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## **Normalization of Prevention Principles and Practices to Reduce Substance Use Disorders**

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## Abstract

Major research breakthroughs over the past 30 years in the field of psychoactive substance use prevention research have served to: (1) improve understanding of pharmacological effects on the central nervous system and the health and social consequences of the use of these substances, particularly for children and adolescents, (2) delineate the determinants and processes that increase vulnerability to or, conversely, protect from the initiation of psychoactive substance use and progression to substance use disorder (SUD) and based on this understanding, (3) develop effective strategies to prevent the initiation and progression of psychoactive substance use.

The challenge we now face is incorporating what we have learned from this research into the mindsets and work of those involved in supporting, planning and delivering prevention programming to populations around the world and integrating these scientific advances into existing service systems and, where applicable, within everyday life, i.e., to normalize them. Dissemination and implementation science provides a framework for this solid prevention research to fully achieve its potential.

(Key words: substance use, prevention, effective strategies, service system, normalization, vulnerability, registries)

## Introduction

The accumulation of knowledge regarding the causes and pathways to initiation of psychoactive substance use<sup>1</sup> and the progression from substance use to misuse and substance use disorders has implicated an interrelationship between individual personal characteristics (e.g. psychological factors, physical and cognitive development), genetics, and socioenvironmental factors (e.g., parenting, family and school bonding, community norms) (Logan-Greene et al., 2019; Rose et al., 2019; Viranen et al., 2021). This understanding of individual and environmental vulnerability has led to the development of a number of interventions that are effective not only for preventing substance use but also other problem behaviors (Allen et al., 2016; Faggiano et al., 2014a; MacArthur et al., 2018. Astor et al., 2019; Paschall and Grube, 2020; Paschall et al., 2009). Thus far, the prevention field has been challenged to incorporate these evidence-based interventions and policies into their own work and into the work of other health and social service professionals who address such problems in schools and communities. In addition, key influencers, such as policymakers and public officials, parents and educators, have lagged in understanding the promise and potential that these findings offer. Our goal here is to normalize them for our primary audience of prevention professionals in practice and the socializing agents of families, schools, and communities they serve.

This paper reviews and summarizes the accumulated knowledge regarding factors and processes that reinforce and build resilience in families and children to support and enhance positive, healthy, and productive communities. It then addresses the challenges of putting evidence-based prevention interventions and policies to work including developing a ‘culture’ of prevention, identifying the ‘core components’ of these effective interventions that can be integrated into everyday life and how best to incorporate them into practice, including the three primary targets for this information: prevention professionals, other health and social service professionals who deliver prevention programming, and the general population, primarily parents and teachers but also policy makers and law enforcement agencies. Finally,

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<sup>1</sup> Psychoactive substances when taken in or administered into one's system, affect mental processes, e.g. perception, consciousness, cognition or mood and emotions and include alcohol, nicotine, caffeine, cannabis, opiates, cocaine, etc.

we suggest future research foci to determine how best to integrate effective prevention strategies into existing service delivery systems.

### The Current Status of Substance Use Prevention

#### Vulnerability Mechanisms

The findings from longitudinal studies on adolescents initiated in the mid-1970's (e.g., Brook et al., 1989; Huba et al., 1981; Kandel and Logan, 1984) were summarized by David Hawkins and his colleagues (1992) at the University of Washington in a major paper that outlined indicators of risk associated with the initiation of substance use, and, to a lesser extent, factors that exert a protective effect against such use. These factors have been confirmed and added to in subsequent research (Hopfer et al., 2003; Rhee et al., 2003; Stone et al., 2012).

While risk and protective factors have become a more salient prevention approach being used in communities, there may not be an awareness among prevention professionals about the science underlying the processes that put individuals at risk or protect them from engagement in behaviors that impact their social, emotional, and physical health (e.g., Brook et al., 1989; Fishbein and Dariotis, 2019; Huba et al., 1981; Kandel and Logan, 1984; Sloboda, 2018; Trucco and Hartmann, 2021). This work has formed the basis for common liability models that show the relationships between psychosocial and environmental factors. It is this liability that manifests as the risk of initiating substance use, progressing to the use of other substances and onto a trajectory to having a substance use disorder (e.g., Vanyukov et al., 2012).

In addition to these liability models, there has been an improved understanding of the neurobiological factors that occur in the brain once psychoactive substance use occurs. In her original epidemiological research, Kandel (1975) presented the concept of developmental stages of psychoactive substances from the use of nicotine and alcohol to cannabis and cocaine. She has pursued the pharmacological mechanisms underlying this epidemiological association in the laboratory particularly between nicotine and cocaine (Kandel and Kandel, 2014). Indeed, it may not be an 'either-or' explanation but a combination of social, behavioral and neurobiological factors at work that leads to the initiation and progression of use (Lindsay and Rainey, 1997).

We now understand the mechanisms that impact vulnerabilities to substance use as the interface of individual liabilities with micro- and macro-level environments across the life span. Sloboda et al. (2012); Sloboda (2018) and Fishbein and Ridenour (2016) address the interface of individual characteristics or liability and the micro- and macro-level environments that include family and economic and public/social policy, respectively. It is the interface of these environments and individual characteristics that define risk or protection, thus linking back to the work of Hawkins and colleagues (1992).

### Professional Resources

Understanding these mechanisms assists professionals in the selection of appropriate evidence-based preventive interventions that map to individual and contextual influences at the family, community and systems levels. These multiple mechanisms at work also mean that multiple interrelated or systems of prevention services may be needed for any defined population. The publication of the *International Standards on Drug Use Prevention* by the United Nations Office on Drugs and Crime (UNODC) and the World Health Organization (WHO) (2013; 2018) is a resource that can provide guidance to policy makers and practitioners regarding “key ingredients’ of evidence-based preventive interventions and policies salient to any given community, as well as their availability, executability, and scalability (Campello et al., 2014).

Although the Standards and registries (e.g. Blueprints for Healthy Development (<https://www.blueprintsprograms.org/>), California Evidence Based Clearinghouse (<https://www.cebc4cw.org/topic/substance-abuse-prevention-child-adolescent-programs/>), EMCDDA Xchange Prevention registry (<https://www.emcdda.europa.eu/best-practice/xchange>)) are available, many prevention professionals are not familiar with them or, if they are, have not used them (Burkhardt et al., 2015; Means et al., 2015). This may be because registries have historically focused on efficacy rather than effectiveness and a practice’s ease of adoption or scaling up (Buckley, 2020).

In addition to increasing the availability of evidence-based interventions and policies, prevention researchers have developed tools to screen those at risk to determine the extent of liability and vulnerability, such as the Drug Use Screening Inventory

(<https://www.einsight.net/solutions/dusi/>), and the Problem Oriented Screening Instrument for Teenagers (<https://www.emcdda.europa.eu/html.cfm/index4439EN.html>) that identify problem behaviors and risk status of adolescents, or the Youth Risk Index ([personalytics.rti.org/](http://personalytics.rti.org/)) that provides measures of propensity or risk for problem health behaviors and addresses the needs of younger children aged 9 to 13 (Ridenour et al., 2015). These tools—if used by trained school staff, health and prevention professionals and others who counsel children and adolescents—provide guidance for ‘next steps’ to address any imminent behavioral or substance use problem. Survey tools based on the experiences of national surveys are now available to examine the epidemiology of substance use within any given population. Examples of these research tools are the U.S. Youth Risk Behavioral Survey from the Centers for Disease Control (<https://www.cdc.gov/healthyyouth/data/yrbs/index.htm>), Monitoring the Future, The Annual Household Survey on Drug Use and Health, and in Europe the European School Survey Project on Alcohol and Other Drugs (<http://espad.org/>).

#### Research-into-Practice: Targets for Normalization

In summary, over the past 40 years, there has been an incremental building of information and products to enhance prevention efforts at multiple levels. The challenge is how to best expand their use and ensure they are implemented with fidelity by end-users. The only available studies on the adoption of research-based or evidence-based preventive interventions were conducted by Hallfors and Godette (2002) and Ringwalt and colleagues (2002; 2008; 2009; 2011) for the US. These researchers conducted surveys with administrators of a representative sample of schools in the US and found that even when the delivery of research-based prevention programming was mandated, and at times funded, the adoption of these programs occurred in less than half of middle schools and less than 20% of high schools. There remains a large divide between research and practice.

There are three end user groups to whom normalization of prevention efforts might be aimed. The first two are the prevention ‘workforce’ which includes not only those who self-identify as prevention professionals/specialists, but also those who are delivering prevention services



while not self-identifying as prevention professionals, such as social workers, family service providers, educators, and health professionals as well as policy makers and law enforcement agencies. These groupings should also consider students who may enroll in the ever-growing graduate programs in prevention science or in related fields (e.g., social work, sociology, psychology, public health) that are essentially prevention-oriented (Pavlovská et al., 2019).

The third are those who socialize human beings from birth to death by shaping belief systems, attitudes, and behaviors relative to our social, emotional, and physical health. These socialization agents are found in our micro-level environments to include parents and family, educators, members of faith-based communities, peers and colleagues at work and our macro-level environments encompassing rules, regulations and laws at all governmental levels as well as our physical and socio-economic-cultural milieus.

#### Challenges of Putting Evidence-Based Prevention Interventions and Policies to Work

The literature lays out three primary challenges in incorporating into practice what we know works from research. The first is developing a 'culture' that supports a nurturing society (Biglan and Embry, 2013; Biglan et al., 2017; Crowley and Jones, 2017; Wilson et al., 2014). The second is identifying what should be 'translated'. Embry and Biglan (2008) have identified 'core components' or 'kernels' such as verbal praise or time outs at the individual level and taxation at the policy level that can be integrated into everyday life. The third is communicating these ideas via credible messaging that supports their ability to improve lives of children and adults, to demonstrate when and how to incorporate them into practice and to supply 'behavioral' indicators of successful implementation (Biglan et al., 2020).

This challenge is not unique for substance use prevention (e.g., Garcia and Calantone, 2002; Sloboda et al., 2014). Over the past two decades, there has been a focus in the social and health services arenas, including the prevention field in general, on the delivery of evidence-based interventions (EBIs) grounded in rigorous evaluations and research. This push to promote dissemination and diffusion of EBIs as rapidly as possible has given rise to a new field of study called implementation science (Madon et al., 2007). Eccles and colleagues (2009) define implementation research as "the scientific study of methods to promote the systematic uptake

of clinical research findings and other evidence-based practices into routine practice, and hence to improve the quality (effectiveness, reliability, safety, appropriateness, equity, efficiency) of health care. It includes the study of influences on healthcare professional and organizational behavior.” Implementation science integrates and extends a number of disciplines, including operations research, health services research, industrial engineering, and management science (Schackman, 2010), but it also draws from a range of other related disciplines, including decision science, epidemiology, statistics, ethics, sociology, anthropology, and economics (Sloboda et al., 2014). Implementation science includes a number of constructs that are relevant such as normalization process theory and approaches that build on Rogers’ Diffusion of Innovation Theory (Rogers, 1995). These efforts attempt to identify factors that enhance or deter the adoption and implementation of innovations, particularly those that involve the uptake of evidence-based preventive interventions and policies.

The processes of implementation are illustrated in the Consolidated Framework for Implementation Research (Damschroder et al., 2009; Kirk et al., 2015) which assumes that in any complex intervention there are core components that are essential and others that can be adapted to the individuals involved within the setting (both societal and organizational) which they inhabit. The process of implementation takes into context the environment, the practice, and the dissemination and implementation support activities that are necessary to bring evidence to widescale use.

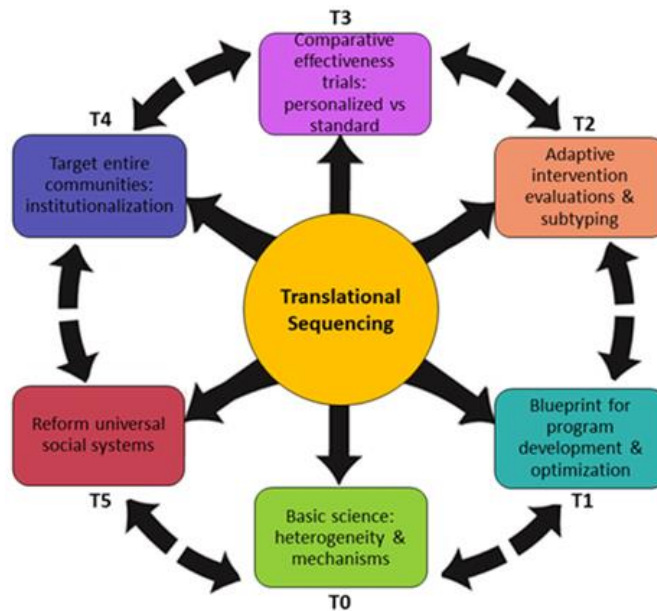
Meta-analyses have been conducted around several diffusion and dissemination processes, such as the use of printed educational materials (Farmer et al., 2008), professional guidelines (Grimshaw et al., 2006), educational outreach visits (O’Brien et al., 2007), continuing education meetings and workshops (Forsetlund et al., 2009), and audit and feedback procedures (Ivers et al., 2012). All of these reviews found small effects of the strategy employed and recommended employing combinations of these strategies (Grimshaw et al., 2006). Although no formal evaluations of these systems have been conducted, studies of the adoption of recommended interventions indicate that only a small percentage of the targeted providers actually incorporate them into practice (e.g., Brownson et al., 2007; Hallfors et al., 2007; Ringwalt et al., 2002, 2008).

The prevention field has developed several complex systems approaches that have demonstrated success in the implementation of evidence-based prevention strategies, including the Getting to Outcomes (Chinman et al., 2008), Communities That Care (Fagan et al., 2011), and PROSPER (Crowley et al, 2012). The research of Palinkas and colleagues (2020) support the importance of collaborations as important elements of sustainability. These systems approaches provide both guidance and tools necessary to identify and define the problem of concern and provide interventions that have potential to ameliorate the targeted problem. However, these programs also face obstacles, not only in the availability of resources needed to integrate evidence-based strategies into ongoing programming, but also the acceptance and embrace of new content or delivery strategies. Minor changes in already existing delivery processes for instance will generally be better received than major changes requiring in-depth training. The intervention itself is not only important in the dissemination phase of the implementation process, but has implications at all phases (Chambers et al., 2013).

Fishbein and colleagues (2016) have laid out a spectrum of translational phases to facilitate the process of implementing successful prevention programming into routine practice and policy reforms to influence behavioral problems. The spectrum begins with the translation of basic science findings to develop more targeted programs, to efficacy and effectiveness trials that determine best fit for different subgroups, to 'real world' application, to scaling-out supported by policy reform, and finally to the sustainable transformation of social systems. (See Figure 1)

The bi- and multi-directional arrows suggest interactions among basic and prevention researchers, policy makers, and practitioners. Although not addressed specifically, the approach also suggests that there is a coordinating body(ies) to mobilize these efforts.

Figure 1 Spectrum Of Translational Phases



One of the most successful approaches to implementation and sustainability is that developed by Fixsen and Blase (2008) that are summarized in Figure 2. In this model implementation drivers are the ‘drivers of change’. The three depicted here: competency drivers, organizational drivers, and leadership drivers have been demonstrated to be associated with the adoption of an ‘innovation’ and the extent to which the adoption is implemented and sustained over time.

Figure 2: Drivers of Change



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Examples of these successes include Motivational Interviewing (e.g., Miller et al, 2004; Martino et al., 2008); Positive Behavioral Interventions and Supports McIntosh et al. (2016); and Behavioral Health Care Practices (Margolies et al. 2017). All three disseminate information to support 1) the use of the intervention itself and 2) the use of implementation best practices for training, coaching, fidelity assessment, organization/management, leadership, and system support. Users with intervention expertise become the best trainers, coaches, fidelity assessors, etc. with the additional support for learning implementation skills (e.g., Ogden et al., 2005). They already know the intervention (e.g., met fidelity criteria multiple times) and “only” have to learn e.g., coaching skills or fidelity assessment skills. While this approach has been successful, the resources and time that has been required to normalize their practice has been immense and issues of fidelity remain (Hall et al., 2016).

Another model of sustainability is normalization; i.e., the process of routinely embedding practices (in our case evidence-based prevention strategies) into everyday life. May and Finch (2009) suggest 4 domains for normalization: Coherence, Cognitive Participation, Collective Action, and Reflexive Monitoring. The Normalization Process group also has designed a tool kit that can be used to implement an innovative strategy and can identify barriers to implementation and suggests ways to overcome them (See May et al., 2015; May et al., 2022 or toolkit at (<https://normalization-process-theory.northumbria.ac.uk/about-us/>)). A more recent effort by the National Institutes of Health is the support of ‘pragmatic trials’ to further examine factors related to the implementation and sustainability of evidence-based practices in health care systems (Scheuer et al., 2022).

While there is still much to learn, a great deal of knowledge is available, yet unused. By merging prevention science with dissemination and implementation science, we can identify next steps to further reduce substance use and its negative impacts on children, families, communities and society at large. In the next section we identify three populations that would benefit most from what has been learned from prevention science and describe how to best to transfer this knowledge for implementation. These targeted groups are prevention professionals, other service professionals who deliver prevention programming, and the general public, primarily parents and teachers.

## Target Populations for Evidence-Based Preventive Interventions and Policies

### *Prevention Professionals*

The term prevention professionals here encompasses those professionals who are responsible for implementing preventive interventions or enforcing prevention policies. Prevention professionals do not all share the same training, either in terms of level (high school, college, or graduate school) or in discipline (e.g., sociology, psychology, public health, health education, social work). There has been an effort to address this problem with the Substance Abuse and Mental Health Services Administration (SAMHSA) developing the Substance Use Prevention Framework to provide a guide for prevention planning processes and the Prevention Core Competencies (SAMHSA, 2021). The framework provides a learning health system model that incorporates local data into an assessment of needs and resources that inform selection of evidence-based interventions that are targeted to local need. It outlines implementation strategies and issues and informs implementers on how to use data to apply continuous assessment to improve outcomes. The core competencies outline the expected knowledge, skills and attitudes for people who identify as prevention professionals. They are built around the domains of systems thinking, assessment, capacity building, planning, implementation science, and evaluation which match the elements of the prevention framework.

There has not been a universal movement to train prevention practitioners or students in professional schools in the field of prevention science. New efforts include the Universal Prevention Curriculum delivered through the Colombo Plan, the European Monitoring Centre on Drugs and Drug Addiction and the non-profit organization, Applied Prevention Science International. A growing number of universities have established degree programs based on prevention science (Pavlovská et al., 2019) however these remain primarily in the United States and the content of these programs varies. In the United States, the Prevention Technology Transfer Centers, established and funded by SAMHSA (<https://pttcnetwork.org/>) have initiated webinar series and self-paced courses around specific topics and are in the process of training

trainers across the 10 regional centers to provide a basic course in prevention science and its application to practice with a focus on SAMHSA's Core Competencies.

Through the International Certification and Reciprocity Consortium's (IC&RC) Prevention Think Tank, the field now has a code of ethics that is comparable to other professional groups. Still lacking for the field to be fully professionalized is a self-governing body of practitioners with the authority to define the issues prevention professionals address and how best to address them and to sanction professionals who do not abide by the procedures and code of ethics. Forty states in United States, the U.S. Army and Navy and the Indian Health Service have certifying and licensing boards requiring passing the IC&RC prevention specialist examination as a requirement (<https://internationalcredentialing.org/>). In addition six other countries offer certification and licensing in prevention based on the IC&RC examination.

However, there remain systemic, structural, and cultural issues that have yet to be addressed that could remain barriers to the support of prevention programming (Sumnall, 2019). Studies of the prevention workforce in the United States underscore some of the system and structural issues. High turnover rates and limited opportunities for advancement are consistent impediments for building the capacity of the prevention workforce (Center for Applied Research Solutions, 2013; Eby et al. 2010; Prevention Sub-Committee on the South Carolina Department of Alcohol and Other Drug Abuse Services, 2007; Spurlock et al., 2021). The lack of a formalized substance use prevention service delivery system with consistent funding and recognition makes prevention invisible in communities.

#### *Next steps for prevention professionals*

The design of a formal substance use prevention delivery system is developed and in place with professional standards, supported by a credentialing process that includes testing, experience and continuing education requirements, an education pathway to achieve the credentialing standards, and jobs in the government and education sectors. Normalization requires at least two additional steps. First is the expansion of the prevention workforce to include their participation as expected members of public health and school-based health teams addressing youth behavioral problems. Second is clarification of the range of duties for prevention

professionals, and whether they should maintain focus on primary prevention. There has been recent controversy as prevention professionals have been asked to assume tertiary prevention roles in preventing death due to overdose. This expansion of role has occurred without changes to the system design and will require adjustments to education, credentialing and training standards, as well as an increase in the workforce so that adequate attention can be maintained on primary prevention activities. Only by addressing these two issues will we move from a system design to a functional system.

### *Other Service Professionals Who Deliver Prevention Programming*

There has been a growing literature that integrates the implementation of evidence-based prevention programming into existing policies that address behavioral health issues (Fagan et al., 2019; Sims et al., 2019). Indeed the State of Ohio has supported the Pax Good Behavior Game (<https://www.goodbehaviorgame.org/pax-good-behavior-game>) and the State of Colorado supports Communities That Care (<https://www.chi-colorado.org/prevention/ctc/>). Another approach suggested by Biglan and Cody (2013) is the development of coalitions of behavioral researchers and organizations to support the concept of ‘nurturing communities’ that incorporate these programs. The literature on introducing innovative practices within the medical and social service professional communities has highlighted the challenges facing these groups around highly relevant practices (e.g., Aarons and Sommerfeld, 2012; Hearld et al. 2019; Meyers, 2020; Morago, 2010; Murad, 2017; Saunders et al., 2019). For instance, a review of articles listed on PubMed on these issues for clinical and social work practices revealed the following for the period 2000-2021.

First it should be noted that the terms “innovative” and “evidence-based” are fairly new to the social services field compared to clinical practice in general. In addition, there is some overlap across the search terms “dissemination”, “implementation” and “adoption” recognizing the need for clarifying terms and definitions. We see that over 4,000 articles on innovative clinical practice mention ‘implementation’ compared to almost 8,000 articles on evidence-based clinical practices whereas for the social services only 44 articles on innovative social services mentioned “implementation” and 76 for articles focused on evidence-based social services.



Given that many health and social service practitioners who may be implementing preventive interventions do not identify themselves as prevention professionals, a different dissemination approach from those who do identify themselves as prevention professionals may be required. Preventive interventions that are determined to be EBIs are complex and may prove challenging to implement in settings that may not be receptive institutionally or structurally. The complexity arises from the theoretical foundations of these programs that guide the development of program content, structure, and delivery or instructional strategy. Although mediational analyses and multivariate modeling have helped to identify the constructs/variables that explain much of the variation in the outcomes of interest, there remain questions regarding the prevention process involved to achieve these effects. Furthermore, as these programs are based on learning processes it may be that no one variable or construct alone explains the intervention outcome which is dependent on multiple variables and processes (Bühler et al., 2008; Hansen et al., 2007; O'Rourke and MacKinnon, 2019). The initiation of the Collaboratory by the National Institutes of Health ([NIH Collaboratory Rethinking Clinical Trials - The Living Textbook - Rethinking Clinical Trials](#)) may serve as the most recent and promising effort in this area (e.g., Melnick et al., 2022).

#### *Next steps for other professionals*

For the workforce that is not specialized in prevention but who work with children and families, normalization requires concrete, simple interventions and activities whenever possible. Funded research needs to shift from development of complex, multi-component interventions to understanding the key drivers of intervention success; research should focus on disaggregation and assessment of the interaction of components of evidence-based prevention interventions and policies to determine what processes explain positive outcomes. The NIH Collaboratory has the potential to inform this process. In addition, newer study designs such as Multiphase optimization strategy (MOST) (Collins et al., 2007) or fractional factorial (Bose, 1947; Gunst & Mason, 2009) will help identify the key drivers of success in existing interventions and could lead to better understanding of change pathways.

Health care and education professionals need simple risk screening tools, and clear protocols for addressing risk. These can be developed from existing knowledge and refined and simplified based on disaggregation research. Even as this research proceeds, protocols can be developed with prevention expert workgroups in conjunction with health and education professionals using existing prevention strategy core concepts. This activity could occur at the national level, facilitated by SAMHSA, NIH or the National Academy of Sciences, or at the international level facilitated by WHO and UNODC.

### *General Population (Parents, Teachers primarily)*

Translation of evidence-based preventive interventions and policies for the general population will involve a variety of communication and messaging strategies to reinforce positive attitudes, beliefs, norms, and behaviors and to change them when they are neutral or negative. The translational process will also require behavioral and environmental interventions such as training education professionals on changing school climate to create positive and safe places for children to thrive (e.g., Positive Interventions and Behavioral Supports- <https://www.pbis.org/>; Prinz et al., 2016). It will also involve policy changes at various levels from the national to the community. In their article on scaling up evidence-based interventions, Fagan and colleagues (2019) enumerated four recommendations: “(1) provide more public policies and funding to support the creation, testing, and scaling up of EBIs; (2) develop and evaluate specific frameworks that address systems level barriers impeding EBI scale-up; and (3) promote public support for EBIs, community capacity to implement EBIs at scale, and partnerships between community stakeholders, policy makers, practitioners, and scientists within and across systems” (p 1162). In addition, the lessons learned from efforts to reduce smoking as detailed in the Institute of Medicine’s report, Ending the Tobacco Problem (2007) provide some guidance as to how to develop a strategic plan to reinforce community norms to support the prevention of substance use in general and a culture of prevention specifically.

### *Next Steps for the general population*

Achieving the next steps for prevention professionals and professionals that work with children and families will move the needle on normalizing substance use prevention for the general

public. An adequate well-trained workforce embedded in public health and education, knowledge and protocols designed for healthcare and non-specialist education professionals increase the probability that parents and communities know what is necessary and have access to resources that address their specific needs.

Using the science of dissemination and implementation can further extend the ability of the general public to address substance use issues. History points to the successful tobacco campaign that involved policy changes carefully timed with public health messaging and to the early impaired driving campaign that also used policy change and public health messaging to achieve the goals of reducing the percent of fatalities related to driving under the influence of alcohol (McCartt et al., 2010).

### Conclusions

Prevention science and its application to prevention practice has evolved providing the field of prevention with evidence-based interventions and policies. It is time for the results of these three decades of accumulated knowledge to be fully transferred to the general population to improve the physical, emotional, and social health of communities. The challenge, as presented in this paper, is five-fold. First, how can this information be disseminated to prevention and health and social service professionals to integrate and sustain in their on-going services? Second, how can this knowledge base and skills be incorporated into the education and training of these prevention, health, and social service professionals? Third, how can these practices be integrated into everyday life to the extent that they become part of the community fabric? Fourth, to what extent do these practices 'fit' into relevant cultural groups? Fifth, how do we develop an ongoing research agenda to address these challenges? We offer "next steps" that logically follow from where we are now and what dissemination and implementation science would suggest are the appropriate phase of the process to address these challenges. How to move forward depends greatly on the efforts not only of prevention professionals everywhere but also key institutions and organizations with a focus on prevention to develop a comprehensive strategy to normalize those prevention practices that will have the greatest impact on the health of our communities.

## **Declarations**

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Conflicts of Interest/Competing Interests N/A

Consent to participate N/A

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