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DRUG PREVENTION IN ELEMENTARY SCHOOLS: AN INTRODUCTION TO THE SPECIAL ISSUE

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This special issue of the *Journal of Drug Education* addresses several variations on a theme, namely: what is the state of drug prevention programming in our nation's elementary schools? There is now abundant evidence to suggest that pre-adolescents, or "tweens" as they have been called (Pasch, Perry, Stigler, & Komro, 2008), are already beginning to experiment with alcohol and other substances by the time they are 12 or 13. The most recent statistics available from the household-based National Survey on Drug Use and Health suggest that as of 2007 about 3.5% of the nation's 12 and 13 year olds were current drinkers, and 1.5% were "binge" or heavy drinkers (Substance Abuse and Mental Health Services Administration [SAMHSA], 2008). Statistics derived from other state and national data sets indicate that about 4.1% of 6th graders report current (i.e., 30-day) alcohol use. This finding, Donovan (2007) points out, is remarkably consistent across several state and regional surveys. As suggested by a survey of a large national convenience sample that was conducted by PRIDE in 2001-02, students between the 5th and 6th grade enter a critical developmental time period during which their annual use of beer, wine coolers, and liquor doubles (Donovan, Leech, Zucker, Loveland-Cherry, Jester, Fitzgerald, et al., 2004). By contrast, prevalence rates of experimental alcohol use between 4th and 5th grade are static.

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In his review, Donovan also suggests that the rationale for initiating substance use prevention activities in elementary schools is compelling. Many investigators have reported that early or "precocious" alcohol use constitutes a pathway to the later use and abuse of other drugs (Collins, 2002; Kandel, Yamaguchi, & Chen, 1992) and is closely associated with a variety of negative outcomes. These outcomes include physical and psychological problems such as damaged brain development (Crews, He, & Hodge, 2007), traumatic injury (Johnston, O'Malley, Bachman, & Schulenberg, 2007; Sher & Gotham, 1999), and depression and anxiety (Crum, Green, Storr, Chan, Ialongo, Stuart, et al., 2008; Dixit & Crum, 2000; Harrell, Slane, & Klump, 2009). Substance use also is associated with increases in subsequent delinquent behaviors include stealing, violence, and truancy (Tucker, Martínez, Ellickson, & Edelen, 2008), as well as risky sexual activity resulting in unplanned pregnancy and sexually transmitted diseases (Sher & Gotham, 1999). Finally, early use decreases resiliency and protective factors such as academic performance (Bryant, Schulenberg, Bachman, O'Malley, & Johnston, 2000; Johnston et al., 2007) and social maturation (Johnston et al., 2007). It is thus clear that early substance use initiation is a significant public health concern.

Early school-based drug prevention strategies are based on the notion that it is imperative to "inoculate" youth against substance use at an early age in order to generate resistance to later inducements to use substances (Evans, 1998), a notion that is based on the assumption that it is often easier to prevent a behavior before it starts than to change it later (National Research Council & Institute of Medicine, 2009; Spoth, Greenburg, & Turrisi, 2008). Indeed, some observers (e.g., Pasch et al., 2008) suggest that both universal and selective programs targeting the prevention of alcohol use should occur prior to the sixth grade, and perhaps as early as the third. Indeed, there are several evidence-based prevention curricula such as Protecting You, Protecting Me (Bell, Kelley-Baker, Rider, & Ringwalt, 2005) are available for this specific purpose. School settings offer a distinct opportunity to reach preadolescents and constitute a highly efficient delivery system for disseminating prevention messages.

However, there is an increasing body of evidence that elementary schools are allocating substantially fewer resources and attention to substance use prevention than are middle and high schools. Data from the most recent School Health Policies and Programs Study, conducted in 2006 by the Centers for Disease Control and Prevention, suggest that only 79% of all districts require their elementary schools to teach "alcohol use or other drug use prevention," whereas 90% and 89% of districts require this health topic in their middle and high schools, respectively. Similarly, only 77% of all elementary schools include substance abuse content in their curricula, compared to 85% and 92% of middle and high schools. Further, the median number of hours of required instruction that teachers provide on this topic are only 2.6 for elementary school classes, as opposed to 5.5 and 7.0 for middle and high school courses (Kann, Telljohann, &

Wooley, 2007). These disparities, for which there is further evidence in the article by Hanley and colleagues (this volume), are pronounced.

Why are elementary school-based drug prevention programs not more prevalent? Donovan (2007) suggests several reasons. Some parents and school officials may be concerned that exposing preadolescents to drug programming may have an iatrogenic effect, and stimulate their interest in and curiosity about substance use. This concern may be warranted. In a recent evaluation, Hecht and his colleagues (2008) found that, relative to a control group, students exposed to *keepin' it REAL* (*kiR*) believed that substance use among their peers was more normative. This finding has been replicated by another evaluation of *kiR* that is published in this volume (Elek, Wagstaff, & Hecht, this volume). Similar negative effects have been found in the evaluations of two other elementary school programs, as reported by a review also published in this volume (Hopfer et al., this volume). A recent evaluation of the new D.A.R.E. curriculum concludes that explicit drug prevention messages (e.g., those that address drug offers, resistance, and perceived norms) may be inappropriate for nonusers, although they may be effective for those who have already initiated early use (Sloboda, Stephens, Stephens, et al., 2009). However, the review by Hopfer and colleagues (this volume) reports that at least five effective prevention programs targeting elementary school children make no mention whatsoever of alcohol or other drugs, and so presumably avoid any potential for iatrogenic effects. This raises questions about whether universal prevention targeting preadolescent populations should address socio-emotional development in general rather than substance use in particular.

Whatever the reasons for the lack of substance abuse prevention curricula in the nation's elementary schools, the field of school-based drug prevention is certainly not lacking in curricula that target children in this setting. A search of the National Registry of Effective Programs and Practices (NREPP), supported by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2009), yielded 24 school-based substance use prevention programs that are designed for children of varying ages from six through 12. A further search of evaluations of the effectiveness of these elementary programs, as reported in this volume (Hopfer et al., this volume), found 30 evaluations of these programs, of which 15 reported significant decreases in substance use and one which yielded evidence of significant delays in the initiation of use among non-users. Further, most evaluations positively affected attendant precursors and mediators of use, although the strength of the relationships between these mediators and substance use remains open to question.

It seems possible that the dearth of prevention programming in the nation's elementary school students may relate to the continuing popularity and prevalence of the Drug Abuse Resistance Education (D.A.R.E.) program, which over the course of its 25-year history has traditionally targeted the final (i.e., 5th or 6th) grades of elementary school. Various versions of D.A.R.E. have been subjected to the greatest number of controlled evaluations of any school-based drug

prevention curricula (e.g., des Jarlais, Sloboda, Friedman, Tempalski, McKnight, & Braine, 2006; Ennett, Tobler, Ringwalt, & Flewelling, 1994; Weiss, 2008); an evaluation of the revised elementary D.A.R.E. curriculum conducted by Vincus and her colleagues, appears in this volume. There are a variety of reasons that may explain why these multiple evaluations have yielded so little support for D.A.R.E. Perhaps police officers, indeed, do not belong in the classroom, at least as teachers of drug prevention curricula. However, since recent research indicates that when compared to classroom teachers, officers deliver prevention curricula with greater fidelity and have greater credibility (Hammond, Sloboda, Tonkin, Stephens, Teasdale, Grey, et al., 2008; Sloboda, Stephens, Pyakuryal, et al., 2009), it is unclear as to why they have consistently failed to implement programs that effectively reduce substance use. Second, virtually all of D.A.R.E.'s evaluations have constituted large-scale national effectiveness trials, conducted under real world conditions by independent evaluators with little or no personal stake in their outcomes. Such evaluations typically yield only half the effect sizes of efficacy evaluations conducted under more controlled conditions, in which the curricula are taught by educators who are familiar with them, and which are often carried out under the guidance and supervision of the developer. From this perspective, D.A.R.E. has been fighting an uphill battle for empirical legitimacy since its inception. D.A.R.E.'s presence in elementary schools—it may be taught in as many as 80% of the nation's school districts—has a number of advantages (Hallfors & Godette, 2002). However, its continuing durability in elementary schools may also induce the belief that further prevention activities are unnecessary. The repeated failure of the elementary D.A.R.E. curriculum to demonstrate effects on substance use is both disappointing and frustrating, particularly as its unparalleled delivery system continues to offer the promise of the widespread dissemination of prevention programming that is implemented with high fidelity.

Another study reported in this volume involves the evaluation of an adaptation of an evidence-based middle school curriculum, *keepin' it REAL* (*kiR*), in an elementary context (Elek et al., this volume). The intervention was implemented in 5th through 8th grade classes to compare elementary-only, middle school-only, and both elementary and middle school models. Compared to an earlier middle school trial that yielded evidence of effectiveness (Hecht, Graham, & Elek, 2006), results of the latest study do not support any of the three implementation models. We offer several explanations for these findings. Skills-based approaches that are implemented prior to the initiation of substance use may not be effective and may even be iatrogenic if they involve modeling and role playing. Further, the graphic representations of use in accompanying videos may suggest to the target population that such use is normative. It is also possible that skills-based approaches may require levels of abstract thinking and reasoning that students have not fully developed, even by late elementary school. Alternately, and as is the case in many other prevention trials, some of the "control" schools in this study utilized other evidence-based prevention programs. In the current environment,

evaluators are finding it increasingly difficult to find any schools whose students have not been exposed to substance use prevention messages, and appropriate for randomized controlled trials.

Results of a third evaluation are reported by Hansen and colleagues (this volume), who examined outcomes of an adaptation of the Good Behavior Game for upper elementary grades. In contrast to the instructional strategy of D.A.R.E. and *keepin' it REAL,* the Good Behavior Game is a systemic intervention designed to change peer norms and the manner in which students relate to each other at the classroom level. This version of the Good Behavior Game, know as *All Stars Challenge*, was designed for upper elementary school students and is implemented as part of *All Stars Junior*, an instructional program designed to be a preview of *All Stars Core* for middle school students (Harrington, Giles, Hoyle, Feeney, & Youngbluth, 2001; McNeal, Hansen, Harrington, & Giles, 2004). While this approach has produced promising findings in early elementary grades, Hansen's study demonstrated mixed results for the population of older elementary school children whom the study targeted. Most promising were findings that shyness and awareness of social norms improved. as did an overall risk diagnosis for at-risk students, as assessed at pretest. However, findings for students not at risk were less promising, and iatrogenic effects were found related to physical and social aggression. As a universal program, these mixed findings are troubling.

Next we move from these specific evaluation studies to more general reviews of prevention practices. As two of the articles in this volume of the *Journal of Drug Education* make clear, many of the nation's elementary schools are failing their responsibilities to administer evidence-based prevention curricula that have demonstrated that they can inoculate students against substance use. There are now a variety of such curricula from which schools can choose, and which target both universal and selective student populations. While articles in this volume (i.e., Elek et al.; Hopfer et al.) speak to the legitimacy of concerns about the potential for iatrogenic effects on students naïve to substance use, it is clear that practitioners can choose from among several programs in which this risk is minimal. Indeed, several effective programs are available that do not address substance use at all, as well as others that target parenting and family relations rather than substance-specific skills and norms.

In the final article in this volume, Hansen suggests some new directions for prevention efforts that target elementary schools. He notes the differing perspectives that constituents have on the prevention process. Like the Hanley et al. article, Hansen notes that while prevention research has produced many effective prevention interventions, *in practice* these intervention have not had the reach one would hope. He goes on to question whether the current approach to prevention is likely to reverse this trend and, like others, concludes that a new direction is needed. This direction reflects what we might call a movement from a "science of prevention" to a "practice-based science of prevention." In other words, the field has been successful in developing a technology of

prevention science and now must find ways to ensure that this technology is effectively translated into practice. This movement is reflected in calls for "market-based" (Daniels & Sandler, 2008; Rotheram-Borus, Ingram, & Flannery, 2008) and "community-based" (Hecht & Krieger, 2006; Spoth & Greenberg, 2005) approaches to prevention that emphasize a partnership among researchers, program developers, and end users. This partnership will require a mutual understanding of how an intervention is actually administered in the schools, which in turn will require the new directions in research articulated by Hansen to study implementation processes.

In conclusion, the price to be paid for inactivity in the nation's elementary schools with regard to effective substance use prevention programming is potentially very high. The idea for this special issue of the *Journal of Drug Education* was born of this context. In it are reported three new evaluation studies (Elek et al.; Hansen et al.; Vincus et al.) as well as two reviews of elementary interventions nationally (Hanley et al.; Hopfer et al.). Clearly, this set of articles does not present a uniformly positive view of the status of elementary prevention. However, recent findings from an evaluation of Positive Action (Beets et al., 2009) suggest that socio-emotional approaches that focus on students' character may yield more promising effects with this younger age group. The issue concludes with commentary that summarizes the various issues presented in these articles and provides an agenda for the future.

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