

**THE INSTITUTE OF MEDICINE FRAMEWORK
AND ITS IMPLICATION FOR THE ADVANCEMENT OF
PREVENTION POLICY, PROGRAMS AND PRACTICE**

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ABSTRACT

The Institute of Medicine (IOM) categorization of prevention into universal, selective and indicated populations has been widely adopted in the prevention field, yet the terms are not precisely or uniformly applied in practice. In this paper, the strong potential for the IOM categories to bring a unifying framework to currently fragmented strategies and practices in prevention is furthered by carefully identifying the underlying implications of these population categories for identifying and recruiting participants, selecting interventions that are effective, anticipating attainable positive outcomes and avoiding potential unintended influences. Systematically applied, the IOM framework can be a valuable tool for creating a conceptually unified and evidence-based continuum of prevention services.

INTRODUCTION

Prevention is an encompassing policy concern in public health. As applied to substance abuse, prevention can be defined broadly as policies, programs and practices designed to reduce the incidence and prevalence of alcohol and other drug abuse and consequent health, behavioral and social problems. Prevention services focus on a broad population -- persons who have not yet experienced serious negative consequences, or inflicted serious social harms, associated with abuse of substances. Like so many policy purposes, prevention objectives have broad appeal. However, to provide clear guidance for policy, program and practice design and implementation, the broad prevention concept requires clear logical and empirical definition. Paradoxically, the very popularity of a broad policy term in public debate can obfuscate critical distinctions and limitations because stakeholders invoke the term to serve preferred policy objectives. As pithily stated two decades ago, “(p)revention is a concept in vogue. As a result, the term is, at best, ill-defined and misused” (Seidman, 1987, emphasis added).

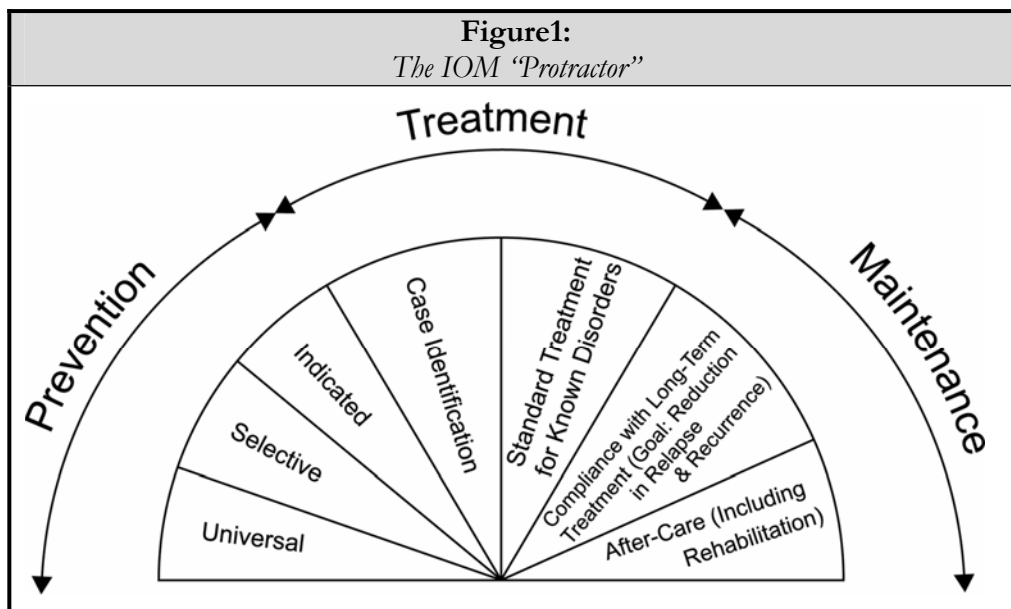
In the past two decades the prevention field has progressed and matured. Evidence-based knowledge concerning the prevention of substance abuse has grown, producing greater understanding of the factors that contribute to the initiation and growth of alcohol, tobacco and other drug use at individual, family, school and community levels. Importantly, knowledge about evidence-based practices and programs that are effective for different populations has also grown significantly. However, knowledge about what works is based on evaluation results produced largely through studies of individual programs diverse in approach, specific objectives and participants. Knowledge of factors contributing to substance abuse and associated problems is fragmented, as is evidence concerning effective prevention policies, programs and practices.

In summary, the prevention field has not yet matured to the point of developing an overall theoretical framework that relates knowledge about risk for substance abuse, causal contributors to substance abuse and effective intervention. Different approaches are often posed as alternatives rather than complements, and prevention policy makers and practitioners experience confusion concerning the selection and application of evidence-based practices. An encompassing framework that facilitates systematic comparison of outcomes, interventions, and resource requirements is essential to meet the growing desire for informed planning, evidence-based policy and practice, and monetary accountability in the prevention field.

This article expounds the Institute of Medicine continuum of health services as a promising framework to integrate the prevention field. The IOM framework places prevention in a graded continuum of care that distinguishes between prevention, treatment and maintenance, and shows their interrelation. It also distinguishes between three levels of prevention services according to the risk levels of the target populations. The IOM framework has been visibly adopted in prevention policy language, but its implications for policy and practice have not been fully developed or explored in detail. Seidman’s (1987) observation from two decades earlier remains applicable – as the IOM categories have come into vogue, their application has been loosely defined, and sometimes contentious. In this article, the premises of the original formulation of the IOM framework are reviewed, and limitations of its current application are discussed. To clarify the utility of the IOM categories for meeting the need for a unifying conceptual framework in prevention, the definition of populations, recruiting of participants, identification of appropriate interventions, and specification of appropriate outcomes are discussed within universal, selective and indicated prevention categories.

BACKGROUND: ORIGINS AND PREMISES OF THE IOM FRAMEWORK

In 1994, the Institute of Medicine recognized the need for a framework for health planning that went beyond the distinction between primary (prevention), secondary (intervention), and tertiary (treatment) phases then in use. The Institute commissioned development of the framework summarized in the IOM “protractor” (Figure 1). The framework was adapted from the universal, selective and indicated service population categories defined by Gordon (1987). The protractor depicts a graded series of need and service from the prevention of health or behavioral health problems, through the treatment of a chronic condition, to the maintenance of a managed healthy status. This continuum of care model has several advantages over the older primary, secondary, tertiary conceptualization. First, intervention phases defined as prevention, treatment and maintenance are descriptive of the different service needs that occur in each phase. Second, distinctions between each of the three phases are more clearly identifiable than in the old categories that assumed clear distinctions in disease progression. For example, in the IOM framework treatment begins only when case identification (diagnosis) is achieved. With respect to substance abuse, prevention can be concretely defined as all services provided prior to a specific diagnosis of abuse or dependence – treatment comes after. Third, the IOM framework provides additional phased distinctions in activities within prevention, treatment and maintenance.



The prevention arc is divided into universal, selected, and indicated prevention activities. While Gordon’s work focused on physical health his ideas were received as particularly suitable for planning prevention of behavioral health problems such as substance abuse, mental health, eating disorders, obesity, problem gambling, and their associated mix of personal and social harms. These behavioral health problems all have multiple individual and environmental risks as precursors. The risk and protective factor framework had gained great currency because it was readily demonstrated and had intuitive appeal (Hawkins et al, 1986; Hawkins et al, 1992). The development of substance abuse and other behavioral health problems is characterized by complex relations between these multiple risks and the progression of the diagnosable disease state (e.g., substance dependence).

In contrast to the earlier focus on disease etiology, Gordon’s (1987) focus on risk was based in epidemiology which “... regards the individual as a ‘black box,’ and collects data only on the outwardly observable forces that influence the individual and the state(s) of health or disease that follow.”

This paradigm fits nicely with the growing empirical focus on risk factors as a way of focusing preventive interventions for substance abuse, and it provides a systematic conceptual framework for developing evidence-based knowledge on matching intervention to participants at progressive degrees of risk.

Current Applications of IOM in Substance Abuse Prevention

When the Institute of Medicine endorsed its new framework for a continuum of care, the committee noted that its application to behavioral health “is not straightforward” (Mrazek & Haggerty, 1994). Primary issues included the need for a clear definition of the distinction between prevention and treatment, the relation between prevention of behavioral health disorders and promotion of wellness, and the clear identification of actions (interventions) appropriate to each population. Notwithstanding these caveats, the IOM categories have been adopted in the language of prevention planners, policy makers and funding agencies. The three categories are widely used to classify target populations, intervention strategies, and specific interventions. With respect to substance abuse and mental health prevention, Robinson et al (2004) adapted typical definitions (Kennedy, 1999).

1. Universal preventive interventions: Addresses general public or a segment of the entire population with average probability of developing a disorder, risk, or condition.
2. Selective preventive interventions: Serves specific sub-populations whose risk of a disorder is significantly higher than average, either imminently or over a lifetime.
3. Indicated preventive interventions: Addresses identified individuals who have minimal but detectable signs or symptoms suggesting a disorder

This definition applies the categories to “interventions”, implying that the IOM framework is a classification of different types of interventions. This assumption is widely accepted in current uses of IOM. For example, a recent and widely disseminated training program (WCAPT, 2005) directs prevention planners to “identify what type of strategy you need to employ: universal, selective or indicated.” (emphasis added) In another example, programs that have received model status within SAMHSA’s National Registry of Effective and Proven Programs (NREPP) are organized by IOM category. However, there are no formal criteria for determining to which category a given intervention should be assigned, so the designation is self-assigned by intervention developers. In still another example, prevention programs (WCAPT, 2005) are assigned to multiple categories (e.g., one program may be listed as universal and selective, or as selective and indicated). The lack of criteria for assignment of policies, programs or practices to IOM categories seriously limits the usefulness of the labels for guiding selection and implementation of appropriate interventions.

The uncertainty of definition means that IOM categories are subject to varying interpretation. For example, NIDA clearly states that indicated programs are preventative and serve populations “who do not meet DSM-IV criteria for addiction, but who are showing early danger signs.” However, the Office of Substance Abuse Services in Virginia has interpreted indicated services to be outside of prevention, and has clearly stated that “SAPT prevention set-aside funds may not be used to support Indicated prevention programs” (Guidance Bulletin No. 2003-03). Other states face opposition to funding indicated prevention because it may overlap with programs funded with treatment dollars. As long as definitions are not standardized, operationalized and disseminated, the real world interpretation of IOM categories remain variable and potentially contentious. The full opportunity for advancing prevention understanding and applications will not be realized.

Thus, the fundamental issue in current application of the IOM categories is the need for systematic clarification of terms for operational definitions to be used in criteria for real world application (e.g., how does one define specific populations and actually recruit participants), and for clarity in the implications of these categories for intervention design and implementation (e.g., what are the criteria for determining whether a program is appropriate for a given population).

Currently, the most widely applied criterion for identifying universal, selective and indicated interventions is simply the type of population to which an intervention has been delivered. Thus, a universal intervention is one delivered to a universal population – with no independent criteria for whether it is suitable for this population. A failure to clarify will allow confusion to continue, and will eventually lead the field to move on to yet another conceptual framework without realizing the significant contribution that the IOM model can bring to policy, practice and research in prevention.

PROMISE AND FUTURE DEVELOPMENT OF THE IOM FRAMEWORK

The IOM framework provides a fertile conceptual base for advancing thinking about the continuum of prevention activities. It guides the conceptualization of fitting participant needs with intervention design and implementation. To date, however, this promise has not been realized. The purpose of this section is to begin to explore the major implications of the universal, selective and indicated categories for concrete issues related to: a) defining populations, b) recruiting prevention participants and providing access to interventions; c) designing and selecting appropriate interventions; and, d) identifying appropriate outcomes.

- **Defining the Population.** The IOM framework identifies categories of populations that are defined broadly by assumptions concerning their risk for substance abuse. If the potential of the framework for guiding prevention planning and implementation is to be more fully realized, it is important to clearly identify and define universal, selective and indicated populations, and to relate them to recruitment and intervention design.
- **Recruiting Participants and Providing Access to Service.** Once population criteria are identified, intervention implementers must develop procedures for accessing the population and recruiting appropriate participants. This is a key implementation issue that must be addressed if the IOM framework is to fulfill its basic purpose of matching participants to interventions.
- **Designing and Selecting Appropriate Interventions.** Prevention interventions are currently assigned to IOM categories largely because of the populations to which they have been delivered. Clarifying how and why specific characteristics of policies, programs and practices are more appropriate to specific IOM categories will be a major step in improving the utility of the framework for decision making.
- **Specifying Appropriate Outcomes.** One of the complexities of prevention research is identifying outcomes that are appropriate for a particular intervention and population. One issue is identifying outcomes that are achievable within time frames that are short enough to provide meaningful feedback to program planners, funders and implementers. The IOM framework provides a potentially useful format for identifying useful outcomes for different population categories and interventions.

Clarifying the meaning and implications of the IOM categories in these ways is an important step in making the IOM framework more useful to practitioners. The following discussion provides a systematic assessment of these questions, which have gone largely unexamined in applications of the IOM framework, to date.

Universal Prevention

Universal substance abuse prevention has become highly visible in schools and communities. Public information campaigns sponsored by governmental agencies, and even the alcohol industry itself, caution the public around the safety, legal and health dangers of substance abuse. School children receive ever-increasing exposure to a range of substance use prevention in the classroom, beginning in the elementary years and progressing through high school. Other policy and social campaigns are aimed at community environments with the intent of reducing access to substances that may promote problem use, or of altering behaviors and traditions that may be accepting or supportive of problematic substance use. Unlike other IOM categories, in universal prevention recipients are not targeted by explicit criteria that would differentiate them by their relative risk for future development of substance abuse. The following discussion articulates some of the typically unexamined implications of this broad definition.

Universal Population Definition

Because they are not selected according to risk characteristics, universal populations are commonly characterized as “low” or “average” in risk. Closer consideration of the universal category leads to two important elaborations of this characterization. First, the assumption of “average risk” is less important than the fact that risk is not specifically known, and that it may be highly variable. Universal populations often include both very low risk and very high risk members. This means that the impact of a universal intervention may vary significantly across sub-populations. It may even be positive for some subgroups and negative for others. This is a critical potential issue in universal prevention that is typically not considered. It is more accurate to characterize the risk in universal populations as “unknown” and “variable” than as “average,” or certainly, than as “low.”

Second, even though risk is not explicitly considered in defining universal populations, these populations are delimited. There are multiple options in criteria for sub-setting a population, such as accessibility, or life stage (e.g., adolescence) or ethnic community. For example, the following four criteria (or circumstances) commonly define universal populations.

- Geography may define a community population (e.g., state, city, neighborhood).
- Demographics define many sub-populations that receive universal interventions (e.g., age, ethnic/cultural membership, gender).
- Setting is an important definer of sub-populations. School is the most pervasive setting in which focused universal prevention is delivered, but workplaces and communities are other examples. The unique thing about setting as a definition is that it creates a specific structural environment within which the population interacts.
- Relevance is a less obvious definer of universal populations. Universal messages may be delivered broadly, but be relevant only to a sub-population that is defined by a circumstance that makes the message relevant to them, but not to others in the population. For example, messages concerning designated drivers are relevant only to those who are potential drivers in circumstances in which alcohol is involved.

Although these criteria for defining universal populations are typically implicit or determined by convenience and opportunity, they still have important implications for intervention strategy and effectiveness. First, the way that a universal population is defined may shape the opportunities and requirements for effective interventions. For example, the effectiveness and efficiency of a particular prevention message will depend on the proportion of the receiving audience to which it is relevant. Second, it is possible that the same criteria that define a universal population when applied with no consideration of relative risk, may define a selective population if the criteria is used because of a demonstrated relation to risk. For example, a school may be a universal population when served because of criteria unrelated to specific assessment of risk (e.g., a state requirement); but be a selective population when identified according to specific risk criteria (e.g., community disorganization, poverty). More careful attention to the actual make-up of universal populations and to the circumstances that actually define their scope is important to making decisions about universal policies, programs and practices in actual applications.

Universal Recruitment of Participants and Access to Interventions

Formal recruitment is not typically an issue with universal interventions since all members of the defined population are participants, by definition, though consent may be necessary in some cases. However, lack of attention or the ability to avoid participation is a major access issue. Many interventions (e.g., many public information messages) will not reach all members of the population, and lack of attention may impact receipt of a message. Information campaigns that require participants to actively access information (e.g., pick up and read brochures) are examples of one extreme in which universal availability will be strongly filtered by self-selection. At the other extreme, school prevention programs are an example of limited opportunity for self-selection. The degree of potential self-selection has important implications for understanding who the meaningful intervention participants may be, and as noted below, the ability to self-select can improve relevance of the message. Making the message available to a universal population does not equate to receipt of the message, or desired behaviors.

Culture is an example of unintended selection issues that must be considered in universal prevention programs. Research has shown that cultural sensitivity has a large impact on the degree to which participants perceive prevention messages to be meaningful and relevant (Chipungu et al, 2000; Springer et al, 2004). Incorporating cultural meaning into heterogeneous messages, particularly those aimed at individual behavioral change, is important to achieving equal access.

Designing and Selecting Universal Services and Approaches

The appropriateness of the design or selection of a universal policy, program or practice should be justified by a plausible explanation of why planned activities will produce desired outcomes. The IOM framework can help classify different universal interventions according to the general mechanism through which the intervention is expected to impact behavior. Table 1 provides a set of examples of universal interventions that are arrayed along continuum of change approaches ranging from controlling negative behaviors to promoting positive behaviors, and with interventions aimed at promoting awareness of risks or protective behaviors in between. The display also distinguishes between universal interventions in which there will be low or high opportunity for self-selection into or out of the intervention.

<p align="center">Table 1: <i>Cautions in Applying Universal Policies, Programs and Practices</i></p>		
	Low Opportunity for Self-selection	High Opportunity for Self-selection
Control Behavior/ Opportunity for Risk	E.G., environmental policies such as price increases, marketing controls, school policies such as zero tolerance <ul style="list-style-type: none"> • <i>Potential for unintended consequences for low risk members</i> • <i>Low effectiveness for most relevant sub-population</i> 	E.G., environmental policies such as use ordinances, nuisance location enforcement <ul style="list-style-type: none"> • <i>Limited scope of impact</i> • <i>Displacement rather than reduction of problem</i>
Promote Awareness of Risk	E.G., school-based education <ul style="list-style-type: none"> • <i>Iatrogenic effects</i> • <i>Potentially low behavioral impact</i> • <i>High opportunity cost</i> 	E.G., media campaigns concerning health, legal, social risk <ul style="list-style-type: none"> • <i>Iatrogenic effects</i> • <i>Potentially low behavioral impact</i>
Promote Awareness of Protection	E.G., school-based social norms programs <ul style="list-style-type: none"> • <i>Potentially low behavioral impact</i> 	E.G., media campaigns promoting positive actions such as designated drivers <ul style="list-style-type: none"> • <i>Potentially low behavioral impact</i>
Promote Protective Skills/ Protective Opportunities	E.G., full school reform programs, school-based behavioral skills programs, positive youth development programs	E.G., comprehensive community health and wellness programs, positive youth development <ul style="list-style-type: none"> • <i>Does not reach high risk/ high need youth</i>

The top of this continuum references universal policies, programs and practices aimed at putting constraints on behavior, and that would be categorized as “environmental” in the current language of prevention. These policies, such as price increases, enforcement policies, public use ordinances, or zero tolerance policies in schools are designed to constrain access and increase sanctions to deter substance abuse. Most of these policies have low opportunities for self-selection by targeted populations, although some, such as campaigns to close or constrain nuisance bars or other locations, can be avoided by individual users. In selecting these policies when there is low opportunity for self-selection, there are important considerations that follow directly from the fact that universal populations are heterogeneous. These policies may have significant unintended consequences for low risk components of the population. For example, non-problem drinkers may be more sensitive to price than problem drinkers, and price increases may compel them to forego social drinking. Conversely, price increases may not impact use rates for dependent or high risk drinkers. Another area of concern with setting-based universal approaches that emphasize punitive control (e.g. zero tolerance school policies) is that they actually work counter to the school connectedness that has been shown to be a consistent positive contributor to reduced substance use and other positive youth outcomes (Drug Policy Alliance, 2005; Sambrano et al, 2005; Sale et al, 2002). Control-oriented environmental policy that can be avoided by problem users may result in the well known phenomenon of problem displacement rather than net reduction – problem users and their hot spots are simply moved from one location to another.

Universal programs aimed at increasing awareness of risk and awareness of protective skills or opportunities are in the center of the continuum in Table 1. These approaches are similar in assumptions about effects on behavior, but differ in encouraging avoidance or adoption. For example, a media program emphasizing legal consequences of drinking and driving increases awareness of risk, and a “designated driver” campaign emphasizes protective behavior. These approaches include programs such as school prevention curricula and public media campaigns. In simple application, they reflect a theory of change commonly summarized as the KAB theory, standing for knowledge-attitudes-behavior. It is assumed that improved knowledge will lead to changed attitudes and that this will lead to altered behavior.

Research has demonstrated that this assumption is invalid if behavioral change is the direct intended outcome. Nonetheless, information intended to build awareness is a big part of universal prevention interventions, and while it does not have a strong direct relation to behavioral change, it may play a critical part in complex understandings of the change process. For example, awareness messages may play a role in creating receptiveness for behavior change, and have a viable role in the early stages of theories of change such as the transtheoretic model (Prochaska, J. et al, 1994). Properly formulated, messages may help move recipients in need of change from pre-contemplative, or contemplative stages toward actual behavior change.

Universal awareness messages, particularly those delivered community-wide, may also be relevant to theories of change that focus on capacity building, or community attitudinal, behavioral and policy norms, as contextual conditions important to changing substance use and associated problems. Universal messages may contribute to the readiness of a community to undertake prevention, and be a motivator to support more direct influences on behavior (e.g. policy change). The major point is that universal prevention mechanisms must be assessed with a clear understanding of their realistic outcome objectives within a well developed plan for achieving longer term goals.

Studies of universal interventions focusing on education and awareness have raised evidence-based concern about the potential iatrogenic effects of universal interventions, particularly for youth. A recent study of an ONDCP national media campaign identified a potential harmful impact on the initiation of substance use for pre-teens and adolescent females (NIDA, 2006). Studies of informational programs concerning substances have raised concerns about potential increases in experimentation by young participants (NIDA, 2006). The implication is that heightened awareness for youth in the experimental ages may actually increase the motivation to initiate use.

Universal interventions designed to promote protective behavioral skills and provide opportunity for positive behaviors are at the bottom of the continuum in Table 1. These strategies are consistent with prevention planners who argue that universal prevention should focus on physical and behavioral health promotion more than on specific strategies of prevention. In universal prevention for youth, this perspective is often articulated through positive youth development strategies. These strategies focus on promotion of protective factors, positive alternative activities, and creation of opportunities for development of these skills through interacting in a positive social environment. Advocates of this position argue that the theories of change, the empirical evidence, issues of population heterogeneity, and issues of equity all support making promotion—particularly positive youth development—the focus of universal prevention. A particularly promising approach is full school reforms that restructure school disciplinary policy, governance and classroom procedure to emphasize guided opportunities for positive youth development (Schaps & Solomon, 2003). This positive promotion approach is less prone to iatrogenic effects, unintended consequences for low risk participants, or to self-selected non-participation by high risk targets than are the universal interventions that are higher on the continuum. These approaches also focus more clearly on evidence-based practices that have been shown to positively impact behavior.

Appropriate Universal Outcomes

The typical approach to specifying outcomes for substance use prevention initiatives, including universal initiatives, is to focus on behavioral indicators of incidence and prevalence of use of different substances. A primary issue with respect to outcomes for universal interventions concerns the reasons that use, itself, is considered problematic; this, of course, will vary by substance. Reduction in average use across whole populations may be reasonable outcome indicator for substances that are deemed to be illegal, or that have egregious health consequences.

However, when the concern is primarily with associated consequences related to the degree of use (e.g., car crashes, sclerosis, school failure, etc.), or the circumstances of use (e.g., recreational accidents), the applicability of average use as a primary outcome is questionable. More focused measures of harm may be necessary.

Universal interventions focusing on education, awareness or health risk messages often use measures of attitude as an outcome indicator. Indeed, some of the initial model prevention programs in NREP achieved model status based on demonstrated change in attitudes related to substance use, or health and other risks associated with use. Research has demonstrated that intervention-induced attitude change is not related to behavioral change, and interventions that produce positive attitude change do not produce behavioral change (SAMHSA, 2002). Awareness outcomes such as attitude change, increased knowledge, or modification of belief may show progress toward early stages in theories of change, but they should not be used as surrogates for behavioral change.

The above discussion raises clear concerns with respect to the adequacy of indicators of substance use or substance use attitudes as the primary measures of outcome for many universal interventions. For interventions focused on harms that are attributable to specific patterns of use in sub-populations (e.g. car crashes), the better measures would be those that are sensitive to the ultimate outcome of interest. Average use measures, for instance, will reflect reductions in legal drinking that are not associated with the ultimate outcome. For universal interventions that are intended to strengthen awareness or motivation to initiate more specific prevention activities, the appropriate measures would be those associated with increases in readiness or capacity.

Discussion

Universal prevention is widely applied, and provides highly visible rallying points for stakeholders who desire to make a public statement against substance use and the harms it brings to youth, families and society. Universal prevention has a strong common sense appeal and a history of association with the reduction of tobacco use in this country. However, tobacco use is a special case of substance use in that it is legal, widespread, and has serious and relatively uniform health risks for smokers. This brief review of issues related to universal prevention for other substances demonstrates the complexity of that concept, and indicates the potential utility of conceptually unpacking the term “universal prevention.”

This family of interventions is distinct from the selective and indicated categories because need as indicated by risk or symptoms is not considered in determining who will receive services. The distinguishing characteristic of these populations is not low risk, but varied risk. This variance in risk of recipients contributes to many challenges in assessing the impact of universal interventions that are designed to control (prevent or reduce) specific negative behaviors. Studies of universal interventions aimed at increasing awareness have raised concerns that informational interventions may actually stimulate curiosity and experimentation, especially in relatively low risk, young population members.

The diversity of universal interventions requires careful distinctions between differing approaches within this category. Application of universal interventions will require identifying strategies based on appropriate expectations of change within comprehensive approaches, such as changing social acceptance and supporting awareness that will increase readiness and capacity to implement more direct prevention activities. Approaches that promote positive skills and provide environments supporting positive opportunities are strong candidates for appropriate universal prevention.

Selective Prevention

The selective category is the most direct application of Gordon's insight that known risks for developing the health condition can help preventive interventions. In fact, the selective category is the only one of the three in which risk is explicitly applied as a criterion for selecting participants into interventions. Using shared risk factors as indicators of need is expected to have three major advantages for applicable groups. First, it should simplify identification and recruitment processes, as there is no need to conduct individual diagnoses. Second, it should help design services so that they are efficiently delivered to persons with similar prevention needs. Third, it should help develop evidence-based interventions that are more effective because they can be designed and tested for participants with shared intervention needs. Many of the cautions that issue from the diverse risk profiles of universal populations will disappear in well-defined selective populations.

In prevention, the conceptualization of selective populations is consistent with the growth of the risk framework for understanding the initiation and progression of substance abuse, particularly among young people. This risk framework has widespread credence and research support in prevention, and it supports the proposition that identifiable risk factors have a substantial relation to the probability of developing substance abuse. The great and valuable insight involved in identifying selective programming as a meaningful category for service planning and design is that there is no doubt that some individuals who share certain attributes/circumstances are at greater risk for developing behavioral health problems than others, and that these differences in risk can be identified before the disease conditions begin to manifest. Risk factors have become a predominant framework for thinking about who should receive more intensive (selective) prevention services. It is less clear that practical ways of using the risk concept to help design and deliver more efficient and effective prevention services have been successfully developed and applied. In this section, the current use of the selective category is reviewed, and directions for improving its utility in prevention planning and implementation are suggested.

Defining the Selective Target Population

The potential value of the selective prevention category lies in the way that populations are defined. A review of the application of the selective category to population definition reveals a gap between the research-based conceptualization of its applicability and the practical realities of identifying discrete populations with shared prevention needs. For example, in discussing the application of Gordon's distinctions to behavioral health, Silburn (1999) identifies the fact that the potential utility of the ability to identify selective populations depends on "... knowing something about the magnitude of various risks for a condition (relative risks) and ... the proportion of the population ..." that shares the risk. In application, these are demanding criteria. The risk factor research on substance abuse is typically not sufficient to precisely specify risk factors by degree of contribution to the health condition, by threshold levels of risk, or by prevalence of specific risks in the population. Measurement error is endemic to many risk factor indicators, and their relation to substance use is probabilistic. Analyses of the relation between common risk factors and measures of substance use among youth typically reveal that the increase in probability of substance use associated with individual risks is relatively small (Skager and Austin, 2004). Multivariate analyses combining multiple risks demonstrate higher increases in the probability of substance abuse, but this information becomes less practical for precisely defining populations in need of prevention service.

The challenges of precisely defining selective populations are compounded by the fact that risk factors for substance abuse have been identified in a number of categories. At the simplest level, they have been defined as internal (e.g. social-emotional, self-regulation, oppositional, attitudes, perceptions) or external risk in the youth's environment. These external risks may inhere in a variety of social contexts such as friends, family, school, community and society, or in circumstances such as divorce, job loss, or transitional age of emancipation for foster youth. Closely examined, identifying risk in each of these domains has different implications for selecting an intervention. For example, community level risk cannot be removed through an intervention aimed at individual internal states, but it can be used to identify people who may need help in developing "resilient" individual characteristics that will help them thrive in a high risk environment.

Fundamentally, the knowledge that multiple risk factors have a complex, probabilistic relation to substance use is of limited practical value in making real world decisions about who should be actually targeted in a particular selective intervention. Similarly, interrelated risk factors, as identified in research based largely on correlations, do not provide clear direction concerning the most effective policies, programs and practices in specific applications. Too frequently, profiles of a population (e.g., a school) indicate multiple risk conditions that warrant a "high risk" categorization.

This was almost universally the case across the 48 sites in the Center for Substance Abuse Prevention's National Cross-Site Evaluation of High Risk Youth Programs. In this study, location in a low income community was the dominant shared characteristic for populations, while a variety of other factors were also predictably present. These multiple factors did provide a rationale for identification as "selective," but the interventions themselves were diverse, and were not driven specifically by intervention strategy based on specific risk. A profile of correlated risk factors simply does not provide specific guidance for specialized selective interventions.

In practice, prevention planners make decisions based on available information that can be used to easily identify higher risk youth. Common ways of identifying youth for selective programs are to focus on youth who are in high risk circumstances – troubled homes, communities experiencing social disorganization and/or poverty, or schools that are characterized by low performance or social disorganization. It is these naturally occurring high risk circumstances that are visible and accessible, and the presence of multiple risks in these circumstances that confirms, rather than guides, the appropriateness of targeting these youth as participants in selective prevention. Clearly identifying, naming, and understanding these naturally occurring selective populations is an under-explored and promising approach to defining selective populations.

Recent work in applying selective prevention has introduced the term "vulnerable populations" (Burkart, G., 2005; Springer, 2006). Examples of vulnerable populations for which interventions have or can be developed include the following:

- Homeless youth
- Young offenders
- Foster youth
- School drop-outs
- Regular participants at dance clubs
- Students experiencing academic failure

Prevention practitioners often want to serve these sorts of populations, which certainly fit the selective category. However, the professional discussion of selected prevention has not focused on how these vulnerable populations provide opportunities for definition, recruitment of participants and service access. Nor has research or professional discussion explored the ways in which the vulnerable population concept may help guide the selection of specifically tailored interventions for prevention. The next sections will elaborate the advantages of focusing on identifiable vulnerable populations as the target of selective prevention.

Recruitment of Participants and Access to Selective Services

A primary advantage of focusing on vulnerable populations is that they already exist and are clearly identifiable. Recruitment and access to many existing programs depends on finding participants that share one of multiple risks in a larger population, or on applying a category that is so inclusive that it results in very diverse risk profiles. The “high risk” label is an example of the latter. Methods of “finding” participants who meet the selective populations are often dependent on membership in broad and heterogeneous groups, such as membership in an economically disadvantaged community. Or they may use evaluative processes such as referral based on personal experience with the referred participant, typically as a parent or a teacher. These referrals are often based on relatively loose criteria related to perceived need, and are prone to bias and selection error. For example, “acting out” has been identified as an overrepresented criterion in teacher-driven referral processes.

The multiplicity of risk factors available for recruitment purposes is a double-edged sword. On the one hand, youth at higher risk for substance use for some reason can be readily identified using a variety of information. On the other hand, the probabilistic correlation of risk to harm, the lack of specific knowledge about the relation of single indicators to substance use, and lack of strong clustering of specific risks in many selective programs means that the potential power of selective programming to identify participants with similar need, and to guide effective intervention design, is not realized.

A focus on existing vulnerable populations can greatly increase the similarity of risk and need among program participants and provide guidance related to need and opportunity for effective intervention. For example, vulnerable populations are typically tied to a particular setting. Foster youth can be accessed in the foster care system, young offenders can be accessed through the juvenile justice system, and regular club participants can be recruited through the clubs. Outreach and recruitment processes can be tailored to the natural setting in which the vulnerable population can be accessed. Criteria for referral or publicizing opportunities can be incorporated into intake or case management procedures in foster care, the criminal justice system, or in the counseling offices of schools. Another advantage of focusing on vulnerable populations is the ability to identify opportunities for effective intervention. This includes both the ability to identify commonly occurring negative outcomes for this population, specifying the role and prevalence of substance abuse in the population, and identifying opportunities for creating support and opportunity for prevention activities (e.g., training in the foster parent system to support foster youth). These important implications of recruiting will be elaborated in the following section on intervention design.

In recruiting vulnerable populations, practitioners must take care in carefully selecting their intervention services. The risk literature tells us the following: a) that vulnerable populations are not homogeneous, i.e., it can not be assumed that all participants have the same needs; and b) risk research demonstrates co-occurring problems, but less is known about causation.

Designing and Selecting Selective Services

Key questions in designing interventions for selective populations include: a) How should selective interventions be different from universal, and why?, and, b) What are the important differences in services that will meet the needs of different selective groups and what is the basis for these differences? Some universal strategies such as media campaigns are clearly distinct from selective strategies, though this is not always the case. As noted in earlier sections, interventions offered to selective populations, in school-based programs for example, are often identical to those used for universal populations. The following discussion explores what is known about content in effective selective interventions with the intent to differentiate them more clearly from universal interventions.

First, selective programs will emphasize direct services to populations, typically in smaller groups than are associated with universal applications. For programs that serve youth in school settings, students who are perceived to be at elevated risk are served outside the normal classroom in smaller groups.

Research gives some guidance on those factors that make selective programs effective. A first requirement of effectiveness for prevention programs serving selective populations is a relatively high level of service intensity, as measured by the amount of program contact time per week. Researchers for CSAP's National Cross-site Evaluation of High Risk Youth Programs found that programs averaging more than four hours of contact per week were more effective in achieving substance abuse prevention outcomes than those with less contact (Springer et al, 2004). Selective program designers should plan for more intensity than involved with universal programs.

CSAP's National HRY Evaluation also produced conclusions about the content and mode of delivery that is effective in programming for selective programs. Those programs that: a) included a focus on protective behavioral skills rather than information; b) relied minimally on didactic instruction; c) used group tasks involving cooperation and building connections to the group; and, d) incorporated exercises involving reflective learning were more effective in reducing substance use relative to comparison groups (Springer et al, 2004). The first two of these characteristics are similar to those that research has associated with more effective universal in-school programs that promote protective behaviors. While the line between principles of effectiveness for selective programs is not a step change from the more similar types of universal programming, research is demonstrating important and consistent differences in emphasis that appear to apply across vulnerable populations. This growing research also demonstrates that the characteristics of effective prevention for selective populations require more time per week and more loosely structured activity that can typically be accomplished in classroom programs. Selective programs for youth work best in after-school or community-based settings.

Beyond selecting programs that are appropriate for higher risk populations, generally, program designers must determine whether the particular risks that define their participants have implications for how services should be designed and delivered. The first consideration is the alignment of risk domains, the focus of the intervention, and the design of services. A focus on vulnerable populations has great potential for helping to align prevention services to the particular cluster of need and service opportunity that characterizes a specific vulnerable group. This potential follows from the fact that vulnerable populations exist prior to the intervention.

They are not groups of youth that are created through a selection process based on multiple, discreet risks. As depicted in Table 2, vulnerable populations can be described according to features important to designing preventive interventions, and close consideration of these characteristics can provide a guide to tailoring selective interventions to specific groups of participants. Table 2 is an overview example. Each of these vulnerable populations would require closer consideration of needs and opportunities in a local planning environment, but the general utility of this planning focus is evident.

Table 2: <i>Vulnerable Youth Populations and Parameters of Selective Intervention Design</i>				
Vulnerable Populations	Setting	Substance Abuse	Priority Service Needs	Intervention Support
Foster Youth	Foster care system	High risk, important intervention	Improved stability, home support, individual needs may vary	Potential continuity of service through the foster care system, potential focus for collaboration with system involved providers, basis for family training
Young Offenders	Juvenile justice system	High risk, important intervention	Cognitive-behavioral skills, positive opportunities, academic /vocational support	Potential supportive supervision through the CJS, potential collaboration with involved services
Low Achievers	School system	Unknown, medium, ancillary	Cognitive-behavioral skills, academic/ vocational support	School system cooperation is important to focus on this group, and to help focus program need
Club Goers	Clubs	High risk, important intervention	Harm reduction awareness, positive opportunities	Non-organized setting emphasizes need for outreach, appealing awareness information, positive alternatives
Homeless Youth	Shelters, CJS contact, Street	High risk, important intervention	Harm reduction awareness/ support, positive alternatives, supportive shelter, re-integration assistance	Non-organized setting emphasizes need for outreach, appealing awareness information, supportive and accepting alternatives, counseling and group opportunities
School Drop Outs	Community, difficult access	Unknown, high, ancillary	Positive alternatives, vocational/ academic support, cognitive-behavioral skills	Non-organized setting emphasizes need for outreach, appealing awareness information, supportive and accepting alternatives, counseling and group opportunities

The display in Table 2 demonstrates how identification of an example vulnerable population can help guide consideration of important planning issues. Understanding the setting provides guidance concerning recruitment and access, potential collaborators, and opportunities for effective intervention. The need and opportunity to focus on skills and continuity of foster families, or the utility of criminal justice mechanisms (such as juvenile drug courts) to provide supervised support, are examples. Focusing on these existing populations also allows specification of the priority negative outcomes experienced by these vulnerable youth, and assessment of the degree to which substance use is a known contributor, or an ancillary concern, with respect to these priority negative outcomes.

Cultural differences provide an important example of the need for tailoring prevention in selective applications. Research has shown that cultural content increases participants' perceptions that services are meaningful (Chipungu et al, 2000) and some programs that fully incorporate cultural content into the intervention design have been found to be more effective in achieving outcomes for participants than programs that do not incorporate that content (Springer et al, 2005).

In practice, providers do recognize that the specific risks that characterize their selective participant population may require special attention, but there is little explicit programmatic guidance through model programs or other mechanisms for exactly what the important risk distinctions and appropriate responses might be. There are many plausible considerations. Participants who are at risk primarily because of individual characteristics may benefit more from programs that focus fundamentally on their individual skills, or, in some instances, more from therapeutic programs. Youth who initiate use out of a propensity to risk-taking or pleasure-seeking, for instance, may require quite different interventions than those who use out of social insecurity. Participants with risks that inhere largely in the environment may benefit primarily from programs that create opportunity for them to participate and achieve in more positive environments. The close analysis of prevention needs and opportunities within vulnerable populations is a potentially strong tool that can help prevention planners adapt evidence-based policies, programs and practices to specific selective applications.

Appropriate Selective Outcomes

Current practice in evaluation or performance monitoring for selective programs is very similar to that for universal programs. Outcome measurement focuses on substance use type, prevalence, frequency and amount. These indicators are more appropriate, informative and useful for selective intervention than for universal because selected populations are more likely to already have initiated use and are further along a presumed trajectory of risk for abuse. In universal programs, it is often difficult to assess the success of the program in slowing initiation or reducing progression of use because of low base rates and small normative increments. For selective programs, the relevant variance in substance use is higher and actual reductions in use are identified in many programs (SAMHSA, 2002).

In addition, programs often measure change in risk or protective factors. While risk is the basis for recruitment to selective programs, reduction of risk is often not an appropriate outcome indicator. For example, if participants are selected into a youth program on the basis of community disorganization, poverty, family problems, or even school performance, there is probably little opportunity for the program to directly and significantly change those conditions. The alternative is to identify protective factors that will equip participants to cope more effectively with those risk conditions. These protective factors are appropriate and useful outcome indicators of selective programs if those programs have clearly articulated expectations of change that specify how the protective factors address the risk and how the actions of the program are expected to produce the protective factors. In the large sense, this logic is widely expounded by prevention professionals in the language of resilience and protection. However, in the practice of specifying protective factors as outcomes, the lack of clearly articulated expectations for particular selective populations reduces both: a) the validity of the indicators with respect to informing practice, and b) the probability of finding a positive result. Research has shown that when multiple risk and protective factors are measured in focused selective interventions, the observed positive change is greater for indicators of the factors most directly addressed in the intervention (Springer, Wright & McCall, 1992). The stronger the theory of change (logically and empirically) that specifies protective factors as both: a) a plausible outcome of the intervention, and b) a mediator of substance abuse, the more valid and useful that outcome is for evaluating or monitoring the performance of selective programs. Focusing on vulnerable populations and understanding their experience before specifying outcomes and designing interventions will contribute to both achieving outcomes and measuring intervention success.

Discussion

Selective interventions are delivered to populations that share identified risks for substance use. The premise of the original construction of the IOM concept is that the higher level of shared risk is an indicator of need for greater service. In the health setting it was assumed that the higher level of risk was sufficient to indicate the nature of the necessary service without diagnosis of the internal etiology of the disease condition in individual cases – the individual could be treated as a black box. The very large number of risk factors identified concerning the epidemiology of substance use, the fact that these risks can be categorized in a number of different domains, the low correlations between risks and substance abuse, and the questionable attribution of cause for many of these risk factors makes the application of selective logic to substance abuse prevention more complex.

Recruitment of selective program participants is often based on widely shared factors such as residence in a disorganized, high risk community or on loose procedures such as teacher referral. The result is that many selective populations are quite heterogeneous with respect to their specific risk profiles. The ability to meet the specific needs of members of selective populations, particularly those that have distinctive patterns of risk, is often not part of the program. Further research and guidance to practice regarding appropriate screening and recruitment and concerning the specific practices that are more effective for selective populations and particular risk groups is needed. Increased attention to vulnerable populations will contribute to meeting these needs.

INDICATED PREVENTION

Indicated prevention serves the individual screened for early problems associated with substance abuse. These “signs or symptoms” may be related to substance abuse behaviors themselves, or to problems that are associated with substance use. Formally, the distinction between these “minimal but detectable” signs and a clear cut need for substance abuse treatment is that they are insufficient to warrant a DSM-IV diagnosis of dependence.

Providing prevention services to indicated participants is arguably the most neglected service area among the three IOM categories. The reasons are several. First, indicated prevention services are at a point on the IOM protractor that has a long history of professional and institutional tension. Developing a smooth integration and continuum of service from prevention to treatment has been difficult in the behavioral health field. Funding of these portions of the service continuum has come in separate, categorical streams, and competition for funds within the prevention field has tended to limit funding of indicated populations, which are often identified as in need of treatment. The field of substance abuse services is in a long debate about how prevention and treatment should be integrated. Indicated prevention is a critical part of that discussion.

Second, indicated prevention is relatively demanding to deliver. Indicated services often combine individual and small group delivery, involve specific investigations of particular behaviors and issues, and require at least partial involvement of trained therapists. Recruitment, packaging of the right services and cost can be barriers. Nonetheless, indicated services are a critical stage in the continuum of care. At the border of diagnosable dependence, indicated services offer the highest probability of getting services to those who will experience the greatest individual harm, and create the greatest social harm, as a result of substance abuse.

Defining the Indicated Participant Criteria

Similar to selective populations, indicated populations will be defined by characteristics of individuals. In practice, the emphasis on shared characteristics for selective populations and individual characteristics for indicated populations reflects a relative difference. To some extent, participants in indicated prevention interventions must share some characteristics, at least within categories. In concrete terms, the population definition issues for indicated interventions include a) the explicit definition of the types of criteria that are used for selection, and b) the nature and strength of that relation to substance abuse.

Definitions of indicated populations vary from those “specific individuals with known, identified risk factors that place them at higher than average risk for developing a problem or disorder...” (State of Rhode Island, 2005) to definitions that specify the population should display “detectable signs or symptoms suggesting a disorder...” (Robinson et al, 2004). There are important similarities in these definitions. First, there is clarity that the condition to be prevented is progression to a diagnosable “disorder.” For substance abuse prevention, that means a DSM-IV diagnosis of dependence or abuse. Put differently, indicated prevention is not designed to prevent initiation or use – it is designed to prevent dependence and associated harms. Second, it is clear that the defining indicators will have an established correlation with substance abuse that is stronger than what is typically found for indicators that suffice for selective populations. Third, it implies the need and use of a ‘screening’ instrument, protocol or procedure, or some type of formal screening, to identify individuals at risk.

Other factors are less clear. Some definitions specify that “risk” for indicated populations includes co-occurring problems, which may include school failure, justice system involvement, health or mental health problems, violence or aggression, or direct consumption issues such as binge drinking or substance use violations. In addition to being more strongly correlated with harm, these indicators are different than those for selective programs because they are all individual factors – family, peer or community level indicators are not adequate for identifying indicated participants.

Recruiting Participants and Providing Access to Indicated Services.

Recruiting indicated program participants requires an individualized screening process. The purpose of the recruitment process is to identify those individuals who are in need of focused and relatively intensive interventions to prevent progression to dependence and/or to severe harm. There are three major potential avenues of recruitment.

First, self-referral is an option for many indicated programs. Members of indicated populations may already be experiencing negative personal consequences such as black outs, disapproval of friends or family, criminal justice involvement, regret, depression, or guilt. Outreach information letting them know that help is available may be enough encouragement for some potential participants to self-refer. Second, referrals may be made by teachers, counselors, administrators, parents, or even peers (e.g. co-workers). Outreach criteria may be provided as guides to secondary referral. Third, other initial screening processes may be used, such as automatic referrals for students involved in violence, substance possession or other relevant infractions. In the work place, alcohol use on the job or chronic absenteeism may be criteria for further screening.

Indicated programs will typically require additional diagnostic assessment after an initial positive screen. Brief screening and diagnostic instruments are important tools for indicated programs to ensure that high need participants are recruited.

The demands of recruitment for indicated populations limit the environment in which indicated programs operate. The recruitment process is typically contained in an institutional setting such as a school, a work place, the criminal justice system, or a health or behavioral health provider. The institutional setting provides the focused involvement necessary for effective outreach, referral based on behavior, motivation to participate, and the ability to facilitate participation in relatively intensive interventions.

Indicated populations can be defined narrowly based on a single criteria (e.g. threshold rates or patterns of substance use), a narrowly focused cluster of indicators (e.g. behavioral, criminal justice, or other indicators directly related to substance use), or a broader set of indicators focusing on multiple, or more loosely related problems (e.g. substance use, acting out and violence, school failure, date rape). The decision about how widely to screen in a particular setting has very important implications for service and evaluation. When an indicated program is put in place in a particular setting, there is a motivation to use it to meet a broad range of serious issues that are experienced by members of the setting. Furthermore, since membership in indicated populations may be relatively rare in many settings, a broad recruitment net may be necessary to meet capacity. It follows that multi-problem screening into indicated programs is typical in settings where rates are low and multiple issues are of high concern (e.g. schools). In settings where populations may be larger and specific problems of substance use are more prevalent (e.g. some work places), more focused criteria for identifying indicated populations may be appropriate.

Designing and Selecting Indicated Services and Approaches

In contrast to universal and selective prevention, there are relatively few models for indicated prevention policies, programs and practices. The most common forms of indicated prevention are student assistance programs (SAPs) in secondary education schools and institutions of higher education, employee assistance programs (EAPs) in places of employment, and juvenile diversion programs and community placement programs for juveniles. These programs typically use a mix of facilitated group sessions, individual services, and a variety of support services and resources. Facilitated group sessions include skills development, discussion and support groups. Individual sessions are often provided through integrated services in which counselors or therapists are brought into the program to meet specific needs. Referral to external agencies is another way of providing needed services.

One issue in providing indicated prevention through assistance programs or other mechanisms is how to adequately intervene for the multiple, relatively serious issues that may bring an individual into the program. While substance abuse may be highly related to the associated problems that youth bring into a program, it is not necessarily the root problem – it may be a symptom of another problem, or a co-occurring problem issuing from another root cause. When individuals are being admitted to the program because of serious co-occurring problems, it is important to ensure that appropriate services are available that are relevant to each of the conditions that may produce serious negative consequences for participants. Thus, indicated programs that serve many specific indicated problems undertake the responsibility to serve multiple problems. The link between recruitment criteria and services is critical when those criteria are for serious symptoms or conditions that present high risk for impending harm. The role of group services for diverse participants in indicated programs is another central issue for designing indicated programs. In existing indicated programs, group processes are often used to promote reflective learning situations similar to those found to be effective for selective programs.

Specifying Appropriate Outcomes

Outcomes for indicated interventions should differ from those of universal and selected programs in important ways. First, outcomes of interest concerning substance use should include reduction of use where necessary, and particularly, reduction of use of particularly harmful or problem substances such as binge drinking or illicit drug use which carries risk for criminal justice involvement. While these kinds of outcomes are low rate among universal and many selective populations, indicated populations are partly selected on the basis of high probability of these heavy use patterns. They are central to performance monitoring or evaluation in indicated programs.

Second, the indicated programs should include outcome indicators of the serious co-occurring or individually occurring problems that are indicated through the multiple criteria that are part of the screening process. While the rationale for universal programs is diffuse, including general objectives of positive youth development, the rationale for the more intensive and expensive services provided in indicated programs is specifically that it will prevent the progression of specific negative behaviors and the specific negative consequences.

Discussion

Indicated interventions are the last stop for prevention services to individuals who are close to the threshold of the development of a “disease” condition. In the relatively more determinant world of physical health, this may mean the early manifestations of the symptoms of a progressive disease. For substance abuse this may mean experiencing some of the behavioral or consequence symptoms that are part of a DSM-IV diagnosis. It may also mean experiencing harms that are associated with substance use in the larger population. One issue in application of indicated logic to substance use is that the association of individual serious issues in a larger population does not mean that they are associated in the persons that participate in the indicated program.

Indicated interventions are a relatively neglected component of prevention. The reasons are partly institutional since indicated prevention is at the margin of services that may be eligible for different funding pools (prevention or treatment). Indicated prevention may also be less useful as a public statement against substance use by school administrators or community decision makers. Although assistance programs have had strong support from some stakeholders, there is not a lot of attention to systematically developing and testing different approaches to delivering these services.

WORKING WITH THE IOM FRAMEWORK: SEPARATING HUBRIS AND OPPORTUNITY

The ultimate value of the IOM categories is the provision of an encompassing and analytically useful framework that helps prevention policy makers and practitioners relate our growing knowledge about substance abuse epidemiology, etiology and preventive interventions to the practical issues of service delivery, including cost, effectiveness and decisions about who should be served in what ways. The framework is important in several ways.

First, it provides a context for understanding the complexity of the overall prevention enterprise, making it clear that no one strategy or approach can effectively address the manifold contextual and individual factors that produce substance abuse and its related harms. For example, short of clear empirical confirmation, arguments that one “school” or “approach” to prevention should replace others is a reflection of stakeholder hubris or self-interest.

On the other hand, the logical rigor that comes with categorizing programs according to careful analysis of who and what is being impacted, closely examining the delivery of the service, and articulating expectations of change, provides a strong basis for thinking through what “makes sense” in a given action context, even when empirical evidence is weak. Evidence-based practice benefits greatly from the conceptual and analytic side of scientific inquiry even when definitive data is not available. It would, for instance, guide decision makers in realizing that a low rate problem, such as meth use among youth, will not be substantially impacted by a media campaign. Indeed, clear thinking is often a superior guide to weakly conducted empirical investigation. The IOM framework provides a strong resource for clear thinking.

Second, the inherent logic of the relation between specific interventions and specific populations and outcomes clearly demonstrates that different interventions address different portions of a complex social and behavioral set of issues. No one intervention point is sufficient to addressing the full range of issues, and because the components are linked probabilistically, no one set of factors determines the others. For example, the IOM framework provides a way of thinking about and categorizing “environmental” versus “direct service” policies that clearly demonstrates that they are complements rather than mutually exclusive alternatives. They address different populations with different theories of change. Local action or ordinances that focus on closing or controlling “problem establishments,” for example, have the objective of changing opportunities to use alcohol publicly, not to change individual behavior. Specifying the nature and appropriate outcomes of different interventions within the IOM framework will clarify how they are complementary. In sum, the IOM model helps show that different categories of service do not necessarily compete, but are complementary components towards creating a system of prevention that includes both building the capacity to design, implement and support prevention activities with development of positive orientations and behaviors; and the reduction of substance abuse, and/or reduction of specific harms related to use.

Third, the IOM framework can be useful in thinking through the details of intervention design and implementation. Because it structures the specification of relations between an intervention, the characteristics of the population, and the intended outcomes, the IOM framework can greatly enhance articulation of the logic of an intervention. By providing a perspective that helps clarify the relation between real world circumstances and prevention concepts and practices, the IOM framework holds promise for furthering the application of research-based knowledge to prevention practice. Focusing on known vulnerable populations to design selective policies, programs and practices is a prime example.

In summary, the IOM framework has great potential for helping to strengthen substance abuse prevention. Carefully applied, it can be a valuable aid to thinking through the design of interventions, to selecting from existing interventions to meet a particular set of requirements or objectives, and to identifying the necessity for and design of comprehensive projects that meet a complex set of needs with multiple, complementary interventions. The IOM framework is also a useful lens through which to observe existing research findings and methods, to enrich their interpretation, and to plan future investigations that build on past findings and fill important gaps. Less positive, the review highlights the current underutilization, and even misapplication, of the IOM insights. Categories are often simplistically defined and used as tallying points for advocacy, rather than careful and considered decision making. Labels are used to market particular programs or approaches with little evidence that they are most appropriate for those approaches. And, most important, many of the important issues that are raised by the careful assessment of programs and activities within each category are not seriously addressed. The greatest danger is that the failure to use the model to its full advantage will contribute to undervaluing its potential contributions, and eventually to its premature abandonment. Hopefully, this review may help identify the promise of serious and in depth application of IOM insights for substance abuse prevention.

Sources

- Burkart, G. (December, 2005). Selective prevention versus traditional strategies. Handout provided at REITOX Academy on Selective Prevention conference for European Monitoring Center for Drugs and Drug Addiction (EMCDDA), Lisbon, Portugal.
- Chipungu, S., Hermann, J., Sambrano, S., Nistler, M., Sale, E., & Springer, J.F. (2000). Prevention programming for African American youth: A review of strategies in CSAP's National Cross-Site Evaluation of High-Risk Youth Programs. *Journal of Black Psychology*, 26(4), 36-385.
- Drug Policy Alliance. (2005). *Beyond Zero Tolerance: A Reality-Based Approach to Drug Education and Student Assistance*. San Francisco: Skager, R
- Gordon, R. (1987). An operational classification of disease prevention. In J. Steinberg & M. Silverman (Eds.), *Preventing Mental Disorders: A Research Perspective* (20-26). Rockville, Maryland: US Department of Health and Human Services: National Institute of Mental Health.
- Hawkins, J., Catalano, R., & Miller, J. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. *Psychological Bulletin*, 112 (1), 64-105.
- Hawkins, J., Lishner, D., Catalano, R. & Howard, M. (1986). Childhood predictors of adolescent substance abuse: toward an empirically grounded theory. *Journal of Children in Contemporary Society*, 8(1), 11-48.
- Kennedy, N. (1999). Behavioral medicine: The cost-effectiveness of primary prevention. In T.P. Gullotta, et al. (Eds.), *Children's health care: Issues for the year 2000 and beyond* (pp.229-282). Thousand Oaks, CA: Sage.
- Mrazek, P.J. & Haggerty, R.J. (1994). Institute of Medicine (IOM), *Reducing risks for mental disorders: Frontiers for preventive intervention research*. Washington D.C.: National Academy Press.
- National Institute of Drug Abuse (NIDA). (2006). *National Youth Anti-Drug Media Campaign*. Washington D.C.: WESTAT, Inc.
- Prochaska, J.O., Norcross, J.C. and DiClemente, C.C. (1994). *Changing for Good*. New York, New York: William Morrow.
- Robinson, J., Haaz, E., Petrica, S., Hillsberg, B., & Kennedy, N. (2004). Managed care and prevention of mental health and substance abuse problems: Opportunities for growth through collaboration in the new millenium. *Journal of Primary Prevention*, 24(3).
- Sale, E., Springer, J.F., Sambrano, S., & Turner, C. (2002). Risk, protection, and substance use in adolescents: A Multi-site model. *Journal of Drug Education*, 33(1).

- Sambrano, S., Springer, J.F., Sale, E., Kasim, R., & Hermann, J. (2005). Understanding prevention effectiveness in real world settings: The National cross-site evaluation of high-risk youth programs. *American Journal on Drug and Alcohol Abuse* (31), 491-519.
- Schaps, E & Solomon, D. (2003). The role of the school's social environment in preventing student drug use. *Journal of Primary Prevention*, 33(3), 299-328.
- Seidman, E. (1987). Toward a framework for primary prevention research. In J. Steinberg & M. Silverman (Eds.), *Preventing Mental Disorders: A Research Perspective*. Rockville, Maryland: US Department of Health and Human Services: National Institute of Mental Health.
- Silburn, S. (1999). Framework for conceptualizing youth suicide prevention. *Youth Suicide Prevention Bulletin*. Australian Institute of Family Studies. No. 2, 21 – 24.
- Skager, R. & Austin, G. (2004). 10th Biennial California student survey; Drug, alcohol and tobacco use 2003-04. Sacramento, California Attorney General's Office. Retrieved November 22, 2005 from <http://safestate.org>.
- Springer, J. F., & Phillips, J. (2006). The IOM Model: A Tool for prevention planning and implementation. *Prevention Tactic* 8:13. Sacramento, California: Department of Alcohol and Drug Programs.
- Springer, J. F., Sale, E., Hermann, J., Sambrano, S., Kasim, R. & Nistler, M. (2004). Characteristics of effective substance abuse prevention programs for high-risk youth. *Journal of Primary Prevention* 25(2), 171-195.
- Springer, J. F., Sale, E., Kasim, R., Winter, W., Sambrano, S., & Chipungu, S. (2005). Effectiveness of culturally specific approaches to substance abuse prevention: Findings from CSAP's national cross-site evaluation of high-risk youth programs. *Journal of Ethnic and Cultural Diversity in Social Work* 13 (3), 1-23.
- State of Rhode Island and Providence Plantations Department of Mental Health, Retardation, and Hospitals. (2005). Rules and Regulations for the Certification of Substance Abuse Prevention Organization (Rhode Island General Laws §40.1-1-13). Rhode Island: Government Printing Office.
- Substance Abuse and Mental Health Services Administration. (2002). Designing and implementing effective prevention programs for youth at high risk. *Points of Prevention*, CSAP Monograph Series #3. Washington DC: U. S. Government Printing Office.
- Virginia DMHMRSAS's Office of Substance Abuse Services. (2003). Guidance Bulletin No. 2003-03. Virginia.
- Western Center for the Application of Prevention Technologies (WCAPT). (2005). Substance Abuse Prevention Specialist Training Curriculum. University of Nevada, Reno: College of Health and Human Sciences.

Resource

CSAP Evidence-Based Document

Identifying and Selecting Evidence-Based Interventions

**Guidance Document for the Strategic Prevention Framework
State Incentive Grant Program**



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Executive Summary

The purpose of this guidance is to assist State and community planners in applying the Substance Abuse and Mental Health Services Administration's (SAMHSA's) Strategic Prevention Framework (SPF) to identify and select evidence-based interventions that address local needs and reduce substance abuse problems.

Section I. Summarizes the five steps of SAMHSA's SPF and sets the stage for selecting evidence-based interventions to include in a comprehensive strategic plan.

Section II. Focuses on two analytic tasks included under the SPF: assessing local needs, resources, and readiness to act; and developing a community logic model. Explains the importance of these tasks in community planning to identify the best evidence-based interventions for specific local needs.

Section III. Details how prevention planners can apply the community logic model to determine the conceptual fit or relevance of prevention strategies that hold the greatest potential for affecting a substance abuse problem. Also discusses how to examine candidate interventions from the perspective of practical fit or appropriateness for local circumstances, contexts, and populations.

Section IV. Discusses the importance of strength of evidence in determining whether specific interventions work. Presents the three definitions of "evidence-based" status provided under the SPF SIG Program and the challenges of using each one to select prevention interventions. The three definitions of "evidence-based" status are as follows:

- Inclusion in a Federal List or Registry of evidence-based interventions;
- Being reported (with positive effects) in a peer-reviewed journal; or
- Documentation of effectiveness based on the guidelines listed below.

During 2005, SAMHSA/Center for Substance Abuse Prevention (CSAP) convened an Expert Workgroup to develop recommendations for evidence-based programming and guidelines to define documented effectiveness under the SPF SIG Program. Based on the recommendations of the Expert Workgroup, SAMHSA/CSAP recommends three guidelines for evidence—*all of which need to be demonstrated*—to document the effectiveness of complex or innovative interventions developed locally for a specific population and context. Taken together, the evidence guidelines for documented effectiveness are the following:

Guideline 1: The intervention is based on a solid theory or theoretical perspective that has been validated by research;

Guideline 2: The intervention is supported by a documented body of knowledge—a converging of empirical evidence of effectiveness—generated from similar or related interventions that indicate effectiveness; and

Guideline 3: The intervention is judged by a consensus among informed experts to be effective based on a combination of theory, research and practice experience. “Informed experts” may include key community prevention leaders, and elders or other respected leaders within indigenous cultures.

Section V. Summarizes the process of working through three considerations that determine the best fit of interventions to include in comprehensive prevention plans:

- Conceptual fit to the logic model: Is it relevant?
- Practical fit to the community’s needs and resources: Is it appropriate?
- Strength of evidence: Is it effective?

Section VI. Discusses the respective roles and expectations for SAMHSA/CSAP and SPF SIG States and their subrecipient communities, jurisdictions, and federally recognized tribes and tribal organizations to ensure the identification and selection of best fit evidence-based prevention interventions for each community.

I. Introduction

A. Background and Context

The Substance Abuse and Mental Health Services Administration (SAMHSA) envisions “a life in the community for everyone” and has as its mission “building resilience and facilitating recovery.” SAMHSA strives to achieve its mission through programs supported by three goals: accountability, capacity, and effectiveness. The Center for Substance Abuse Prevention (CSAP) helps to create healthy communities. SAMHSA/CSAP helps States to provide resources and assistance to communities so that communities, in turn, can prevent and reduce substance abuse and related problems. SAMHSA/CSAP also provides training, technical assistance, and funds to strengthen the State prevention systems that serve local communities. SAMHSA/CSAP works with States to identify programs, policies, and practices that are known to be effective in preventing and reducing substance abuse and related problems.

All of SAMHSA’s mission and goals are driven by strategic planning to align, manage, and account for priority programs and issues across the three Centers. Chief among SAMHSA’s priorities is the Strategic Prevention Framework (SPF)—a five-step planning process to guide the work of States and communities in their prevention activities.

- Step 1.** *Assess population needs (nature of the substance abuse problem, where it occurs, whom it affects, how it is manifested), the resources required to address the problem, and the readiness to act;*
- Step 2.** *Build capacity at State and community levels to address needs and problems identified in Step 1;*
- Step 3.** *Develop a comprehensive strategic plan. At the community level, the comprehensive plan articulates a vision for organizing specific prevention programs, policies, and practices to address substance abuse problems locally;*
- Step 4.** *Implement the evidence-based programs, practices, and policies identified in Step 3; and*
- Step 5.** *Monitor implementation, evaluate effectiveness, sustain effective activities, and improve or replace those that fail.*

Throughout all five steps, implementers of the SPF must address issues of cultural competence and sustainability. Cultural competence is important for eliminating disparities in services and programs offered to people of diverse racial, ethnic, and linguistic backgrounds, gender and sexual orientations, and those with disabilities. Cultural competence will improve the effectiveness of programs, policies, and practices selected for targeted populations.

Sustainability of outcomes is a goal established at the outset and addressed throughout each step of the SPF. Prevention planners at both State and local levels need to build systems and institutionalize the practices that will sustain prevention outcomes over time, beyond the life of any specific program.

Under the SPF State Incentive Grant (SIG) Program, prevention planners are specifically required to select and implement evidence-based interventions. SAMHSA/CSAP recognized that this requirement necessitates the availability of a broad array of evidence-based interventions and, further, must allow prevention planners the flexibility to decide which options best fit their local circumstances. To assist the field in meeting this requirement, SAMHSA/CSAP convened an Expert Workgroup during 2005 to develop recommendations and guidelines for selecting evidence-based interventions under the SPF SIG Program.

The Expert Workgroup was composed of nationally-recognized substance abuse prevention experts from a wide spectrum of academic backgrounds and theoretical research perspectives. The guidance presented in this document is grounded in the thinking and recommendations of the SAMHSA/CSAP Expert Workgroup.

B. Purpose of the Guidance

This guidance is directed to prevention planners working through SPF Steps 3 and 4 and to help them successfully select and implement evidence-based interventions. The guidance lays out an analytic process with a few key concepts to apply in selecting interventions that are conceptually and practically fitting and effective.

II. SPF Implications for Community Planning to Identify and Select Evidence-Based Interventions

A. Local Needs and Resource Assessment: Key Data Tool to Guide Community Planning

Prevention experts agree that substance abuse problems are usually best addressed locally—at the community level—because they are manifested locally. Yet some prevention approaches may be most effective when implemented on a larger scale, perhaps through a statewide change in laws (e.g., change in the alcohol index for driving under the influence). Experts also agree that substance abuse problems are among the most difficult social problems to prevent or reduce. Substance abuse problems require comprehensive solutions—a variety of intervention approaches directed to multiple opportunities.

The challenge of selecting the optimal mix of strategies is complicated by the limited availability of public resources on evidence-based interventions. In practice, practitioners seeking to reduce substance abuse problems will need to put together their own mix of interventions. The mix of interventions will need to fit the capacity, resources, and readiness of the community and its participating organizations. Some interventions in the comprehensive plan will demonstrate evidence of effectiveness using scientific standards and research methodologies, while others will demonstrate effectiveness based on less standardized or customized assessment. An optimal mix of strategies will combine *complementary and synergistic interventions* drawn from different resources and based on different types of evidence.

The needs and resource assessments in Step 1 will guide development of the comprehensive plan, from profiling the problem/population and the underlying factors/conditions that contribute to the problem, to checking the appropriateness of prevention strategies to include in the plan. *It is crucial to use local data and information to identify effective strategies that fit local capacity, resources, and readiness. However, finding local data is often difficult. Creative approaches to data sources, including the use of proxy measures and information gleaned through focus groups, may be necessary.*

B. The Community Logic Model: Key Conceptual Tool for Community Planning

The community logic model reflects the planning that needs to take place to generate community level change. Building the logic model begins with careful identification or mapping of the local substance abuse problem (and associated patterns of substance use and consequences) to the factors that contribute to them. *Developing the logic model starts with defining the substance abuse problem, not choosing the solutions, that is, the programs, practices, or policies already decided upon by States or communities.*

Since comprehensive plans combine a variety of strategies, it is important to understand the relationships between these problems and the factors or conditions that contribute to them. Few substance abuse problems are amenable to change through direct influence or attack. Rather, they are influenced *indirectly* through underlying factors that contribute to the problem and its initiation, escalation, and adverse consequences.

These factors include the following:

- *Risk and protective factors* that present themselves across the course of human development and make individuals and groups either more or less prone to substance abuse in certain social contexts.
- *Contributing conditions* implicated in the development of the problems and consequences associated with substance abuse. Examples may include specific local policies and practices, community realities, or population shifts.

Identifying risk and protective factors is central to determining the most promising strategies—programs, practices and policies—for addressing a substance abuse problem and its initiation, progression, frequency/quantity of use, and consequences of use.

Linking the substance abuse problem to the underlying factors, and ultimately to potentially effective prevention strategies, requires analysis and a conceptual tool. The logic model in Figure 1 serves as the *conceptual tool* to map the substance abuse phenomenon and the factors that drive it.

Figure 1. Community Logic Model, Outcomes-Based Prevention



Logic models lay out the community substance abuse problem and the key markers leading to that problem. They represent systematic plans for attacking local problems within a specific context. The community logic model makes explicit the rationale for selecting programs, policies, and practices to address the community's substance abuse problem. Used in this way, the logic model *becomes an important conceptual tool for planning a comprehensive and potentially effective prevention effort.*

Examples of Community Logic Models

The sample community-level logic models in Figures 1A and 1B illustrate the relationships between an identified substance abuse problem or consequence and the salient risk and protective factors/conditions that contribute to the problem. Each risk and protective factor/condition, in turn, highlights an *opportunity—or potential point of entry—for interventions* that can lead to positive outcomes in the targeted problem.

While different communities may show similar substance abuse problems, the underlying factors that contribute most to them will likely vary from community to community. Communities will tailor the logic model to fit their particular needs, capacities, and readiness to act.

Figure 1A. Community Logic Model for Preventing Alcohol-Involved Traffic Crashes (15- to 24-year-olds)

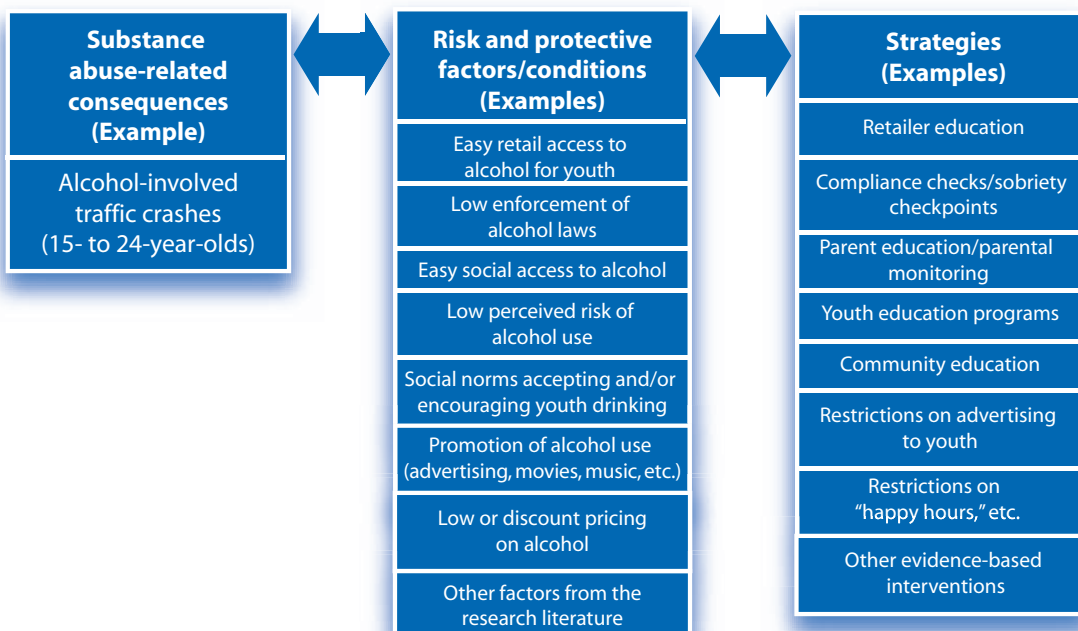
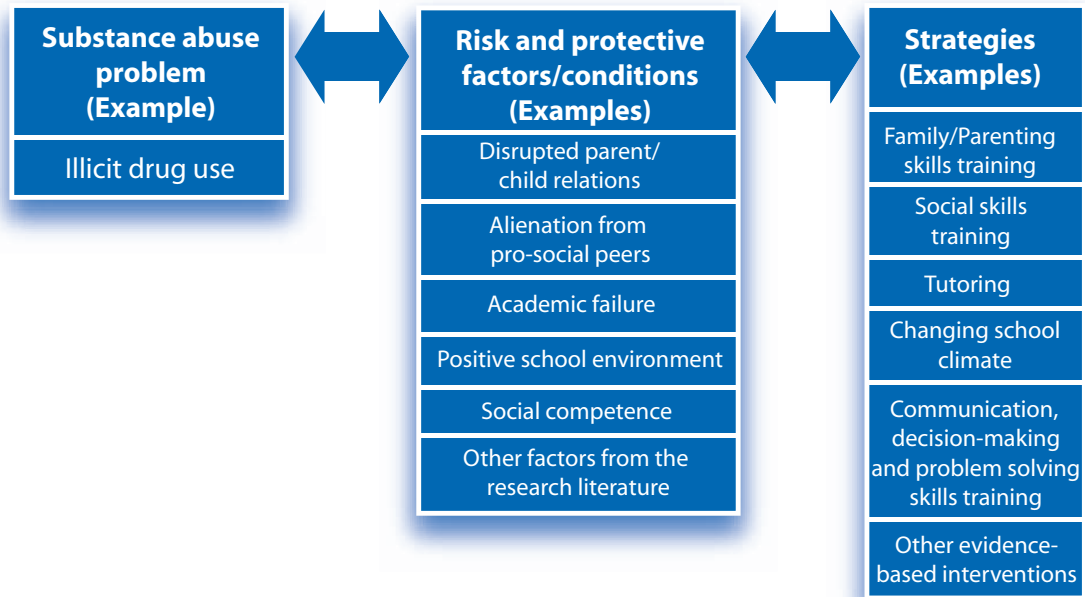


Figure 1B. Community Logic Model for Preventing Illicit Drug Use



III. Using the Community Logic Model and Assessment Information to Identify Best Fit Interventions

A. Establishing Conceptual Fit: Is It Relevant?

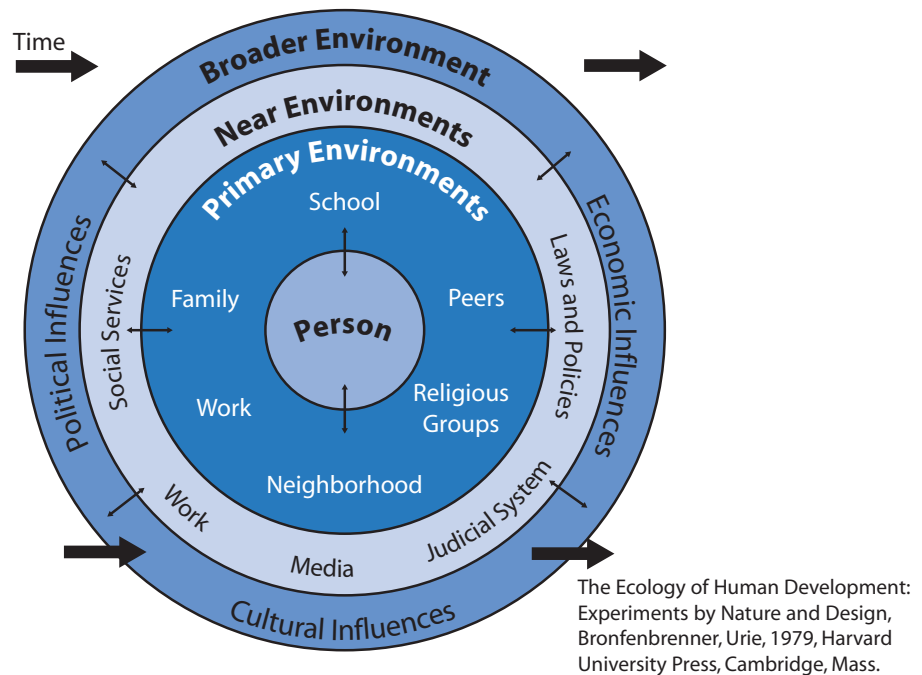
Relevance: If the prevention program, policy, or practice doesn't address the underlying risk and protective factors/conditions that contribute to the problem, then the intervention is unlikely to be effective in changing the substance abuse problem or behavior.

The community logic model can be used to guide the identification and selection of types of programs, practices, and policies for substance abuse prevention that are relevant for a particular community. Community logic models are tailored to reflect and meet the unique circumstances of a particular community. SAMHSA/CSAP expects SPF SIG States to develop an epidemiological profile and create an initial generic logic model. In turn, each community participating in the program will tailor the generic logic model to its needs.

Because substance abuse problems are complex, multiple factors and conditions will be implicated, some more strongly than others. Communities are encouraged to identify a comprehensive set of interventions directed to their most significant risk and protective factors/conditions and targeted to multiple points of entry. Figure 2 illustrates the Human Environmental Framework, one tool available to guide thinking about multiple points of entry for interventions directed to risk and protective factors across the life span and across social environments, and defining points of entry for interventions in different life sectors.

The community logic model can be used to check the conceptual fit of interventions to include in the comprehensive community plan. The logic model screens for the most appropriate types of interventions for a particular community.

Figure 2. Human Environmental Framework



This figure depicts social environments or spheres of influence in concentric circles that flare outward, moving progressively away from direct influence on the individual toward increasingly indirect influence, and advancing over time. A comprehensive intervention plan should identify a mix or layering of interventions that target salient risk and protective factors in multiple contexts across the life span.

B. Establishing Practical Fit: Is It Appropriate?

Appropriateness: If the prevention program, policy, or practice doesn't fit the community's capacity, resources, or readiness to act, then the community is unlikely to implement the intervention effectively.

A second important concept in selecting prevention interventions is practical fit with the capacity, resources, and readiness of the community itself and the organizations responsible for implementing interventions. Practical fit is assessed through a series of utility and feasibility checks that grow out of the needs/resource assessment and capacity-building activities conducted in SPF Steps 1 and 2.

SAMHSA/CSAP encourages practitioners to use their community assessment findings to judge the appropriateness of specific programs, policies, and practices deemed relevant to the factors

and conditions specified in the community logic model. Below is a list of utility and feasibility checks to consider in selecting prevention strategies.

Utility and Feasibility Checks

Utility Checks

- Is the intervention appropriate for the population identified in the community needs assessment and community logic model? Has the intervention been implemented successfully with the same or a similar population? Are the population differences likely to compromise the results?
- Is the intervention delivered in a setting similar to the one planned by the community? In what ways is the context different? Are the differences likely to compromise the intervention's effectiveness?
- Is the intervention culturally appropriate? Did members of the culturally identified group participate in developing it? Were intervention materials adapted to the culturally identified group?
- Are implementation materials (e.g., manuals, procedures) available to guide intervention implementation? Are training and technical assistance available to support implementation? Are monitoring or evaluation tools available to help track implementation quality?

Feasibility Checks

- Is the intervention culturally feasible, given the values of the community?
- Is the intervention politically feasible, given the local power structure and priorities of the implementing organization? Does the intervention match the mission, vision, and culture of the implementing organization?
- Is the intervention administratively feasible, given the policies and procedures of the implementing organization?
- Is the intervention technically feasible, given staff capabilities and time commitments and program resources?
- Is the intervention financially feasible, given the estimated costs of implementation (including costs for purchase of implementation materials and specialized training or technical assistance)?

Each of the points in the checklist warrants thoughtful consideration among those involved in planning, implementing, and evaluating the prevention strategies in the comprehensive community plan.

IV. Using Public Resources/Review Processes to Identify Evidence-Based Interventions and Determine Their Evidence Status

Evidence-Based Interventions and Evidence Status

Experts in the field agree that the *nature of evidence is continuous*. The strength of evidence or “evidence status” of tested interventions will fall somewhere along a continuum from weak to strong. Strength of evidence is traditionally assessed using established scientific standards and criteria for applying these standards. Strength of evidence comprises three major elements:

- Rigor of the study design (e.g., use of appropriate comparison and control groups; time series design).
- Rigor and appropriateness of the methods used to collect and analyze the data (e.g., whether data were collected in an unbiased manner and the statistical tests were appropriate).

These two elements directly affect the inferences that can be drawn about cause and effect—the degree to which the results obtained from an evaluation can be attributed to the intervention exclusively, rather than to other factors.

- The extent to which findings can be generalized to similar populations and settings. This element refers to the likelihood that the same findings will be obtained if the intervention is repeated in similar circumstances.

Strong evidence means that the intervention “works”—that it generates a pattern of positive outcomes attributed to the intervention itself, and that it reliably produces the same pattern of positive outcomes for certain populations under certain conditions.

Experts agree that evidence becomes “stronger” with replication and field testing in various circumstances. *However, experts do not agree on a specific minimum threshold of evidence or cutoff point below which evidence should be considered insufficient.* Nor do they agree whether little evidence is equivalent to no evidence at all. Even evidence from multiple studies may still be judged insufficient to resolve all doubts about the likely effectiveness of an intervention designed for a different population or situation.

This discussion takes us to the role of professional judgment and the application of critical thinking skills to determine overall best fit of interventions to include in a comprehensive community plan. Strength of evidence is critical to selecting interventions that are likely to work, but it is not the sole consideration. Keep in mind two practical criteria:

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1. Out of two interventions, choose the one for which there is stronger evidence of effectiveness, if the intervention is similar, equivalent, and equally well-matched to the community's unique circumstances.
 2. Reserve selecting an intervention with little or weak evidence of effectiveness for situations in which other interventions with stronger evidence do not fit local circumstances.

SPF Definitions of Evidence-Based Status

The SPF SIG Program specifically requires implementation of evidence-based interventions. Evidence-based interventions are defined in the SPF SIG Program by inclusion under one or more of three public resources/review mechanisms that rate, make judgments, or provide information about the strength of evidence supporting specific interventions. These definitions or resource mechanisms are as follows:

- Included on Federal Lists or Registries of evidence-based interventions;
- Reported (with positive effects) in peer-reviewed journals; or
- Documented effectiveness based on the three new guidelines for evidence.

Each of the three definitions helps identify evidence-based interventions and each presents its own advantages and challenges.

Regardless of the resource or review process, consumers must be prepared to think critically about the adequacy of evidence for interventions deemed relevant (conceptual fit) in the logic model and appropriate (practical fit) for real-world implementation.

A. Using Federal Lists or Registries

Federal Lists or Federal Registries are readily accessible and easy-to-use public resources. Historically, most Federal Lists or Registries are limited in scope since they are geared to interventions most amenable to assessment using traditional research designs and methodologies for evaluation. These interventions typically share certain characteristics:

- Discrete in scope;
- Guided by curricula or manuals;
- Implemented in defined settings or organized contexts; and
- Focused primarily on individuals, families, or defined settings.

Advantages

Federal Lists and Registries—

- Provide concise descriptions of discrete interventions;
- Provide documented ratings of strength of evidence measured against defined and generally accepted standards for scientific research;
- Present a variety of practical information, formatted and categorized for easy access, and potentially useful to implementers; and
- Offer “one-stop” convenience for those seeking quick information on certain types of interventions.

Challenges

Federal Lists and Registries—

- Include a limited number of interventions. Not all those eligible choose to apply. Also, the availability of funding may limit the number of interventions that can be reviewed and included in a Registry at any given time;
- Include the types of interventions most easily evaluated using traditional scientific standards and research methodologies. Historically, this has resulted in an overrepresentation of school-based and individual-focused interventions and an underrepresentation of environmental and community-based interventions;
- Use review criteria that emphasize the importance of internal validity (attribution of results to the intervention only) over external validity (ability to generalize to other populations, contexts, and real-world situations); and
- Confer misleading “global effectiveness labels” based on arbitrary cutoff points along an evidence continuum (sometimes with minuscule differences between those included in a particular category and those excluded) and often overgeneralize outcomes not measured in the study.

SAMHSA’s National Registry of Evidence-Based Programs and Practices (NREPP) is a decision support system designed to help stakeholders (including States and community-based organizations) select interventions. The NREPP reflects current thinking that States and communities are best positioned to decide what is most appropriate for their needs.

Scheduled to be up and running early in calendar year 2007, SAMHSA’s new NREPP will be available to local prevention providers and decision makers seeking to identify interventions that produce specific community outcomes. Reconceptualized as a decision-support tool, the new NREPP

represents a significant policy accommodation by SAMHSA on behalf of decision makers needing a more diverse set of options to address broader community problems.

Key points about NREPP are as follows:

- NREPP is a voluntary rating and classification system designed to provide the public with reliable information on the scientific basis and practicality of interventions that prevent and/or treat mental and substance use disorders.
- Outside experts will review and rate interventions on two dimensions: strength of evidence and dissemination capability. Strength of evidence is defined and assessed on six criteria; readiness for dissemination is defined and assessed on three criteria. Each criterion will be numerically rated on an ordinal scale ranging from zero to four.
- For all interventions reviewed, detailed descriptive information and the overall average rating score on each dimension (regardless of the rating score) will be included and posted on the NREPP Web site. Average scores achieved on each rating criterion within each dimension will also be available on the NREPP Web site (www.nrepp.samhsa.gov).
- NREPP allows a broader range of evaluation research designs to be eligible for review, including single group pre/posttest design without comparison or control data. However, to encourage the submission of interventions likely to receive strong reviews (i.e., those that demonstrate strength of evidence), NREPP establishes three minimum or threshold requirements that must be met:
 1. The intervention demonstrates one or more positive changes (outcomes) in mental health and/or substance use behavior among individuals, communities, or populations;
 2. Intervention results have been published in a peer-reviewed publication or documented in a comprehensive evaluation report; and
 3. Documentation (e.g., manuals, process guides, tools, training materials) of the intervention and its proper implementation is available to the public to facilitate dissemination.

In addition to the threshold evidence requirements, NREPP will award “priority review points” for quality of study design and for outcomes in designated content areas. Priority points increase the potential for qualifying applications to be selected for review. Interventions will receive one priority point if they have been evaluated using a quasi-experimental or experimental study design, including a pre/post design with comparison or control group, or longitudinal/time series design with a minimum of three data points, one of which must be a baseline assessment.

B. Using Peer-Reviewed Journals

Peer-reviewed journals present findings about what works and what does not. The burden for determining the applicability and credibility of the findings falls on the reader.

Advantages

Peer-reviewed journals—

- Preview new and emerging prevention strategies; highlight a program, practice, or local policy initiative for further follow-up directly with the intervention developer/ implementer;
- Report and summarize meta-analyses and other types of complex analyses (e.g., core components) that examine effectiveness across interventions or intervention components; and
- Present detailed findings and analyses that illuminate whether or not and how an intervention works.

Challenges

Peer-reviewed journals—

- Leave it to the reader to assess the credibility of evidence presented and its relevance and applicability to the community;
- Describe in limited detail the activities and implementation issues pertinent to dissemination; and
- Emphasize the importance of internal validity (attribution of results to the intervention) over external validity (generalizability to different populations and contexts).

Assessing Elements of Evidence Reported in Peer-Reviewed Journals

Using the primary research literature to identify potential prevention interventions requires critical assessment of the quality of the research presented and the conceptual model on which it is based. Listed below are key elements addressed in most peer-reviewed journal articles along with some question probes. Critical consumers of information presented in peer-reviewed journals should be prepared to read each article at least twice.

- *Background on the intervention evaluated in the study.* Does the article adequately set the stage for the study and describe why the study was undertaken? Does it adequately describe the intervention? The characteristics of the populations involved in the study? The context or setting of the intervention? How closely does the objective of the study reflect the needs of your community?

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- *A defined conceptual model that includes definitions and measures of intermediate and long-term outcomes.* Does the article describe the theory base of the intervention and link the theory to expectations about the way the program works and specific outcomes expected? Does the article describe the connection of theory to intervention approach and activities, and to expected outcomes, in sufficient detail to guide your implementation?
 - *A well-described study population that includes baseline or “pre” measurement of the study population and comparison or control groups included in the study.* Does the article describe the characteristics of the study population and comparison/control groups? How well does the study population match your local target group? How are they similar or different?
 - *Overall quality of study design and data collection methods.* Does the overall study design adequately rule out competing explanations for the findings? Did the data collection methods account for participant attrition? Missing data? Data collector bias and selection bias? Did the study methodology use a combination of strategies to measure the same outcome using different sources (converging evidence)? Is the overall study design sufficiently robust to show that the intervention worked?
 - *Analytic plan and presentation of the findings.* Does the analytic plan address the questions posed in the study? Does the article report and clearly describe findings/outcomes and do they track with what was expected?
 - *A summary and discussion of the findings.* Does the discussion draw inferences and conclusions that are appropriate and grounded in the findings and strength of the overall study design?

C. Using Guidelines for Documented Evidence of Effectiveness

Some *complex interventions*, which usually include innovations developed locally, look different from most of those in Federal Lists and Registries. Because complex interventions exhibit qualities different from those of discrete and manualized interventions, they may require customized assessment. Complex interventions may exhibit certain characteristics that make them difficult to evaluate and measure:

- A multifaceted approach with interacting components;
- Inclusive outreach across populations and settings—targeting heterogeneous groups of participants, spanning a range of settings, and extending across multiple levels of organization;
- A philosophy that values adaptation in response to unique community needs and opportunities;

-
- Reliance on the involvement of committed individuals who provide informal services that go beyond those planned; and
 - A flexible intervention design that responds readily to unpredictable and changing community circumstances.

SPF SIG Program Guidelines for Documented Effectiveness

The SAMHSA/CSAP Expert Workgroup recommended taking a broad view toward judging the adequacy of evidence for complex interventions. It recommended using different types or streams of evidence, drawing from traditional research-designed evaluation studies as well as accumulated local empirical data, established theory, professional experience, and indigenous local knowledge and practitioner experience.

Central to the Expert Workgroup's recommendations is the concept of blending—combining multiple streams of evidence to support an optimal mix of interventions to include in a comprehensive community plan.

The Expert Workgroup recognized that evidence provided as support for community-based interventions must reflect certain characteristics to be credible and persuasive. These characteristics are captured in three guidelines for evidence *all of which must be met to demonstrate “documented effectiveness” under the SPF SIG Program*:

Guideline 1: The intervention is based on a solid theory or theoretical perspective that has been validated by research;

Guideline 2: The intervention is supported by a documented body of knowledge—a converging accumulation of empirical evidence of effectiveness—generated from similar or related interventions that indicate effectiveness; and

Guideline 3: The intervention is judged by a consensus among informed experts to be effective based on a combination of theory, research, and practice experience. Informed experts may include key community prevention leaders, and elders or other respected leaders within indigenous cultures.

These guidelines are intended to expand the array of interventions available to prevention planners; they are considered supplements, not replacements, for traditional scientific standards in Federal evidence-rating systems or peer-reviewed journals.

Communities are encouraged to use as many types of documentation as possible to justify selecting a particular complex, evidence-based intervention.

Notice that these guidelines do not specify a minimum threshold level of evidence of effectiveness. They rely instead on professional judgment to determine the adequacy of evidence to meet these three guidelines when considered in the broader context of the comprehensive community plan.

Advantages

Guidelines for documented evidence of effectiveness—

- Enable State and community planners to diversify the portfolio of strategies incorporated in a comprehensive plan; ensure flexibility for those making programming decisions;
- Empower State and community planners to select or develop innovative, complex interventions to meet the needs of individual communities;
- Create the potential for using culturally based evidence as well as traditional evidence to support local decisions; and
- Authorize State and community planners to exercise professional judgment in deciding the potential contribution of unique intervention components in the comprehensive plan.

Challenges

Guidelines for documented evidence of effectiveness—

- Place substantial responsibility on prevention planners for intervention selection decisions. The guidelines are new and are neither simple nor simplistic; and
- Require prevention planners to think critically about the evidence provided to support the inclusion of a particular intervention in the community's comprehensive plan.

Examples of Evidence to Support Documented Effectiveness

Several types of evidence may be used to support documented effectiveness as defined under the SPF SIG Program. Documentation is important to justify the inclusion of a particular intervention in a comprehensive community plan. Prevention planners are encouraged to provide as many types of documentation as are appropriate and feasible in order to provide strong justification of documented effectiveness. The following are types of documented evidence that may be used to demonstrate documented effectiveness:

- Documentation that clarifies and explains how the intervention is similar in theory, content, and structure to interventions that are considered evidence-based by scientific standards.
- Documentation that the intervention has been used by the community through multiple iterations, and data collected indicating its effectiveness.
- Documentation that indicates how the proposed intervention adequately addresses elements of evidence usually addressed in peer-reviewed journal articles. These elements may include the nature and quality of the evaluation research design; the consistency of findings across multiple studies; and the nature and quality of the data collection methods, including attention to missing data and possible sources of bias.

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- Documentation that explains how the proposed intervention is based on an established theory that has been tested and empirically supported in multiple studies. This documentation should include an intervention-specific logic model that details how the proposed intervention applies and incorporates the established theory.
 - Documentation that explains how the proposed intervention is based on published principles of prevention. This documentation should provide references for the principles cited and should explain how the proposed intervention incorporates and applies these principles.
 - Documentation that describes and explains how the intervention is rooted in the indigenous culture and tradition.

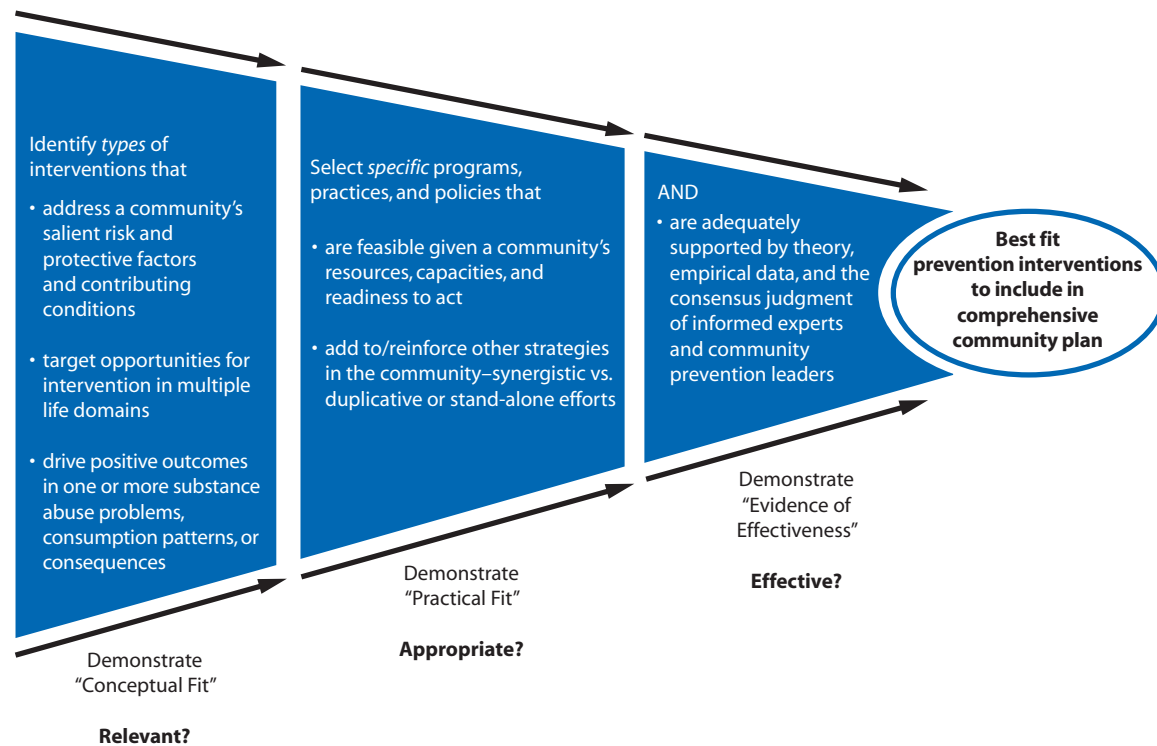
V. Summary Process Description: Selecting Best Fit Prevention Interventions

The process described here is rooted in the work conducted by local communities during SPF Steps 1 and 2. It begins with a community logic model to map the local substance abuse picture and draws from the findings of local needs and resource assessment. Prevention planners apply the logic model and assessment findings in a process of thinking critically and systematically about three considerations that determine best fit interventions to include in a comprehensive plan:

- Conceptual fit with the community's logic model (is it relevant?);
- Practical fit with the community's needs, resources, and readiness to act (is it appropriate?); and
- Evidence of effectiveness (is it effective?).

Figure 3 depicts the process for thinking through these key considerations.

Figure 3. Process Description: Selecting Best Fit Prevention Interventions



VI. SPF SIG Program Guidance: Roles and Expectations

Collaboration and partnership across all levels—Federal, State, and community or local grantee—are essential for successful and flexible implementation of the guidance in this document. The guidance details an analytic process and a few key concepts—*what needs to be done* to think through the selection of best fit evidence-based prevention interventions. *How this is accomplished* will be determined by States and jurisdictions and will vary from one to another. SAMHSA/CSAP’s technical assistance providers are available to work with States and jurisdictions to apply the process and concepts detailed in the guidance.

A. Federal Role

SAMHSA/CSAP will provide leadership and technical assistance to States and jurisdictions and will work with them to strengthen prevention systems in order to improve substance use outcomes and achieve targeted community change.

Expectations

- SAMHSA/CSAP will partner with States to develop and implement a plan that facilitates application of the guidance.
- SAMHSA/CSAP, with its technical assistance providers, will work with States to develop their system capacities to support communities in selecting interventions. To this end, SAMHSA/CSAP has directed its five regional Centers for the Application of Prevention Technologies (CAPTs) to allocate substantial technical assistance resources for States to apply the concepts in this guidance. At the request of States, CAPTs will conduct workshops and activities to help States work with communities to identify and select suitable and effective evidence-based interventions.

B. State/Jurisdiction Role

The role of the States and jurisdictions is to provide capacity-building activities, tools, and resources to communities to foster the development of sound community prevention systems and prevention strategies.

Expectations

- SAMHSA/CSAP expects States funded under the SPF SIG Program to strengthen their infrastructure and capacity to assist communities in identifying and selecting evidence-based interventions for their comprehensive plans. To accomplish this, SAMHSA/CSAP expects States to establish a mechanism (e.g., technical expert panel) to assure accountability for: reviewing comprehensive community plans and the justification for interventions included in the plan; identifying issues and problematic intervention selections; and targeting technical assistance to work with communities to improve and strengthen their community plans.

In thinking about the implications of this guidance, States may want to consider the questions below:

How might your State engage informed experts, including community leaders, in applying the concepts in the guidance for funding comprehensive community plans (programs, practices, and policies) selected by your communities?

How might your State communicate its policies regarding funding and implementation of evidence-based programs, practices, and policies to community coalitions and organizations and other key stakeholders?

- SAMHSA/CSAP expects States, with their technical assistance providers, to work closely with communities in identifying and selecting evidence-based interventions. SAMHSA/CSAP and its technical assistance providers will work directly with States on this task.
- SAMHSA/CSAP expects States to develop capacities to assist communities on all key SPF topics, including assessing needs and resources; using data to detail the substance abuse problem and underlying factors and conditions; building a community logic model; and examining intervention options for relevance and appropriateness.

C. Community Role

The role of SPF SIG subrecipient communities is to develop a comprehensive and strategic community prevention plan based on local needs and resource assessment. Following the steps of the SPF, communities use the findings from these activities to develop a logic model specific to the community and its substance abuse problem. Each community logic model reflects and maps the local substance abuse phenomenon. An effective logic model may serve as the primary tool to guide the selection of evidence-based programs, practices, and policies to include in a comprehensive plan.

Expectations

- SAMHSA/CSAP expects communities to partner with the State and its technical assistance providers, who in turn will partner with SAMHSA/CSAP and CSAP's technical assistance providers.

Concluding Comments

As in all steps of SAMHSA's Strategic Prevention Framework, the application of critical thinking skills is vital to selecting programs, practices, and policies to include in a comprehensive strategic plan. Those selected must be relevant, appropriate, and effective to meet community needs and address the community substance abuse problem. SAMHSA/CSAP and its technical assistance providers welcome the opportunity to partner with SPF SIG States, jurisdictions, and federally recognized tribes and tribal organizations through technical assistance workshops and "science to service" learning communities to think through the selection of best fit evidence-based prevention interventions.

GLOSSARY

Best fit interventions	Interventions that are relevant to the community logic model (i.e., directed to the risk and protective factors most at play in a community) and appropriate to the community's needs, resources, and readiness to act.
Community logic model	A graphic depiction or map of the relationships between the local substance abuse problem, the risk/protective factors and conditions that contribute to it, and the interventions known to be effective in altering those underlying factors and conditions.
Conceptual fit	The degree to which an intervention targets the risk and protective factors that contribute to or influence the identified community substance abuse problem.
Documented effectiveness	Defined under the SPF SIG Program by guidelines for evidence to demonstrate intervention effectiveness. These guidelines include grounding in solid theory, a positive empirical track record, and the consensus judgment of informed experts and community prevention leaders.
Epidemiological profile	A summary and characterization of the consumption (use) patterns and consequences of the abuse of alcohol, tobacco, marijuana, heroin, cocaine, methamphetamines, inhalants, prescription drugs, or other substances. The epidemiological profile identifies the sources of data on consumption patterns as well as the indicators used to identify consequences (e.g., morbidity and mortality). It should provide a concise, clear picture of the burden of substance abuse in the State using tables, graphs, and words as appropriate to communicate this burden to a wide range of stakeholders.
Evidence-based interventions	Interventions based on a strong theory or conceptual framework that comprise activities grounded in that theory or framework and that produce empirically verifiable positive outcomes when well implemented.
Evidence-based status— SPF SIG program	Defined by inclusion through one or more of three public resources or review processes that make judgments and provide information about the strength of evidence for intervention selections:

	<ul style="list-style-type: none"> ● Included on Federal Lists or Registries of evidence-based interventions; ● Reported (with positive outcomes) in peer-reviewed journals; or ● Documented effectiveness based on guidelines developed by SAMHSA/CSAP.
Evidence status or strength of evidence	Refers to the continuum of evidence quality which ranges from weak to strong. Strong evidence means that the positive outcomes assessed are attributable to the intervention rather than extraneous events and that the intervention reliably produces the same pattern of positive outcomes in similar populations and contexts. Strong evidence means that the intervention works.
External validity	The extent to which evaluation outcomes will be achieved in populations, settings, and timeframes beyond those involved in the study; the likelihood that the same pattern of outcomes will be obtained when the intervention is implemented with similar populations and in similar contexts.
Internal validity	The extent to which the reported outcomes can be unambiguously attributed to the intervention rather than to other competing events or extraneous factors.
Interventions	Interventions encompass programs, practices, policies, and strategies that affect individuals, groups of individuals, or entire communities.
Outcomes-based prevention	An approach to prevention planning that begins with a solid understanding of a substance abuse problem, progresses to identify and analyze factors/conditions that contribute to the problem, and finally matches intervention approaches to these factors/conditions ultimately leading to changes in the identified problem, i.e., behavioral outcomes.
Practical fit	The degree to which an intervention meets the resources and capacities of the community and coincides with or matches the community's readiness to take action.
Protective factors	Conditions for an individual, group, or community that decrease the likelihood of substance abuse problems and buffer the risks of substance abuse.
Risk factors	Conditions for an individual, group, or community that increase the likelihood of a substance abuse problem.



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