

does upon broadly recognized concepts such as random testing of athletes and random work-place testing; but that does not take into account the potential for unintended consequences of these policies and, perhaps, the ever more present chance that such policies are ineffective. Understanding the genesis of policies, the foundational compelling idea that drives the intervention in question, can present us with an opportunity to carefully dissect the motivation behind proposed ideas and, consequently, to inform a critical analysis of these central motivations ahead of evidence that may provide a definitive assessment.

Third, policy exigencies are informed by rather different time-lines than are research time-lines. Most research projects are longer than congressional terms and as long as federal presidential terms. Policy windows open and shut rapidly. Therefore, the desire on the part of those in a position to implement programs to act when the opportunity arises is understandable. Unfortunately, rapid implementation of programs almost by definition precludes rigorous assessment. Compounding the issue, program monies seldom include evaluation resources up-front, creating a time lag between program implementation and evaluation. By the time the evidence has caught up, or is catching up, with the policies implemented, programs are well under way and very much have a life of their own, making their elimination or modification structurally difficult and potentially politically unpalatable.

Random student drug testing illustrates these three challenges well. Based on a compelling idea, and driven by a deep concern with adolescent drug use, the program that has been implemented is slowly expanding without the weight of evidence behind it. In that respect, the review by DuPont and colleagues performs an important service, taking stock of the literature and offering clear prescriptions for next steps in our evaluation of this program. We would do well as a field to urge that these prescriptions be taken up quickly, both by funders who need to create the resources to facilitate this work and by researchers who should take up the funders on the challenge.

Declaration of interests

None.

Keywords Cost–benefit, policy analysis, public health.

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EXPLORING THE PROMISE OF MANDATORY RANDOM STUDENT DRUG TESTING BY COMPARING IT TO OTHER SCHOOL DRUG PREVENTION STRATEGIES

DuPont *et al.* [1] have done researchers and practitioners a favour by examining the key issues involved in mandatory random student drug testing (MRSDT), a controversial drug prevention strategy implemented widely in the United States. DuPont *et al.* conclude that MRSDT is a promising strategy worthy of continued scientific investigation. This suggestion is welcome, especially if it encourages researchers to move beyond the question of whether MRSDT works to explore the more important question of whether there are any conditions under which MRSDT is more successful than other school drug prevention strategies that are less invasive of students' right to privacy.

In comparing MRSDT to other school drug prevention efforts, it is useful to elucidate the key assumptions underpinning the rationale of MRSDT, and how these compare to those of other prevention strategies. The goals of MRSDT are twofold: (i) deterring student substance use by providing students with a reason to decline peers' drug offers and (ii) identifying individual students with substance use problems for referral to appropriate counselling/treatment services [2]. While the first goal can be placed within universal drug prevention approaches aimed at the general student population, the second goal can be placed within selective prevention approaches that target individual students with increased risk of drug use problems.

As a universal prevention approach, MRSDT shares the basic strategy of traditional universal school drug prevention strategies that aim to encourage students to 'just say no', and the underlying assumption that drug

use is a function of individual susceptibility to peer pressure. Unfortunately, traditional universal school drug prevention efforts that have been based on this assumption have shown only small, inconsistent and unsustainable effects [3–6]. Given that MRSDT shares the underlying assumptions of previously limited universal prevention efforts, one could predict that MRSDT as a universal drug prevention strategy will, at best, be weak.

One reason why traditional universal school-based drug prevention approaches may have had limited success is that they assume optimistically that adolescent drug use is under the control of the individual student: once individuals are informed, they will abstain from drug use. This approach ignores the realization that adolescent drug use is influenced heavily by the individual's social environment [7]. In comparison, holistic approaches that focus upon the school social environment may show more promise. In particular, interventions that improve school social climates rest on the idea that the development of a safe, supportive and inclusive school environment has far-reaching effects on young people's health and wellbeing, including drug problems [8]. Experimental interventions [9,10] have demonstrated that such school climates can reduce substance use, and national surveys verify that students in schools with positive climates have better mental health and less drug use [11,12]. Indeed, national surveys indicate that MRSDT may succeed only in schools with positive climates [13].

As a selective prevention intervention, MRSDT aims to identify high-risk adolescents and refer them to targeted interventions. To date, no evaluation of this part of the strategy has been conducted. As DuPont *et al.* [1] highlight, although MRSDT is intended to be a non-punitive measure, the major focus of testing positive appears to be the threat of removal from extracurricular activities, rather than the drug counselling and treatment that should be implemented. Research shows that motivational interviewing may reduce substance use and related harm, particularly among heavy adolescent substance users [14]. Thus, it may be expected that, in combination with motivational interviewing or other evidence-based interventions, identifying students who use drugs through MRSDT may serve as a valuable selective prevention approach. However, it should be noted that MRSDT may be relatively ineffective as a screening tool for substance use. Due to legal restrictions, MRSDT in the United States is implemented typically only for students in extracurricular activities. Effectively, it targets students who are at low risk for drug use problems [15–17]. Furthermore, MRSDT programmes do not typically test for use of alcohol, which is harder to detect through biological tests than illegal drugs. In effect,

MRSDT is likely to miss screening of the drug that is the major source of immediate impairment in youth [18]. As the highest prevalence of drug use occurs among poorer academic performers and adolescents with externalizing and internalizing problems [19], identifying these risk indicators may be a more effective and sensitive way of referring students who could benefit from selective prevention programmes than MRSDT.

DuPont *et al.* [1] move us in a useful direction. There is no denying that there is a need for better school drug preventive initiatives and MRSDT should be considered carefully. However, MRSDT should be measured against existing evidence-based prevention models, and these should be used as a yardstick of success. From this perspective MRSDT is, at least in theory, a questionable drug prevention strategy.

Declaration of interests

None.

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Keywords Adolescents, drug prevention, drug test, drug use, school, students.

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RESPONSE TO COMMENTARIES ON RANDOM STUDENT DRUG TESTING

We offer our thanks to the reviewers for their valuable insights [1–3]. We agree that random student drug

testing (RSDT) is a controversial topic in need of further study as part of the broader conversation on substance use prevention.

Gilvarry [1] notes some of the limitations of RSDT as a stand-alone intervention—particularly that the intentions do not always match the programs as implemented. We agree that interventions targeting the overall school culture are likely to have the most positive outcome, and second the call for more work in this area. The potentially complex needs of students who test positive for drugs further stresses the importance of building a strong system of school-based support around any testing program with access to appropriate resources to create interventions that are beneficial to the identified at-risk adolescents.

Sznitman [2] argues rightly that, given the conflicting evidence, a more useful research question is: 'how to use RSDT most effectively to maximize benefit and minimize risks?'. Elucidating protocols and policies based in other evidenced-based practices (e.g. utilizing motivational interviewing interventions following positive tests, rather than suspension, etc.) would probably add significant value to the discussion.

Finally, Galea [3] made valuable points regarding the need for more evidence-based policy decisions in the field of substance use, as well as practical considerations and the emotionality that is sometimes attached to this topic. We agree that there is a need for better communication and collaboration between scientists and policymakers. The University of Florida (UF) has addressed this issue directly through the opening of the UF Drug Policy Institute, 'delivering evidence-based, policy-relevant, information to policymakers, practitioners, scholars, and the community to make educated decisions about issues of policy significance in the field of substance use, abuse and addiction' (<http://drugpolicyinstitute.psychiatry.ufl.edu/about-us/>).

Implementation of any school-based drug prevention strategy, including RSDT, should be informed by and geared towards the specific needs of individual schools, their students and the students' families. In addition to identifying drug- and alcohol-related incidents, schools can gather historical substance use data from state-wide student surveys or through the administration of anonymous self-report surveys on substance use, other risky behaviors, as well as potentially positive behaviors such as participation in athletics, volunteering and extracurricular activities. Prevention should be evidence-based and begin with an accurate and comprehensive picture of emerging problems, including academic and social difficulties in addition to health-risk behaviors. Identifying points of possible intervention with at-risk students, in addition to positive random drug tests in schools with RSDT, with evidence-based practices can broaden