

Evidence-Based Practices Project for Suicide Prevention

PHILIP L. RODGERS, PhD, HOWARD S. SUDAK, MD, MORTON M. SILVERMAN, MD,
AND DAVID A. LITTS, OD, FAAO

Suicide continues to be a serious public health problem. In response to this problem, a myriad of suicide prevention programs have been developed and employed across the United States. Unfortunately, the effectiveness of many of these programs is unknown because they have not been evaluated using rigorous methods. The Evidence-Based Practices Project (EBPP) for suicide prevention was created in 2002 to identify and promote evidence-based suicide prevention programs. In this paper the process and outcomes of the initial EBPP project within the context of the broader evidence-based movement are described, and the EBPP's creation of a best practice registry for suicide prevention is previewed.

Suicide is a serious public and mental health problem in the United States. Over 30 thousand suicides occur in the United States each year (Goldsmith, Pellmar, Kleinman, & Bunney, 2002). Suicide was the eighth-leading cause of death for men of all ages in 2001 (Anderson & Smith, 2003). In 2003 it was the third leading cause of death for all 10- to 24-year-olds and the second leading cause of death for 25- to 34-year-olds (U.S. Department of Health and Human Services, 2003).

In 2003, almost 17% of high school students who were administered the Youth Risk Behavior Survey reported that they had seriously considered suicide during the preceding year (Centers for Disease Control and Prevention, 2006).

In response to the continuing problem of suicide, a myriad of suicide prevention programs have been developed (Gould, Greenberg, Velting, & Shaffer, 2003; Mann et al., 2005). Popular categories of prevention programs include school-based suicide prevention curriculum (Aseltine & DeMartino, 2004; Kalafat, 2003), gatekeeper training (King & Smith, 2000), crisis centers (Lester, 1997), means restriction (Hawton, 2002; Kruesi et al., 1999), and case identification which bridges prevention and treatment (Shaffer et al., 2004).

Unfortunately, little is known about the effectiveness of many of these programs (Gaynes et al., 2004; Gould et al., 2003). A recent Suicide Prevention Action Network (SPAN) USA report (2001) concluded that "The single greatest obstacle to the effective prevention of suicide is the lack of evaluation research" (p. 19). The National Strategy for Suicide Prevention (U.S. Dept. of Health and Human Services, 2001) recognized this

PHILIP RODGERS and HOWARD SUDAK are with the American Foundation for Suicide Prevention in New York City; MORTON SILVERMAN and DAVID LITTS are with the Suicide Prevention Resource Center in Newtown, MA.

This paper and the Evidence-Based Practices Project for Suicide Prevention are supported by a grant (1 U79 SM57392-01) from the Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services (DHHS). No official endorsement by SAMHSA or DHHS for the information in this article is intended or should be inferred.

Address correspondence to Philip Rodgers, American Foundation for Suicide Prevention, 401 South 2nd Street Suite 402, Philadelphia, PA, 19147-1612; E-mail: rodgers@afsp.org

obstacle by calling for the establishment and maintenance of “A registry of prevention activities with demonstrated effectiveness for suicide or suicidal behaviors” (p. 115) by 2005. The Evidence-Based Practices Project (EBPP) for suicide prevention was created in 2002 to address this need.

The EBPP is a collaboration between the Suicide Prevention Resource Center (SPRC) and the American Foundation for Suicide Prevention and is funded by the Substance Abuse and Mental Health Services Administration (SAMHSA). Initially, the primary goals of the EBPP were to (a) review the effectiveness of suicide prevention programs and, based on those reviews, to (b) create an online registry of evidence-based suicide prevention programs. These goals have been accomplished, and the resulting registry can be found at the SPRC website (www.sprc.org). At the beginning of 2005 the responsibility for reviewing the effectiveness of suicide prevention programs was transferred to the National Registry of Evidence-Based Programs and Practices (NREPP), a SAMHSA-funded program that originally focused on substance abuse prevention, and has recently expanded to include mental health interventions.¹ The EBPP then shifted to a three-fold mission: (1) supporting the rigorous evaluation of suicide prevention programs, (2) helping program developers apply for NREPP review, and (3) identifying best practices. Under the 2005 Garrett Lee Smith Memorial Act (Public Law 108-355), SAMHSA awarded a competitive 5-year grant to Educational Development Center, Inc. to continue operating the SPRC, which includes the EBPP.

As the recognition of suicide as a national problem has grown over the last decade, so has the development of strategies for prevention. Since the release of the National Strategy for Suicide Prevention in 2001, the

importance of establishing the evidence-base for suicide prevention programs has become increasingly important. However, much remains to be done before suicide prevention establishes parity with other health-related prevention fields. This article chronicles the evidence-based movement and its relevance to suicide prevention, including the process and outcomes of the initial EBPP project and services currently provided by the EBPP.

THE EVIDENCE-BASED MOVEMENT

In disciplines as diverse as medicine, education, and public health, government and nongovernment entities have developed systems to discover and promote the implementation of evidence-based programs (Wandersman & Florin, 2003). According to Chinman, Imm, and Wandersman (2004), “Evidence-based is determined by a process in which experts, using commonly agreed upon criteria for rating interventions, come to a consensus that evaluation research findings are credible and can be substantiated” (p. 44). The past 20 years has seen the growth of many systems for designating programs as evidence-based. A seminal system was developed by the U.S. Preventive Services Task Force (www.ahrq.gov/clinic/uspstfix.htm), which has assessed the scientific evidence of effectiveness of clinical preventive services since 1984. Additional examples include the U.S. Department of Education’s What-Works-Clearinghouse (www.whatworks.ed.gov), the Task Force on Community Preventive Services’ Community Guide (www.communityguide.org), the Cochrane Collaboration for medical practice (www.cochrane.org), and the Campbell Collaboration for social and educational interventions (www.campbellcollaboration.org).

Growth of the evidence-based movement stems from the desire to determine what does and does not work (Schorr, 2003), to understand how and why programs work (Breton et al., 2002), and to increase accountability to funding agencies (Wandersman & Florin, 2003). With regard to the last, many

1. Prior to 2003, NREPP stood for the *National Registry of Effective Programs and Practices*; in 2003 the program was remodeled and the name changed to *National Registry of Evidence-Based Programs and Practices* to reflect the new system.

agencies that once required grant recipients to evaluate the effect of their programs prospectively, now only fund programs that have already been determined to be effective (Kellam & Langevin, 2003).

Rigorous evaluations of interventions have also expanded the theoretical understanding of how and why prevention programs work, enabling the development of increasingly valid prevention models. These models, in turn, aid in the development of more effective programs. Bond and Hauf (2004) acknowledged the role that theory plays by concluding that “there is now extensive theory and research in the sciences and social sciences that can and must guide the content, structure, and implementation of prevention and promotion efforts” (p. 202). *The Surgeon General’s Call to Action to Prevent Suicide* stated it more simply, “Information gained from program evaluation and implementation may lead to new and promising interventions” (U.S. Public Health Service, 1999, p. 11).

While it is clearly important to determine what works and to develop theoretical models for suicide prevention programs, it is even more important to determine that these programs are safe; that is, they are free from non-random harmful outcomes. A classic example of an unsafe prevention program was *Scared Straight*. The goal of *Scared Straight* was to deter juvenile delinquency by exposing at-risk teens to the realities of prison life through actual visits to prison sites and lectures from inmates. The program had operated in 30 states and several foreign countries, and a documentary of the program won an Academy Award in 1978. Yet, in their review of *Scared Straight*, Petrosino, Turpin-Petrosino, and Finckenauer (2000) concluded that “*Scared Straight* . . . is likely a harmful program that more often than not leads to increased crime and delinquency in our communities” (p. 356). The authors state that “Well meaning programs can be harmful, and rigorous evaluation is often the only way to find this out and correct it” (p. 355). Assessment of program safety should be a criterion of evidence-based classification systems.

Evidence-Based Results

In recent years, the mandate that programs establish their effectiveness through rigorous evaluation requirements fostered remarkable gains across many prevention fields (Swisher, 2000). Because of the evidence-based movement, “[t]he identification of empirically supported prevention interventions is becoming more sophisticated and numerous scientific organizations have begun to engage in dissemination activities” (Biglan, Mrazek, Carnine, & Flay, 2003; p. 433). This, however, was not always the case. In the mid-1980s there was a paucity of youth prevention programs that were deemed effective. This was highlighted in the 1988 publication of *14 Ounces of Prevention: A Casebook for Practitioners* (Price, Cowen, Lorion, & Ramos-McKay, 1988). The 14 ounces represented the 14 social programs that were deemed to be effective at the time; now, “[f]ifteen years later, there are several pounds worth of quality prevention programs that work” (Weissberg, Kumpfer, & Seligman, 2003; p. 425).

One measure of the advances made in prevention science is the number of high quality primary studies that are reflected in meta-analytic reviews. A meta-analysis by Tobler and colleagues (2000) found 144 high quality studies of school-based drug abuse prevention programs. Skara and Sussman (2003) reviewed 25 studies of school-based drug abuse prevention programs that had at least 2 years of follow-up data. Meta-analytic reviews can also readily be found in violence prevention (Fields & McNamara, 2003) and adolescent pregnancy prevention (DiCenso, Guyatt, Willan, & Griffith, 2002).

In addition to identifying programs that are effective, advances made in the evaluation of substance abuse programs have also resulted in the devaluation of programs that have had difficulty establishing effectiveness. One such program was the Drug Abuse and Resistance Education (DARE) program. DARE once operated in 80% of school districts nationwide and in many foreign countries (U.S. General Accounting Office, 2003); however,

it has recently lost some of its luster. In 2000 the U.S. Department of Education's Office of Safe and Drug-Free Schools stopped funding grant programs that featured DARE because they did not consider it a scientifically proven program (Zernike, 2001). In 2001 the Surgeon General classified DARE as an *ineffective* program (U.S. Public Health Service, 2001); and in 2003, the U.S. General Accounting Office found that "six long-term evaluations of the DARE elementary school curriculum . . . found no significant differences in illicit drug use between students who received DARE in the fifth or sixth grade and students who did not" (p. 2). One of DARE's faults, as well as many suicide prevention programs, was that it relied for too long on measures of participant satisfaction over measures of actual student behavior to determine effectiveness (U.S. Department of Justice, 1994). In fairness, it should be noted that DARE has remodeled its program in an attempt to make it more effective and to measure this effectiveness with sufficient rigor to meet evidence-based standards (Zhong, Zhao, & Deason-Howell, 2005).

Evidence-Based Review Systems

While the benefits of the evidence-based movement are clear, what is less clear is the best process for establishing, reviewing, and classifying what is evidence-based. There are two primary systems for determining evidence-based programs: rules-based and expert-based.

Rules-based systems rely on strict definitions of criteria to define what is, and is not, evidence-based. For example, Biglan et al. (2003) recommended that programs disseminated by scientific organizations as effective should provide, at minimum, "evidence from multiple well-designed, randomized, controlled trails or multiple well-designed, interrupted time-series experiments that were conducted by two or more independent researchers" (p. 436). The U.S. Department

of Education (2003) has recommended a three-tiered system that classified programs as either (a) strong evidence of effectiveness, (b) possible evidence of effectiveness, or (c) not supported by meaningful evidence. *Strong evidence of effectiveness* was defined by randomized controlled trails that are well-designed and implemented in two or more typical school settings. *Possible evidence of effectiveness* was defined as randomized controlled studies whose quality and quantity are good, but fall short of "strong" evidence; or comparison group studies in which the intervention and comparison groups are very closely matched in academic achievement, demographics, and other characteristics. All other studies were classified as not supported by meaningful evidence. Rules-based systems generally rely on the rigor of research design to determine classification.

Expert-based review systems rely primarily on the experience of experts to determine what is evidence-based. These systems often employ a rating system that is used by experts to evaluate program effectiveness. The prior NREPP was one such system: while reviewers rated evaluations on 18 items, average scores for just two of these items, Integrity and Utility, determined the level of program classification (either effective, promising, or insufficient current support). *Integrity* denoted the strength of causal attributions between the program and desired outcomes. *Utility* served as a measure of the practical or clinical importance of the program. Both items were rated on a scale of 1–5, with unique the attributes of that item anchoring low and high scores. This allowed reviewers wide latitude in rating program effectiveness. Other systems have employed even less formalized criteria, relying on reviewer's ratings of broad, unanchored items (Mihalic, Irwin, Elliot, Fagan, & Hansen, 2001).

Each review system has its benefits. Because of its flexibility, an expert system may be best for cross-disciplinary reviews while rules-based systems may better serve established fields with more clearly defined

rules of evidence. Regardless of the type of system employed, the evidence-based movement has undoubtedly increased the number of rigorously evaluated prevention programs (Swisher, 2000).

Evidence-Based Suicide Prevention Programs

While some prevention fields can boast of multiple registries of evidence-based programs and formidable arrays of published studies summarized in quantitative reviews, suicide prevention has relatively little to show in the way of evidence-based programs. In a review of youth suicide prevention programs, Guo and Harstall (2002) identified approximately 800 articles related to the topic; however, only eight of these met their minimum standards for methodological quality. There are few quantitative reviews of population, community, or school-based suicide prevention programs. Narrative reviews appear to be the standard in this regard (Gould et al., 2003; Mann et al., 2005). The lack of quantitative reviews is, in part, a reflection of the lack of rigorous evaluation studies within the field, but it may also be a reflection of the nascent state of the field, the varied settings and populations studied, and methodological difficulties inherent in the study of suicide prevention. Paramount among methodological difficulties is the measurement of outcomes.

The Measurement Conundrum. The purpose of suicide prevention programs is to prevent suicide; therefore, program success should be determined by the number of suicide deaths prevented. Unfortunately, the use of this outcome is made all but impossible by its relative infrequency. In 2003, approximately 1 in 14,000 15- to 19-year-olds died of suicide (U.S. Department of Health and Human Services, 2003). In order to reliably measure the impact of a suicide prevention program on the suicide rates of this age group, a sample size of close to one million would be required (Meier, 1978). By comparison, one in five high school students have reported smoking marijuana in the past 30 days (Centers for Disease Control and Pre-

vention, 2006); to measure the impact of a prevention program upon marijuana use a sample size in the hundreds would suffice. Even were prevention efforts directed at high-risk populations (excluding prior suicide attempters and those with severe mental illness), the required sample sizes would be in the many thousands and most likely impractical (Gunnell & Frankel, 1994). Therefore, proxy variables—suicide attempts or ideation or other factors that are felt to decrease risk or increase protective factors related to suicide—are often used to measure program effectiveness (Goldney, 2005). Examples of risk and protective factors that have been used as proxy measures include means restriction (Kruesi et al., 1999) and help-seeking behavior (Aseltine, 2003). While space does not allow a discussion of issues related to proxy measurement, it is important to note that some proxy measures are more valid, in the sense that they are more closely linked to suicide risk, than others, and whenever possible the most valid proxy variables should be used to evaluate program effectiveness.

THE EVIDENCE-BASED PRACTICES PROJECT

During its first 3 years of operation, the EBPP's primary goals were to review suicide prevention programs and, based on those reviews, to create an online registry of evidence-based suicide prevention programs. To accomplish this, the EBPP adapted a simple review model that incorporated five steps: (a) evaluation acquisition, (b) initial "triage" review, (c) expert review, (d) program classification, and (e) creation and posting of fact sheets (see Figure 1).

Acquisition of Program Evaluations and Initial Review

The EBPP acquired evaluations of suicide prevention programs by searching the literature and through open submissions. Literature searches were based on standardized procedures utilizing electronic search en-

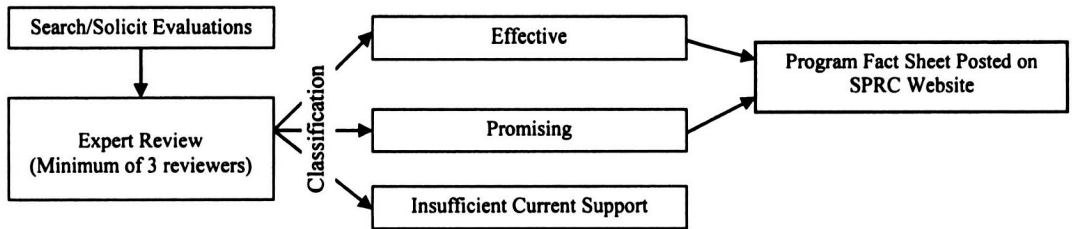


Figure 1. EBPP review process

gines for popular databases followed by branching bibliographic searches and manual searches of relevant journals. The EBPP also invited the submission of program evaluations by disseminating announcements in relevant email listservs and professional conferences. Through these methods, EBPP acquired 55 evaluations of suicide prevention programs. Eighteen evaluations (33%) were of school-based programs, seven (15%) were situated in hospital emergency departments, seven (15%) studied various types of means restriction, five (11%) were ecological, and nine (20%) were outside of those categories. After an initial screening process used to eliminate obviously unqualified studies, 24 evaluations met minimum methodological standards and were distributed to reviewers. Reasons for disqualification included no control group when one was warranted (32% of studies eliminated), mixed or negative results (23%), outcomes that were limited to attitudes (16%), formative evaluation (10%), and other (19%).

Expert Review

A minimum of three expert reviewers evaluated the methodological quality and utility of suicide prevention program evaluations. Expert review was used because it allowed the flexibility necessary to review program evaluations across the disciplines found in suicide prevention. Reviewers rated each program evaluation on ten items that were scored on a 1 to 5 scale, with higher scores designating higher quality. Points for each item were anchored by descriptive statements. Nine of the items were selected from a larger

set of items used by NREPP at that time. A tenth item, safety, was added (Table 1).

Program Classification and Fact Sheets

Based on average reviewer scores for the Integrity and Utility items, programs were classified as Effective, Promising, or Insufficient Current Support. Following the protocols of the NREPP system, programs were classified as *Effective* if their evaluations achieved average Integrity and Utility scores of 3.5 or greater, as *Promising* if average scores were between 3.0 and 3.5, and as *Insufficient Current Support* if either average score fell below 3.0. Of the 24 programs that were subject to expert review, 4 programs were classified as *Effective* and 8 as *Promising* (Table 2). The remaining 12 programs were classified as *Insufficient Current Support* and in accordance with program policy were not publicly identified. Fact sheets were created

TABLE 1
Rating Items Used by EBPP to Classify Evidence-Based Suicide Prevention Programs

Items
1. Theory
2. Fidelity
3. Design
4. Attrition
5. Psychometrics
6. Analysis
7. Threats to Validity
8. Safety
9. Integrity
10. Utility

TABLE 2
Evidence-Based Suicide Prevention Programs and Their Classification

Evidence-Based Suicide Prevention Programs
<i>Effective</i>
Limits on Analgesic Packaging (Hawton et al., 2004)
C-Care/CAST (Thompson, Eggert, Randell, & Pike, 2001)
Emergency Department Means Restriction Education (Kruesi et al., 1999)
PROSPECT (Bruce et al. 2004)
<i>Promising</i>
U.S. Air Force Program (Knox et al., 2003)
Brief Psychological Intervention after Deliberate Self-Poisoning (Guthrie et al., 2001)
Lifelines (Kalafat & Elias, 1994)
Reconnecting Youth (Thompson, Eggert, & Herting, 2000)
SOS: Signs of Suicide (Aseltine & DeMartino, 2004)
Specialized Emergency Room Intervention for Suicidal Adolescent Females (Rotheram-Borus, Piacentini, Cantwell, Beline, & Stone, 2000)
Columbia University TeenScreen (Shaffer et al., 2004)
Zuni Life Skills Development (LaFromboise, 1995)

for the *Effective* and *Promising* programs and were posted on the SPRC website.

In the short time it operated, the EBPPs review of evidence-based suicide prevention programs evaluated 55 evaluations and found 12 to be evidence-based. The job of identifying and reviewing evidence-based programs is now the purview of the new NREPP. While extolling its outcomes, it is equally important to discuss the limitations of the EBPP process and reviews. First, the search conducted by EBPP for evaluations of suicide prevention programs was not exhaustive (it was the beginning of what was thought of at the time to be an ongoing search); therefore, there were likely some studies that should have been reviewed, but were not. Second, program evaluations were reviewed using criteria that were originally

developed for the review of substance abuse prevention programs. There are unique aspects to the evaluation of suicide prevention programs—such as the aforementioned problem of measurement—that these criteria did not adequately address. Last, although expert review is a dominant model in identifying evidence-based programs, the professional experiences and resulting biases of reviewers cannot be completely eliminated. While a minimum of three experts reviewed each program, there were differences of opinion that may have influenced the final classification of programs.

PROMOTING RIGOROUS EVALUATION STANDARDS AND BEST PRACTICES

The EBPP review process validated prior assessments that existing suicide prevention program evaluations were generally less rigorous than those found in other prevention fields. Therefore, the overarching purpose of the EBPP is to help improve the methodological rigor of evaluations of suicide prevention programs where possible. This will be done directly through education and technical assistance efforts and in conjunction with efforts to provide technical assistance for NREPP applicants and the development of a best practice registry.

Technical Assistance for NREPP Application

NREPP has recently redesigned its process and criteria for reviewing programs (U. S. Department of Health and Human Services, 2006a). Expert reviewers are still employed, but only six items are now used to evaluate methodological quality (Table 3). An additional three items are used to evaluate readiness for dissemination: (1) availability of implementation materials, (2) availability of training and support resources, and (3) availability of quality improvement materials. In addition, NREPPs purview has expanded to include mental health interventions (exclud-

TABLE 3
NREPP “Strength of Evidence” Items

Items
1. Reliability of Outcome Measures
2. Validity of Outcome Measures
3. Intervention Fidelity
4. Missing Data/Attrition
5. Potential Confounding Variables
6. Appropriateness of Analysis

ing somatic treatment) and public health interventions. The new NREPP will also have an increased focus on suicide prevention programs (U.S. Department of Health and Human Services, 2006b). Recognizing the importance of adding suicide prevention programs to the NREPP registry, EBPP will (1) disseminate information about NREPP to developers and evaluators throughout the field, (2) develop supporting materials that promote NREPP standards relevant to suicide prevention, (3) review NREPP applications prior to submission (upon request), and (4) identify and promote programs that are eligible for NREPP review.

Best Practice Registry

Perhaps the most important goal of the EBPP is the creation of a best practice registry for suicide prevention. The registry, which will be posted on the SPRC website, will feature three tiers. The first tier will contain fact sheets for the 12 evidence-based suicide prevention programs originally identified by EBPP (Table 2), and will contain links to fact sheets of suicide prevention programs reviewed by NREPP. The second tier will contain information about quantitative reviews and expert consensus statements that address suicide prevention programs and practices. Examples of such include consensus reports on media guidelines for reporting on suicide (American Foundation for Suicide Prevention, 2001) and warning signs of suicide (Rudd et al., 2006). Examples of quantitative reviews include The U.S Preventative Services Task Force’s report on screening for

suicide risk (Gaynes et al., 2004) and Hawton et al.’s (2005) review of psychosocial and pharmacological treatments for suicide done for the Cochrane Collaboration.

Tier three will contain programs that address specific objectives of the National Strategy for Suicide Prevention (U.S. Dept. of Health and Human Services, 2001). Programs on this tier must (1) have provided appropriate evidence that the program meets its objectives, (2) adhere to messaging standards and guidelines developed by SPRC for this purpose, and (3) when applicable, use the consensus warning signs developed by the American Association of Suicide Prevention (Rudd et al., 2006) and the National Helpline phone number (1-800-247-TALK). Programs will be reviewed by a panel of experts for these standards as well as their (1) accuracy, (2) appropriateness, and (3) safety. The operationalization of these criteria were under development at the time of this article’s acceptance, but should be available by the time of publication.

It is important to note that third tier programs are generally not eligible for evidence-based review because their proximal outcomes are related to knowledge, attitudes, and procedures rather than risk-reducing behaviors (such as awareness campaigns, curriculum modules, and training packages). They are nevertheless important in the panoply of suicide prevention efforts, and should therefore be subject to some type of review process, a process that, unlike evidence-based review systems, addresses the accuracy, appropriateness, and safety of program content.

CONCLUSIONS

The development of systems to identify and review evidence-based programs has grown appreciably during the past 20 years. This has greatly benefited a variety of prevention fields by increasing what is known to be effective and, just as importantly, what is not effective or even dangerous. The identification of evidence-based suicide prevention programs has, unfortunately, been slower

than in other fields. Reasons for this slow pace may include the serious methodological hurdles inherent in researching suicide prevention programs, especially those due to measurement, and the lack of an existing system to review the effectiveness of suicide prevention programs.

The field of suicide prevention is undoubtedly progressing. In 1999, U.S. Surgeon General David Satcher issued the *Surgeon General's Call to Action to Prevent Suicide* (U.S. Public Health Service, 1999). This was followed by publication of *The National Strategy for Suicide Prevention* (U.S. Dept. of Health and Human Services, 2001) and the Institute of Medicine's *Reducing Suicide: A National Imperative* (Goldsmith et al., 2002). In 2003, the first recommendation of the President's New Freedom Commission on Mental Health (2003) was to "[a]dvance and implement a national campaign to reduce the stigma of seeking care and a national strategy for suicide prevention." And, in 2005, Congress passed the Garrett Lee Smith Memorial Act (Public Law 108-355), which, in its first year, has funded suicide prevention programs

in 14 states and 22 colleges, and included continued funding for the Suicide Prevention Resource Center.

The Surgeon General's *Call to Action* "underscored the importance of harnessing science to develop safe and effective approaches to suicide prevention and educating the public about those approaches" (DeMartino et al., 2003, p. 102). The primary purpose of the EBPP is to promote standards for the evaluation of suicide prevention interventions and to promote programs and practices that meet those standards. This is a difficult task because of the variety of settings and outcomes found across the field. Indeed, the greatest challenge faced by the EBPP is the development of standards that are relevant to the disparate nature of many suicide prevention programs. The development and application of those standards—whether for evidence-based programs or best practices—will not be perfect, but their development and growth are consonant with good science and provide evidence that the field of suicide prevention is advancing.

REFERENCES

- AMERICAN FOUNDATION FOR SUICIDE PREVENTION, AMERICAN ASSOCIATION OF SUICIDOLGY, ANNENBERG PUBLIC POLICY CENTRE. (2001). *Reporting on suicide; recommendations for the media*. New York: Author.
- ANDERSON, R. N., & SMITH, B. L. (2003). Deaths: Leading causes for 2002. *National Vital Statistics Reports*, 53(17), 1–86.
- ASELTINE, R. H. (2003). An evaluation of a school-based suicide prevention program. *Adolescent & Family Health*, 3(2), 81–88.
- ASELTINE, R. H. JR., & DEMARTINO, R. (2004). An outcome evaluation of the SOS suicide prevention program. *American Journal of Public Health*, 94, 446–451.
- BIGLAN, A., MRAZEK, P. J., CARNINE, D., & FLAY, B. R. (2003). The integration of research and practice in the prevention of youth problem behaviors. *American Psychologist*, 58, 433–440.
- BOND, L. A., & HAUF, M. C. (2004). Taking stock and putting stock in primary prevention: Characteristics of effective programs. *The Journal of Primary Prevention*, 24, 199–221.
- BRETON, J., BOYER, R., BILODEAU, H., RAYMOND, S., JOUBERT, N., & NANTEL, M. (2002). Is evaluative research on youth suicide programs theory-driven? The Canadian experience. *Suicide and Life-Threatening Behavior*, 32, 176–190.
- BRUCE, M. L., TEN HAVE, T. R., REYNOLDS, C. F. III, KATZ, K. K., SCHULBERG, H. C., MULSANT, B., ET AL. (2004). Reducing suicide ideation and depressive symptoms in depressed older primary care patients: A randomized controlled trial. *Journal of the American Medical Association (JAMA)*, 291, 1081–1091.
- CENTERS FOR DISEASE CONTROL AND PREVENTION. (2006). Youth risk behavior surveillance—United States, 2005. Surveillance Summaries. *MMWR*, 55(SS–5).
- CHINMAN, M., IMM, P., & WANDERSMAN, A. (2004). *Getting to Outcomes 2004. Promoting accountability through methods and tools for planning, implementation, and evaluation*. Santa Monica, CA: RAND Corporation.
- DEMARTINO, R. E., CROSBY, A. E., ECHO-HAWK, M., LITTS, D. A., PEARSON, J., REED, G. A.,

ET AL. (2003). A call to collaboration: The federal commitment to suicide prevention. *Suicide and Life-Threatening Behavior*, 33, 101–110.

DiCENSO, A., GUYATT, G., WILLAN, A., & GRIFFITH, L. (2002). Interventions to reduce unintended pregnancies among adolescents: Systematic review of randomised controlled trials. *British Medical Journal*, 324, 1426.

FIELDS, S. A., & McNAMARA, J. R. (2003). The prevention of child and adolescent violence: A review. *Aggression and Violent Behavior*, 8, 61–91.

GAYNES, B. N., WEST, S. L., FORD, C. A., FRAME, P., KLEIN, J., & LOHR, K. N. (2004). Screening for suicide risk in adults: A summary of the evidence for the U.S. Preventive Services Task Force. *Annals of Internal Medicine*, 140, 822–835.

GOLDNEY, R. D. (2005). Suicide prevention: A pragmatic review of recent studies. *Crisis*, 26, 128–140.

GOLDSMITH, S. K., PELLMAR, T. C., KLEINMAN, & A. M., BUNNEY, W. E. (EDS.). (2002). *Reducing suicide: A national imperative*. Washington, DC: The National Academies Press.

GOULD, M. S., GREENBERG, T., VELTING, D. M., & SHAFFER, D. (2003). Youth suicide risk and preventive interventions: A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42, 386–405.

GUNNELL, D., & FRANKEL, S. (1994). Prevention of suicide: Aspirations and evidence. *British Medical Journal*, 308, 1227–1233.

GUO, B., & HARSTALL, C. (2002). *Efficacy of suicide prevention programs for children and youth*. Edmonton, Alberta, Canada: Alberta Heritage Foundation for Medical Research.

GUTHRIE, E., KAPUR, N., MACKWAY-JONES, K., CHEW-GRAHAM, C., MOOREY, J., MENDEL, E., ET AL. (2001). Randomised controlled brief psychological intervention after deliberate self-poisoning. *British Medical Journal*, 323, 1–5.

HAWTON, K. (2002). United Kingdom legislation on pack sizes of analgesics: Background, rationale, and effects on suicide and deliberate self-harm. *Suicide and Life-Threatening Behavior*, 32, 223–229.

HAWTON, K., TOWNSEND, E., ARENSMAN, E., GUNNELL, D., HAZELL, P., HOUSE, A., ET AL. (2005). Psychosocial and pharmacological treatments for deliberate self harm (Review). *The Cochrane Database of Systematic Reviews*, Issue 4. Art. No.: CD001764. DOI: 10.1002/14651858.CD001764.

KALAFAT, J. (2003). School approaches to youth suicide prevention. *The American Behavioral Scientist*, 46, 1211–1223.

KALAFAT, J., & ELIAS, M. (1994). An evaluation of a school-based suicide awareness intervention. *Suicide and Life-Threatening Behavior*, 24, 224–233.

KELLAM, S. G., & LANGEVIN, D. J. (2003). A framework for understanding “evidence” in prevention research and programs. *Prevention Science*, 4, 137–153.

KING, K. A., & SMITH, J. (2000). Project SOAR: A training program to increase school counselors’ knowledge and confidence regarding suicide prevention and intervention. *Journal of School Health*, 70, 402–407.

KNOX, K. L., LITTS, D. A., TALCOTT, G. W., FEIG, J. C., & CAINE, E. D. (2003). Risk of suicide and related adverse outcomes after exposure to a suicide prevention programme in the US Air Force: Cohort study. *British Medical Journal*, 327, 1376.

KRUESI, M.J.P., GROSSMAN, J., PENNINGTON, J. M., WOODWARD, P. J., DUDA, D., & HIRSCH, J. G. (1999). Suicide and violence prevention: Parent education in the emergency department. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38, 250–255.

LAFROMBOISE, T. D. (1995). The Zuni Life Skills Development Curriculum: Description and evaluation of a suicide prevention program. *Journal of Counseling Psychology*, 42, 479–486.

LESTER, D. (1997). The effectiveness of suicide prevention centers: A review. *Suicide and Life-Threatening Behavior*, 27, 304–310.

MANN, J. J., APTER, A., BERTOLOTE, J., BEAUTRAIS, A., CURRIER, D., HAAS, A., ET AL. (2005). Suicide prevention strategies: A systematic review. *JAMA*, 294, 2064–2074.

MEIER, P. (1978). The biggest public health experiment ever: The 1954 field trial of the Salk poliomyelitis vaccine. In J. M. Taylor (Ed.), *Statistics: A guide to the unknown*. San Francisco: Holden-Day.

MIHALIC, S., IRWIN, K., ELLIOT, D., FAGAN, A., & HANSEN, D. (2001, June). *Blueprints for violence prevention: Juvenile Justice Bulletin*. Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

NEW FREEDOM COMMISSION ON MENTAL HEALTH. (2003). *Achieving the promise: Transforming mental health care in America. Final Report*. DHHS Pub. No. SMA-03-3832. Rockville, MD: Department of Health and Human Services.

PETROSINO, A., TURPIN-PETROSINO, C., & FINCKENAUER, J. O. (2000). Well-meaning programs can have harmful effects! Lessons from experiments of programs such as Scared Straight. *Crime & Delinquency*, 46, 354–379.

PRICE, R., COWEN, E., LORION, R., & RAMOS-McKAY, J. (1988). *14 ounces of prevention: A casebook for practitioners*. Washington, DC: American Psychological Association.

ROTHERAM-BORUS, M. J., PIACENTINI, J., CANTWELL, C., BELINE, T. R., & SONE, J. (2000).

The 18-month impact of an emergency room intervention for adolescent female suicide attempters. *Journal of Counseling and Clinical Psychology*, 68, 1081-1093.

RUDD, M. D., BERMAN, A. L., JOINER, T. E., NOCK, M. K., SILVERMAN, M. M., MANDRUSIAK, M., ET AL. (2006). Warning signs for suicide: Theory, research, and clinical applications. *Suicide and Life-Threatening Behavior*, 36, 255-262.

SCHORR, L. B. (2003, February 26). *Determining "what works" in social programs and social policies: Toward a more inclusive knowledge base*. Washington, DC: Brookings Institution.

SHAFFER, D., SCOTT, M., WILCOX, H., MASLOW, C., HICKS, R., LUCAS, C. P., ET AL. (2004). The Columbia TeenScreen: Validity and reliability of a screen for youth suicide and depression. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43, 1-9.

SKARA, S., & SUSSMAN, S. (2003). A review of 25 long-term adolescent tobacco and other drug use prevention program evaluations. *Preventive Medicine*, 37, 451-474.

SPAN USA, Inc. (2001). *Suicide prevention: Prevention effectiveness and evaluation*. Washington, DC: SPAN USA. Retrieved January 17, 2006, from www.spanusa.org/pdf/LPBooklet.pdf

SWISHER, J. D. (2000). Sustainability of prevention. *Addictive Behaviors*, 25, 965-973.

THOMPSON, E. A., EGGERT, L. L., & HERTING, J. R. (2000). Mediating effects of an indicated prevention program for reducing youth depression and suicide risk behaviors. *Suicide and Life-Threatening Behavior*, 30, 252-271.

THOMPSON, E. A., EGGERT, L. L., RANDELL, B. P., & PIKE, K. C. (2001). Evaluation of indicated suicide risk prevention approaches for potential high school dropouts. *American Journal of Public Health*, 91, 742-752.

TOBLER, N. S., ROONA, M. R., OCHSHORN, P., MARSHALL, D. G., STREKE, A. V., & STACKPOLE, K. M. (2000). School-based adolescent drug prevention programs: 1998 meta-analysis. *Journal of Primary Prevention*, 20, 275-336.

U.S. DEPARTMENT OF EDUCATION. (2003). *Identifying and implementing educational practices supported by rigorous evidence: A user friendly guide*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.

U.S. DEPARTMENT OF HEALTH AND HUMAN

SERVICES. (2003). *Web-based Injury Statistics Query and Reporting System (WISQARS)*. National Center for Health Statistics. Available from www.cdc.gov/ncepc/wisqars/

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. (2001). *National strategy for suicide prevention: Goals and objectives for action*. Washington, DC: Author.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. (2006a). Changes to the national registry of evidence-based programs and practices (NREPP). *Federal Register*, 71(49), 13132-50390.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. (2006b). Notice regarding substance abuse and mental health services administration's National Registry of Evidence-Based Programs and Practices (NREPP): Priorities for NREPP review. *Federal Register*, 71(126), 13132-50390.

U.S. DEPARTMENT OF JUSTICE. (1994). *The D.A.R.E. program: A review of prevalence, user satisfaction, and effectiveness*. Washington, DC: National Institute of Justice Update.

U.S. GENERAL ACCOUNTING OFFICE. (2003). *Youth illicit drug use prevention: DARE long-term evaluations and federal efforts to identify effective programs*. GAO-03-172R Youth Illicit Drug Use Prevention. Washington, DC: Author.

U.S. PUBLIC HEALTH SERVICE. (1999). *The Surgeon General's call to action to prevent suicide*. Washington, DC: Author.

U.S. PUBLIC HEALTH SERVICE. (2001). *Youth violence: A report of the Surgeon General*. Washington, DC: Author.

WANDERSMAN, A., & FLORIN, P. (2003). Community interventions and effective prevention. *American Psychologist*, 58, 441-448.

WEISSBERG, R. P., KUMPFER, K. L., & SELIGMAN, M.E.P. (2003). Prevention that works for children and youth: An introduction. *American Psychologist*, 58, 425-432.

ZERNIKE, K. (2001, February 15). Antidrug program says it will adopt a new strategy. *New York Times*, p. A1.

ZHONG, H., ZHAO, X., & DEASON-HOWELL, L. M. (2005). Does gender matter? Assessing the new D.A.R.E. program effects on mediators across gender groups. *Journal of Alcohol and Drug Education*, 49(4), 15-25.

Manuscript Received: January 30, 2006

Revision Accepted: November 1, 2006