden, and growing. In November 2006, NIDA held a conference to review what is known about these issues and to stimulate additional research. Among the difficulties in monitoring impact is the fact that jails and prisons rarely maintain data on parental status in offender records, and agencies serving affected children (e.g., public schools, child welfare agencies) often do not have a way to identify children with incarcerated parents (Mumola 2006). The scant evidence suggests that current policies promote intergenerational drug abuse and criminal behavior (Iritani et al. 2007; Solomon and Zweig 2006). However, additional intervention research is needed in this area.

Finally, more information is needed about the impact of different policies across states related to drug manufacturing, distribution, scheduling, sentencing, sanctions, diversion programs, and other creative interventions for both adult and juvenile drug-related crimes (Pacula et al. 2002; Terry-McElrath and McBride 2004; Terry-McElrath et al. 2005, 2008; McBride et al. 1999, 2002, 2003; ImpacTeen Illicit Drug Team 2002). Since the use of illicit drugs is not legal for anyone regardless of age, a separate body of policy for juvenile vs. adult substance infractions does not exist. Thus, compiling a state-level record of implemented policy regarding substance-use juvenile case processing would involve survey data collection at the court level (Y. Terry-McElrath Jan. 5, 2009; pers. comm.).

## Criminal Justice Policies to Deter Use and Sales

### *The Role of Drug Courts*

### Priority Research Questions 2010-2015

- 1 What are the long-term effects of drug courts on other important outcomes (besides recidivism), such as substance use, psychological health, physical health, employment, or parenting?
- 2 What types of services within drug court contribute to the most effective outcomes?
- 3 What are the most effective continuing-care strategies that result in the greatest likelihood of long-term success for offenders with drug-related crimes?
- 4 Which types of offenders are best suited to drug court? What drug prevention/treatment services can be provided for those substance-using offenders who are not well suited for drug court (e.g., in-prison treatment programs, other treatment diversion programs, probation drug testing with swift and certain sanctions)?
- 5 Do minority subgroups have differential access to drug court programs or differential success or failure rates? Are they subjected to different types or amounts of sanctions and rewards for comparable performance? Do they receive different types of treatment services? If so, how can policy remedy this?
- 6 What is the mechanism of action that explains the superior effects of drug court, and what are the implications for enacting more rational state and federal drug policy?

## Criminal Justice Policies to Deter Use and Sales

### *The Impact of Policy on Families*

### Priority Research Questions 2010-2015

- 1 What barriers exist to tracking and monitoring the needs of the children of prisoners? Are there promising state or local models that protect privacy rights and minimize harm?
- 2 What are the financial, social, and psychological impacts of incarceration on children and families? How are these altered by length of time incarcerated, or location of incarceration? (For example, is it possible for the family to visit regularly?) How are these altered by administrative policies that allow family home visits and work release?
- 3 Under what circumstances do children benefit from greater or less contact with their offending fathers? Do prison-based services, such as parenting classes and drug treatment, improve family functioning when inmates are released? What models for services are most effective?
- 4 Are selective drug prevention interventions effective with youth of drug-involved, criminal justice-involved parents?
- 5 How do sentencing alternatives affect family health and well-being, including teen drug use?
- 6 What interventions are needed to minimize the negative impact of incarceration on families?

## Criminal Justice Policies to Deter Use and Sales

### *Evaluating State-Level Policy*

### Priority Research Questions 2010-2015

- 1 How do different state policy models compare by their outcomes (e.g., illegal drug use by adults and juveniles, employment and educational achievement of offenders, return to drug-related crimes, family outcomes)?
- 2 What archived outcome data are already available to be used for process and outcome evaluation? What more needs to be done to classify and compare different policies and the implementation of these policies by their outcomes?
- 3 What are the within-state and between-state differences in both police enforcement of drug laws and prosecutorial discretion in case processing, and how do these differences affect outcomes (especially in the juvenile court system)?
- 4 How do policing practices vary across jurisdictions, and what is the impact on drug markets?

## II. School-Related Policies to Reduce Youth Demand for Drugs

### What we know.

As fundamental child-serving public institutions, schools have been a primary target for testing and implementing youth drug prevention interventions. Since 1988, the Department of Education (ED)'s SDFSCA program has provided state-based infrastructure for administering modest drug prevention funds, providing technical assistance, and monitoring the implementation of policy and per capita funding for youth in 98% of U.S. school districts (Hallfors et al. 2007). In the mid-1990s, adolescent drug use rates rose dramatically (Johnston et al. 2009), and growing concern about the effectiveness of SDFSCA led to scrutiny of state and district accountability for the use of these funds, which amounted to roughly half a billion dollars annually. In 1998, ED issued regulatory policy requiring states to enforce the "Principles of Effectiveness," i.e., to conduct needs assessments, select "evidence-based" programs, and evaluate progress toward measurable goals. These Principles were incorporated into the No Child Left Behind Act of 2001 (NCLB 2002). Although the new policy implied that states would need more resources to encourage and enforce the Principles of Effectiveness, ED funding and support has steadily declined. Most recently the state allocation was cut by 21% in 2006 and by an additional 15% in 2007.

While reducing support of state-based SDFSCA, ED and the Office of National Drug Control Policy were encouraging schools to consider drug testing in schools (ONDCP 2004), with funding incentives to try it (CRS 2007). Despite the federal emphasis, student drug testing is a low priority in most states and school districts. Only 5% of state SDFSCA directors gave this activity a high priority and 86% gave it a low priority as a drug prevention strategy (Cho et al. 2009). Similarly, less than 9% of U.S. school districts gave it a high priority and 82% gave it a low priority (Cho et al. 2009). The lack of enthusiasm is likely due to the controversies surrounding the policy. A myriad of court cases have been brought against drug testing schools, culminating in two Supreme Court cases. The Court ultimately found that students can be required to submit to random drug tests as a condition of participation in extracurricular activities (Board of Education of Tecumseh Public School District v. Earls 2002). Nevertheless, random drug testing has continued to be criticized as an invasion of students' privacy, expensive, and a deterrent to students from participating in extracurricular activities (ONDCP 2004; Botvin 2002). There is little clear evidence of positive effects from student drug testing programs; a 2003 study commissioned by RWJF suggested that drug testing does not prevent or inhibit drug use (Yamaguchi et al. 2003). A later randomized controlled trial found no difference in past month drug use but did find lower rates of past year illicit drug use at some follow-up points (Goldberg et al. 2007). ED is currently conducting a large randomized controlled trial of schools (IES accessed August 2008).

## What we need to know.

It will be important to examine the findings of the ED drug testing study and to consider whether drug testing policies are a viable consideration for schools. Given the steady demise of SDFSCA, more information is needed about other school policies, such as disciplinary actions for drug, tobacco, and alcohol possession on school grounds, and the use of alternative schools as a consequence for drug-related infractions (Kleiner et al. 2002). Although SDFSCA has made an attempt to address youth substance abuse, school districts tend to select programs of questionable effectiveness, such as DARE and homegrown programs. Also, they often implement evidence-based curriculum programs poorly (Hallfors and Godette 2002). Thus, new approaches are needed.

## School-Related Policies to Reduce Youth Demand for Drugs

### Priority Research Questions 2010-2015

- 1 | What is the extant evidence that student drug testing results in positive outcomes, as well as negative unintended consequences? What is the effect on vulnerable subgroups?
- 2 | What are the variations in how student drug testing is adopted and enforced/implemented in school systems? How are these implementation variations related to outcomes and unintended consequences?
- 3 | What policies, other than drug testing, have school districts enacted in response to drug possession/use/sales on school grounds and at school functions (e.g., suspension, parental notification, counseling, alternative schooling)? How effective are these policies in preventing drug-related behavior and encouraging academic achievement? What subgroups are affected positively or negatively by specific policies? What are the key policy characteristics predicting successful outcomes?
- 4 | How effective are different models of alternative schools in reducing or preventing drug use and improving academic achievement? Are there negative unintended consequences from grouping high-risk youth? What are the essential elements of successful programs? What subgroups, under what conditions, are most likely to benefit from alternative schools?
- 5 | What are the environmental characteristics of schools (e.g., lighting, lunchroom monitoring, teacher training in positive discipline) that prevent bullying, violence, conflict, and drug-related delinquency and that promote achievement, particularly for youth at high risk of school failure? What are the simplest, most cost-effective interventions that can be readily diffused to schools?

### III. Drug Prevention Policies at the Community Level

#### What we know.

SAMHSA's block grant program provides federal funding to support state and local substance abuse prevention and treatment programs through Single State Agencies (SSAs). SSAs contract with entities such as community substance abuse/mental health centers, county governments, regional state authorities, private nonprofit or for-profit organizations, and tribal entities to provide services at regional, county, and local levels (ONDCP 2006).

On average, more than 60% of U.S. expenditures for community drug prevention came from block grant funds in FY 2003 (ONDCP 2006). Expenditures on education activities consistently accounted for 35-40% of total expenditures in 2000-2003 (38% in 2007), and community-based processes accounted for 18% of expenditures. The FY 2009 Budget requested \$1.8 billion for the Substance Abuse Prevention and Treatment block grant, an increase of \$20 million; the increase will support supplemental performance awards for the top 20% of grant recipients that demonstrate superior performance in preventing and treating substance abuse (SAMHSA 2008). Of the remainder, states must use 20% (totaling \$356 million) or more on substance abuse prevention. This "set-aside" is managed by the Center for Substance Abuse Prevention (CSAP). The Office of Management and Budget (OMB) gave the block grant program a rating of "Not Performing" and "Ineffective" because no independent evaluation of the program has been completed (a five-year evaluation will be completed in 2009), and existing annual measures provide information primarily on outputs, such as numbers served, satisfaction with the agency's technical assistance, and attitudes toward drug use (ExpectMore.Gov accessed July 2008). The OMB has approved and the states have completed the FY 2008 block grant application which includes performance measures. SAMHSA has been tracking state estimates of substance use and non-use since 2005.

SAMHSA's Strategic Prevention Framework State Incentive Grants (SPF SIG) are designed to promote and sustain prevention infrastructure for every state in the country as part of the prevention Programs of Regional and National Significance, administered by CSAP. The FY 2009 SPF SIG budget request is \$95.4 million, a decrease of \$9.3 million from the FY 2008 enacted level (SAMHSA 2009). In 2008, SAMHSA directed SPF SIG recipients to focus their funds on environmental and population-based strategies and utilize community anti-drug coalitions, including those funded under the Drug Free Communities program, to the maximum extent possible, as SPF SIG sub-recipients (SAMHSA 2008).



## What we need to know.

The success of the SPF will be measured by specific National Outcome Measures, among them: abstinence from drug use and alcohol abuse; age of first use; attitudes toward use; reduction in substance abuse-related crimes; perception of workplace policies; alcohol- or drug-related suspensions and expulsions; increased access to services; and increased social connectedness. SPF SIG cross-site evaluators suggest that the program has been successful in moving states and communities to focus on population-level outcomes, thereby raising interest in policy strategies (R. Flewelling Aug. 11, 2008, pers. comm.). Consequently, however, states are mostly focusing on underage drinking because they do not know how to address illegal drug use. Given the emphasis on National Outcome Measures, however, it is possible that researchers will be able to better assess the impact of different policies on targeted outcomes.

## Drug Prevention Policies at the Community Level

### Priority Research Questions 2010-2015

- 1 What are alternative options for structuring the block grant and managing these dollars to improve accountability?
- 2 What variations exist in how block grants are implemented and managed at the state level, and what is the impact of these variations on state performance?
- 3 What are the variations in how states use epidemiological data to help set priorities in the SPF SIG program?
- 4 Are data sources adequate at the state and community level? How can the federal government help to improve the quality and utility of data at the local level?
- 5 How effective has the program been in focusing more on environmental and population-based strategies? How could it be more effective?
- 6 What policy strategies can most effectively reduce drug abuse among youth and young adults? Does the evidence support a greater emphasis on universal or indicated strategies?
- 7 If communities use epidemiological data to inform their priorities, what will be the effect of concentrating scarce resources on specific populations at greatest risk and specific drugs of greatest use? Will this give rise to other neglected problems?

## IV. Drugged Driving

### What we know.

In 2006 there were 10.2 million persons, or 4.2% of the population aged 12 or older, who reported driving “under the influence” of illicit drugs during the past year (SAMHSA 2007). The rate was highest among young adults aged 18 to 25 (13.0%). Interest in the potential effect of drug use on vehicle crashes has been growing in the U.S. and globally (Voas 2008). The International Council on Alcohol, Drugs, and Traffic Safety Working Group on Drugs and Driving has recently published Guidelines for Research on Drugged Driving (Walsh et al. 2008). The guidelines cover three topics: behavior, epidemiology, and toxicology, but they do not include policy research. Voas (2008) suggests the importance of a fourth component covering the evaluation of laws and policies that emanate from basic research on drugs and driving. Currently 14 U.S. states have zero-tolerance laws that make any detectible amount of a drug in the blood an offense. These laws are based on an extension of federal drug enforcement to automobile drivers. Only one state has a law which specifies a drug level higher than zero, which is believed to be the level at which drugs cause impairment. Laws that specify a concentration level that impairs driving must be based on research demonstrating that the concentration specified is related to crash involvement. Such “anti-crash laws” are aimed at harm reduction and will require considerable additional research to identify the level associated with crash involvement (Voas 2008). The National Highway Traffic Safety Administration (NHTSA), with support from NIDA, has funded a study to determine the relative risk of crash involvement associated with the substances most frequently used by drivers.

Every state has driving under the influence of drugs (DUID) legislation on the books (NORML accessed August 2008). Most state DUID laws are “effects-based” laws that require the officer to detect and record impairment as the basis for requiring a drug test. This legislation forbids drivers to operate a motor vehicle if they are either “under the influence” of a controlled substance or if they have been rendered “incapable of driving safely” because of their use of an illicit drug. In 2005, Congress for the first time enacted federal legislation pertaining to the issue of DUID. The provision instructs the Secretary of Transportation to “advise and coordinate with other federal agencies on methods for addressing the problem of driving under the influence of an illegal drug; and conduct research on the prevention, detection, and prosecution of driving under the influence of an illegal drug.”

## What we need to know.

Voas (2008) argues that the prevalence of drugs among arrested and injured drivers does not in itself demonstrate that drugged driving causes crashes, which is the public health issue of concern. He suggests that there is much to be learned from alcohol-impaired driving studies and methods, such as the U.S. national roadside surveys and data from the NHTSA's National Automotive Sampling/ Crashworthiness Data System. Using a crash-based system, the significance of the drug involvement of drivers can be related more directly to the crash problem. As noted, the NHTSA has funded a program to collect evidence of the relationship of drugs to crashes in 2009.

### Drugged Driving

#### Priority Research Questions 2010-2015

- 1 | What variations exist in state laws, policies, and enforcement programs, and what is known about their relative effectiveness?
- 2 | Impaired driving laws, although effective for enforcement of alcohol DUI laws, do not produce as much deterrence as highly publicized checkpoint programs, which make use of illegal per se laws (R. Voas, pers. comm.). Does this principle also apply to DUID?
- 3 | What are the comparable alcohol technologies and strategies that could be applied to DUID prevention, and what are the related issues to be addressed?
- 4 | Are there policy strategies that would reduce drug impairment levels across most age groups and in most situations?

## V. Preventing Harms from Prescription Drugs

### What we know.

In 1997, two expert panels introduced clinical guidelines for management of chronic pain, including encouraging expanded use of opioid pain medications after careful patient evaluation and counseling when other treatments are inadequate (Hall et al. 2008). In the 10 years since the guidelines were first published, per capita retail purchases of the pain relievers methadone, hydrocodone, and oxycodone in the U.S. increased dramatically. Along with the increase in legitimate sales of opioids, rates of emergency department visits and deaths attributable to opioid analgesic overdoses have also increased. A recent study of unintentional overdose deaths in the state of West Virginia showed that most were associated with the nonmedical use and diversion of prescription drugs (Hall et al. 2008).

Based on data from the National Survey on Drug Use and Health (NSDUH), past year nonmedical pain reliever use (e.g., oxycodone, hydrocodone) rose from 11% in 2002 to 12.6% in 2006 (Gfroerer 2008). In 2006, use was greatest among young adults (18- to 24-year-olds; 12.4%) but was also substantial among adolescents (12- to 17-year-olds; 7.2%). Past 30 day use of any psychotropic drug (pain relievers, tranquilizers, stimulants, sedatives) for all age groups was 2.8%, up slightly from previous years. The largest source of psychotherapeutic drugs (55.6%) was (free) from a friend or relative, and most of these individuals obtained the medications from one doctor. Other illegitimate sources of the medications were buying or stealing from a friend or relative (14.8%), obtaining from a doctor (19.1%) or from several doctors (1.6%), and buying from a drug dealer or stranger (3.9%). A small proportion was bought on the Internet (0.1%). Among frequent users of pain relievers, 1.7% purchased them from the Internet. However, U.S. Drug Enforcement Administration (DEA) officials contend that Internet shopping is a growing problem (DEA 2007). Schedule III and IV drugs are increasingly accessible and often illegally purchased through the Internet because criminal penalties for violations are significantly less than for Schedule II drugs. The National Association of Boards of Pharmacy (NABP) registers pharmacies that operate online and meet licensing and inspection requirements. However, “rogue” sites exist that are not regulated by the NABP. DEA currently uses the Automation of Reports and Consolidated Orders System to identify high or excessive volume purchases and determine which retail pharmacies and practitioners are likely to be involved in the illicit distribution via the Internet.

### What we need to know.

ONDCP has promoted several initiatives that emphasize prevention of prescription drug abuse, including the National Youth Media Campaign and drug free community coalitions (ONDCP 2009). However, it is not clear to what extent these and other strategies are effective. Moreover, prescription drugs are legitimately needed for pain control and other medical purposes. Too much regulation to prevent abuse could reduce access for appropriate pain control.

## Preventing Harms from Prescription Drugs

### Priority Research Questions 2010-2015

- 1 Has the National Youth Media Campaign been effective in reducing youth access to prescription medications?
- 2 Is there evidence that advertising prescription medications directly to consumers has increased the nonmedical use of psychoactive medications?
- 3 Does adequate information and understanding currently exist about prescription medication abuse and diversion, from both a demand and supply perspective?
- 4 What are current policies to deter Internet distribution and are they effective? What policies deter doctor shopping? How do policies compare in their effectiveness to prevent unintentional death and other harms from prescription drug abuse? What is the variation in policy implementation, and how does this affect outcomes?
- 5 Are there monitoring tools currently used by the pharmaceutical industry (such as prescribing patterns of physicians) that could be adapted for monitoring illegitimate physician practice? What are the privacy and other policy issues?
- 6 How would policy changes to reduce the nonmedical use of prescription drugs impact physician practice and prescriptions for legitimate use? In particular, how would they impact access for necessary acute or palliative care?
- 7 What is the current balance in policy efforts between prevention of prescription drug abuse and addiction on one hand and appropriate access for pain control on the other?

## VI. Improving Evaluation of Drug Prevention Policies

### What we know.

Improving evaluation of drug prevention policies falls within three major categories: identifying what works, accountability, and application of effective interventions.

In recent years, federal agencies such as SDFSCA have required “evidence-based” drug prevention programs to be used by schools and communities. Given the lack of systematic data collection and analyses of evidence, setting criteria for meeting the evidence threshold has been extremely difficult and contentious (Hallfors et al. 2007; Allison et al. 2007). Several agencies have attempted to review the data and provide guidance to schools and communities. However, due to the political and economic implications, charges have been leveled that these efforts were either too lenient and inclusive or too stringent and exclusive. One well-known example is the D.A.R.E. program, but there have been others. In addition, maintaining such lists by incorporating ongoing evidence and new programs is expensive. Currently only SAMHSA’s National Registry of Evidence-based Programs and Policies (NREPP, which invites program developers to submit evidence to them) and the University of Colorado’s Blueprints are actively reviewing programs to guide practitioner selection.

Within alcohol policy accountability and evaluation have greatly benefited by the development of federal uniform data collection and outcomes such as the Fatality Analysis Reporting System, or FARS. For example, Wagenaar and colleagues were able to use FARS to evaluate and compare the general deterrence effects of statutory DUI fine and jail penalties across 32 states (Wagenaar et al. 2007a) and the effects of legal blood alcohol concentration (BAC) limits on fatal crash involvement across 28 states and across several decades of time (Wagenaar et al. 2007b).

Research on effective interventions in alcohol and tobacco suggests that raising price, restricting advertisements, and limiting the physical availability of these substances are effective policies to reduce use.

### What we need to know.

Although models exist for a registry of clinical trials and other rigorous studies (see, e.g., Tobler et al. 2000; Wilson and Lipsey 2007; the Campbell Collaboration [<http://www.campbellcollaboration.org/>]), there is currently no ongoing repository for all clinical trials in drug prevention that helps identify what works. Leaders of the Society for Prevention Research attempted to gain support for the development of such a repository but without success. Standardized coding of studies for meta-analysis allows examination of effect sizes for different

components of programs and under different conditions. It may provide the opportunity to glean “kernels,” defined as procedures shown through experimental analysis to affect specific behaviors (Embry and Biglan 2008). Kernels may be more useful to practitioners and policymakers than full programs, which are expensive and rarely implemented with fidelity (Hallfors and Godette 2002).

It is possible that standardized tools such as FARS can improve the accountability of old and new policies at the federal, state, and local level. This improvement would require a commitment to long-term development (as in the case of FARS) and the establishment of prevention targets using epidemiological data and the development of means to establish accountability using standard and uniform indicators for evaluating performance. With accountability standards and tools in place, the federal government could provide some opportunity for states to differ in the policies that they choose. States in turn could provide support and accountability to local communities who wish to experiment with alternative local policies.

Although the application of policy levers used in alcohol and tobacco are not as straightforward for use in illegal drugs, there may be innovative ways to employ them for reducing drug use.



## Improving Evaluation of Drug Prevention Policies

### *Identifying What Works*

### Priority Research Questions 2010-2015

- 1 What are the barriers to developing a standardized repository of clinical trials and other high quality studies of drug use and harm prevention?
- 2 What agency should take the lead in the repository (e.g., NIDA, ONDCP)?
- 3 How can such a data base be developed to maximize its utility for community, state, and federal prevention policy and practice? For example, how can the data base optimize both internal and external validity?
- 4 What are the best mechanisms for disseminating the most effective drug prevention policies and practices? What can be learned by looking across the dissemination studies of Communities that Care, PROSPER, and Project STEPP?
- 5 Can the federal government provide effective incentives to states and communities to use policies and practices gleaned from systematic evidence review, while providing some opportunity for local experimentation? For example, will the requirement of collecting standardized outcomes promote accountability and rigorous evaluation of innovative policies and practices?

## Improving Evaluation of Drug Prevention Policies

### *Accountability*

### Priority Research Questions 2010-2015

- 1 Can systems analogous to those of alcohol be developed for drug policy?
- 2 What are minimum elements of a uniform data set for drug prevention? Can data be standardized nationally so that criminal justice policies to prevent drug use, harm, and drug-related crime can be compared across states?
- 3 What federal agency can best take this task on (e.g., ONDCP)?
- 4 Can a uniform data set be broadened to include indicators of well-being? How can the federal government develop consensus among state agencies about which aspects of child, adolescent, and adult functioning and well-being to monitor? How can they promote standardization for cross-state comparison, yet allow room for adding new constructs for testing at the local level?
- 5 How can the federal government minimize the costs of monitoring systems, so that data are affordable to collect and use at the local level (e.g., standardization of survey instruments; creating standards for the collection and storage of archival measures, such as crime statistics and academic achievement)?

## Improving Evaluation of Drug Prevention Policies

*Accountability (continued)*

### Priority Research Questions 2010-2015

- 6 How can states collect and organize data to optimally provide them to communities for their use? How can states further encourage local communities and agencies to effectively use these data in their decision making?
- 7 What are the best strategies to embed community monitoring systems into the decision making of state and local school, criminal justice, mental health, and public health systems?
- 8 What is the effectiveness of monitoring systems in influencing community decisions about priorities, programs, and policies?
- 9 What is the impact of these data-based decisions on child and adolescent well-being?

## Improving Evaluation of Drug Prevention Policies

### *Application of Effective Interventions*

### Priority Research Questions 2010-2015

- 1 How do current enforcement strategies actually affect drug prices?
- 2 What are the most effective tools for increasing the price of illegal drugs? What is the threshold for obtaining realistic price effects, i.e., where drug use is reduced and undesired effects are minimized (e.g., development of new markets; substitution of other more dangerous drugs)?
- 3 What are the most cost-effective strategies to actually reduce physical access to drugs and reduce harms while not stimulating unacceptable levels of compensating behavior?
- 4 Can the same principles be applied to steroid use? To inhalants and other legal products of abuse?
- 5 Have price and physical availability of marijuana changed in states that have decriminalized marijuana for medical or personal use?
- 6 How have physicians and growers advertised their medical marijuana services? Have there been any attempts to limit advertising? How do these markets work in California and other states?
- 7 How are states regulating the physical availability of medical marijuana, since federal law prohibits dispensing through pharmacies?

## Conclusion

This research agenda is designed to raise the numerous critical research questions that will need to be answered in reducing the problems associated with drug use. New and innovative approaches to reduce the burden of drug use need to be generated and they need to be debated with the support of an evidence base. The author hopes that this research agenda will advance that process.

The Substance Abuse Policy Research Program (SAPRP) website has syntheses of current knowledge on many important drug-related topics. These syntheses are available as “Knowledge Assets” at [www.saprp.org](http://www.saprp.org).

SAPRP has also developed three other research agendas on tobacco control, alcohol prevention, and alcohol and drug treatment. Each agenda was written by a primary author or authors with input from a group of advisors. All four agendas, including the highlights, are available on the SAPRP website at [http://www.saprp.org/research\\_agenda.cfm](http://www.saprp.org/research_agenda.cfm).

## References

- Allison GG, Murphy-Graham E, Petrosino A, Chrismer SS, and Weiss CH. 2007. The Devil is in the details: Examining the evidence for “proven” school-based drug abuse prevention programs. *Evaluation Review* 31(1):43-74.
- Belenko S. 1998. Research on drug courts: A critical review. *National Drug Court Institute Review* 1(1):1- 42.
- Belenko S. 2001. Research on drug courts: A critical review: 2001 update. New York: National Center on Addiction and Substance Abuse at Columbia University.
- Bewley-Taylor D, Trace M, Stevens A. 2005. *Incarceration of drug offenders: Costs and impacts*. Briefing paper 7. Oxford: Beckley Foundation.
- Board of Education v. Earls. 536 U.S. 822 (2002). Accessed Nov 17, 2008 at [http://www.oyez.org/cases/2000-2009/2001/2001\\_01\\_332/](http://www.oyez.org/cases/2000-2009/2001/2001_01_332/).
- Bonczar TP. 2003. Prevalence of imprisonment in the U.S. population, 1974-2001. Bureau of Justice Statistics Special Report. Washington, DC: U.S. Department of Justice, Office of Justice Programs. NCJ 197976.
- Botvin GJ. March 24, 2002. Re: Supreme Court seems ready to extend school drug tests [Letter to the Editor]. *New York Times*, p.14.
- Campbell Collaboration. Accessed on November 17, 2008 at <http://www.campbellcollaboration.org/>.
- Cho H, Hallfors DD, Iritani B, and Hartman S. 2009. The influence of “No Child Left Behind” legislation on drug prevention in U.S. schools. *Evaluation Review*.
- Congressional Research Service. 2007. The safe and drug-free schools and communities act: Reauthorization and appropriations. CRS Report for Congress. Retrieved 2008 from [http://assets.opencrs.com/rpts/RL33870\\_20070208.pdf](http://assets.opencrs.com/rpts/RL33870_20070208.pdf).
- CRS. See Congressional Research Service.
- DEA. See U.S. Drug Enforcement Administration.
- DHHS. See U.S. Department of Health and Human Services.
- Embry DD and Biglan A. 2008. Evidence-based kernels: Fundamental units of behavioral influence. *Clinical Child Family Psychological Review* 11(3):75-113.
- Emmer ET, Everston CM, and Worsham ME. 2003. *Classroom management for secondary teachers*. 6th ed. New York: Allyn & Bacon.
- ExpectMore.gov. Accessed July 2008 at <http://www.whitehouse.gov/omb/expectmore/summary/10001066.2003.html>.
- Feinberg ME, Chilenski SM, Greenberg MT, Spoth RL, and Redmond C. 2007. Community and team member factors that influence the operations phase of local prevention teams: The PROSPER project. *Prevention Science* 8(3):214-26.
- GAO. See U.S. Government Accountability Office.
- Gfroerer J. May 5, 2008. Prevalence and Patterns of Nonmedical Use of OxyContin® and Other Pain Relievers. Office of Applied Studies, Substance Abuse and Mental Health Services Administration, Anesthetic and Life Support Drugs and Drug Safety and Risk Management Advisory Committees.
- Goldberg L, Elliot DL, MacKinnon DP, et al. 2007. Outcomes of a prospective trial of student-athlete drug testing: The Student Athlete Testing Using Random Notification (SATURN) study. *Journal of Adolescent Health* 41(5):421-9.
- Gorman DM and Conde E. 2007. Conflict of interest in the evaluation and dissemination of “model” school-based drug and violence prevention programs. *Evaluation and Program Planning* 30(4):422-9.
- Gottfredson GD, Gottfredson DC, Payne AA, and Gottfredson NC. 2005. School climate predictors of school disorder: Results from a national study of delinquency prevention in schools. *Journal of Research in Crime and Delinquency* 42:412-44.

- Green BL, Furrer CJ, Worcel SD, Burrus SWM, and Finnigan MW. Jan. 2007. How effective are Family Treatment Drug Courts? Results from a 4-site national study. *Child Maltreatment* 12(1):43-59.
- Hall AJ, Logan JE, Toblin RL, Kaplan JA, Kraner JC, Bixler D, et al. 2008. Patterns of abuse among unintentional pharmaceutical overdose fatalities. *JAMA, the Journal of the American Medical Association*, 300(22):2613-20.
- Hallfors D and Cho H. 2007. Moving behavioral science from efficacy to effectiveness. *International Journal of Behavioral Consultation and Therapy* 3(2):236-50.
- Hallfors D, Cho H, Sanchez V, Khatapoush S, Kim H, and Bauer D. 2006. Efficacy vs effectiveness trial results of an indicated "model" substance abuse program: Implications for public health. *American Journal of Public Health* 96(12):2254-9.
- Hallfors D and Godette D. 2002. Will the "Principles of Effectiveness" improve prevention practice? Early findings from a diffusion study. *Health Education Research* 17(4):461-70.
- Hallfors D, Pankratz M, and Hartman S. 2007. Does federal policy support the use of scientific evidence in school-based prevention programs? *Prevention Science* 8(1):75-81.
- Harrison P and Beck J. 2003. Prisoners in 2002. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. NCJ 200248.
- Harrison P and Beck J. 2004. Prisoners in 2003. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. NCJ 205335.
- Harrison PM and Karberg JC. 2004. Prison and jail inmates at midyear 2003. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics. NCJ 203947.
- Hawken A and Poe A. 2008. Testing and sanctions for Proposition 36 probation violations. In *Evaluation of Proposition 36: The Substance Abuse and Crime Prevention Act of 2000: 2008 Report*. Los Angeles: University of California Los Angeles Integrated Substance Abuse Programs.
- Hawkins JD, Catalano RF, Arthur MW, Egan E, Brown EC, Abbott RD, and Murray DM. 2008. Testing Communities That Care: The rationale, design, and behavioral baseline equivalence of the Community Youth Development Study. *Prevention Science* 9(3):178-90.
- IES. See Institute of Education Sciences.
- ImpacTeen Illicit Drug Team. 2002. *Illicit drug policies: Selected laws from the 50 states*. Berrien Springs, MI: Andrews University.
- Institute of Education Sciences. Accessed August 2008. An evaluation of the impact of mandatory random drug testing. <http://ies.ed.gov/ncee/projects/evaluation/drugtesting.asp>.
- Institute of Medicine. 1994. *Reducing risks for mental disorders: Frontiers for preventive intervention research*. Washington, DC: National Academy Press.
- IOM. See Institute of Medicine.
- Iritani B, Hallfors D, and Bauer D. 2007. Crystal methamphetamine use among young adults in the United States. *Addiction* 102(7):1102-13.
- Johnston LD, O'Malley PM, Bachman JG, and Schulenberg JE. 2009. Monitoring the Future: National results on adolescent drug use: Overview of key findings 2008. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse. Publication No. 09-7401.
- Kleiner B, Porch R, and Farris E. 2002. *Public alternative schools and programs for students at risk of education failure: 2000-01*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. NCES 2002-004.

- Komro K, Perry CL, Veblen-Mortenson S, Farbaksh K, Toomey T, Stigler MH, et al. 2008. Outcomes from a randomized controlled trial of a multi-component alcohol use preventive intervention for urban youth: Project Northland Chicago. *Addiction* 103(4):606-18.
- Krisberg B. 2001. The plight of children whose parents are in prison. Oakland, CA: National Council on Crime and Delinquency.
- Langan PA and Levin DJ. 2002. Recidivism of prisoners released in 1994. Washington, DC: U.S. Department of Justice Programs, Bureau of Justice Statistics. NCJ 193427.
- Marlowe DB, Heck C, Huddleston WC, and Casebolt R. 2006. A National research agenda for drug courts: Plotting the course for second-generation scientific inquiry. *Drug Court Review* 5(2), Special Research Edition 2006.
- Mauer M. 2003. Comparative international rates of incarceration: An examination of causes and trends. Report to the U.S. Commission on Civil Rights. June 20, 2003.
- McBride DC, Terry YM, and Incardi JA. 1999. Alternative perspectives on the drug policy debate. In *The drug legalization debate, 2nd edition*, ed. JA Incardi, 9-54. Thousand Oaks, CA: Sage Publications.
- McBride DC, VanderWaal CJ, Pacula RL, Terry-McElrath Y, and Chiqui JF. 2002. Mandatory minimum sentencing and drug-law violations: Effects on the criminal justice system. In *Treatment of drug offenders: Policies and issues*, ed. CG Leukefeld, F Tims, and D Farabee, 319-32. New York: Springer Publishing Company, Inc.
- McBride DC, VanderWaal CJ, and Terry-McElrath YM. September 2003. The drugs-crime wars: Past, present and future directions in theory, policy and program interventions. In *Toward a Drugs and Crime Research Agenda for the 21st Century*, ed. HH Brownstein and C Crossland, 97-162. Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice. NCJ 194616.
- Mumola C. 2006. Parents under correctional supervision: Past estimates, new measures. [http://www.drugabuse.gov/whatsnew/meetings/children\\_at\\_risk/pdf/Mumola.pdf](http://www.drugabuse.gov/whatsnew/meetings/children_at_risk/pdf/Mumola.pdf).
- National Institute on Drug Abuse. 1997, 2nd ed. 2003. Preventing drug use among children and adolescents: A research-based guide for parents, educators, and community leaders. Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse.
- NCLB. See No Child Left Behind Act of 2001.
- NIDA. See National Institute on Drug Abuse.
- No Child Left Behind Act of 2001. 2002. Pub. L. No. 107-110, 115 Stat. 1425.
- NORML. Accessed August 2008. [http://norml.org/index.cfm?Group\\_ID=5441](http://norml.org/index.cfm?Group_ID=5441) (medical marijuana); [http://norml.org/index.cfm?wtm\\_view=&Group\\_ID=4516](http://norml.org/index.cfm?wtm_view=&Group_ID=4516) (state penalties); [http://norml.org/index.cfm?Group\\_ID=6669](http://norml.org/index.cfm?Group_ID=6669) (drugged driving).
- Office of National Drug Control Policy. 2004. What you need to know about starting a student drug-testing program. Rockville, MD: U.S. Department of Justice, Office of National Drug Control Policy.
- Office of National Drug Control Policy. 2006. *Inventory of state substance abuse prevention and treatment activities and expenditures*. Washington, DC: Executive Office of the President. NCJ 216918.
- Office of National Drug Control Policy. 2009. [http://www.whitehousedrugpolicy.gov/publications/policy/09budget/tbl\\_1.pdf](http://www.whitehousedrugpolicy.gov/publications/policy/09budget/tbl_1.pdf).
- ONDCP. See Office of National Drug Control Policy.
- Pacula RL, Chiqui JF, Reichmann DA, and Terry-McElrath YM. 2002. State medical marijuana laws: Understanding the laws and their limitations. *Journal of Public Health Policy* 23(4):413-39.



- Riggs NR, Nakawatase M, Pentz MA. 2008. Promoting community coalition functioning: Effects of Project STEPP. *Prevention Science* 9(2):63-72.
- Roettger M. 2005. Barred legacies: The intergenerational dimension in crime and punishment. Masters thesis, The University of North Carolina at Chapel Hill.
- SAMHSA. See Substance Abuse and Mental Health Services Administration.
- Solomon A and Zweig J. 2006. Parents in the criminal justice system and the impact on children and families. [http://www.drugabuse.gov/whatsnew/meetings/children\\_at\\_risk/pdf/SolomonZweig.pdf](http://www.drugabuse.gov/whatsnew/meetings/children_at_risk/pdf/SolomonZweig.pdf).
- Substance Abuse and Mental Health Services Administration. 2007. *Results from the 2006 National Survey on Drug Use and Health: National findings*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. NSDUH Series H-32, DHHS Publication No. SMA 07-4293.
- Substance Abuse and Mental Health Services Administration. 2008. Department of Health and Human Services FY 2008 Substance Abuse and Mental Health Services Administration Justification of estimates for appropriation committees. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. <http://www.samhsa.gov/Budget/FY2008/SAMHSA08CongrJust.pdf>.
- Substance Abuse and Mental Health Services Administration. *SAMHSA News* March/April 2008, 16(2). Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. [http://www.samhsa.gov/SAMHSA\\_news/VolumeXVI\\_2/text\\_only/article11.txt.htm](http://www.samhsa.gov/SAMHSA_news/VolumeXVI_2/text_only/article11.txt.htm).
- Substance Abuse and Mental Health Services Administration. 2009. Department of Health and Human Services FY 2009 Substance Abuse and Mental Health Services Administration Justification of estimates for appropriation committees. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. [http://samhsa.gov/Budget/FY2009/SAMHSA\\_CJ2009.pdf](http://samhsa.gov/Budget/FY2009/SAMHSA_CJ2009.pdf).
- Terry-McElrath YM and McBride DC. 2004. Local implementation of drug policy and access to treatment services for juveniles. *Crime and Delinquency* 50(1):60-87.
- Terry-McElrath YM, McBride DC, Chiqui JF, O'Malley PM, VanderWaal CJ, Chaloupka FJ, and Johnston LD. April 2008. Evidence for connections between prosecutor-reported marijuana case dispositions and community youth marijuana use. *Crime and Delinquency* April 2008; OnlineFirst: 0011128707310001. <http://cad.sagepub.com/cgi/rapidpdf/0011128707310001v1>.
- Terry-McElrath YM, McBride DC, Ruel EE, Harwood EM, VanderWaal CJ, and Chaloupka FJ. 2005. Which substance and what community? Differences in juvenile disposition severity. *Crime and Delinquency* 51(4):548-572.
- Thomas JC and Torrone E. 2006. Incarceration as forced migration: Effects on selected community health outcomes. *American Journal of Public Health* 96(10):1762-5.
- Tobler NS, Roona MR, Ochshorn P, Marshall DG, Streke AV, and Stackpole KM. 2000. School-based adolescent drug prevention programs: 1998 Meta-analysis. *The Journal of Primary Prevention* 20(4):275-336.
- U.S. Department of Health and Human Services. 1999. *Blending perspectives and building common ground: A report to Congress on substance abuse and child protection*. Washington, DC: U.S. Government Printing Office.
- U.S. Drug Enforcement Administration. May 16, 2007. DEA Congressional Testimony. Written Statement of Joseph T. Rannazzisi, Deputy Assistant Administrator, Office of Diversion Control, Drug Enforcement Administration. Washington, DC: U.S. Department of Justice, Drug Enforcement Administration. Accessed at <http://www.usdoj.gov/dea/pubs/cngrtest/ct051607.html>.

- U.S. Government Accountability Office. February 2005. *Adult drug courts: Evidence indicates recidivism reductions and mixed results for other outcomes*. Report to Congressional Committees. Washington, DC: U.S. Government Accountability Office. GAO-05-219.
- Voas RB. 2008. [Commentary] Guidelines for research on drugged driving: A good first step. *Addiction* 103(8):1269-70.
- Wagenaar AC, Maldonado-Molina MM, Erickson DJ, Ma L, Tobler AL, and Komro KA. 2007a. General deterrence effects of US statutory DUI fine and jail penalties: Long-term follow-up in 32 states. *Accident Analysis and Prevention* 39:982-94.
- Wagenaar AC, Maldonado-Molina MM, Ma L, Tobler AL, and Komro KA. 2007b. Effects of legal BAC limits on fatal crash involvement: Analyses of 28 states from 1976 through 2002. *Journal of Safety Research* 38:493-9.
- Walsh MJ, Verstraete AG, Huestis MA, and Morland J. 2008. Guidelines for research on drugged driving. *Addiction* 103(3):1258-68.
- Western B and Beckett K. 1999. How unregulated is the U.S. labor market? The penal system as a labor market institution. *American Journal of Sociology* 104(4):1030-60.
- Wilson SJ and Lipsey MW. 2007. School-based interventions for aggressive and disruptive behavior: Update of a meta-analysis. *American Journal of Preventive Medicine* 33, Supplement 2: S130-43.
- Worcel SD, Green BL, Furrer CJ, Burrus SWM, and Finigan MW. March 2007. Family treatment drug court evaluation: Final report. Portland, OR: NPC Research. [http://www.npcresearch.com/Files/FTDC\\_Evaluation\\_Final\\_Report.pdf](http://www.npcresearch.com/Files/FTDC_Evaluation_Final_Report.pdf).
- Yamaguchi R, Johnston LD, and O'Malley PM. 2003. Relationship between student illicit drug use and school drug-testing policies. *Journal of School Health* 73:159-64.



