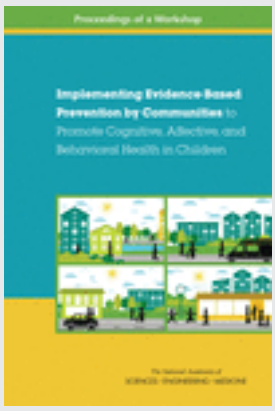

Implementing Evidence-Based Prevention by Communities to Promote Cognitive, Affective, and Behavioral Health in Children: Proceedings of a Workshop

DETAILS

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Implementing Evidence-Based Prevention by Communities to Promote Cognitive, Affective, and Behavioral Health in Children

Proceedings of a Workshop

Steve Olson, *Rapporteur*

Forum on Promoting Children's Cognitive, Affective, and Behavioral Health

Board on Children, Youth, and Families

Division of Behavioral and Social Sciences and Education
and
Health and Medical Division

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The National Academies planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. Its forums and roundtables do not issue, review, or approve individual documents.

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1

Introduction and Overview of the Workshop

Communities provide the context in which programs, principles, and policies are implemented. Their needs dictate the kinds of programs that community organizers and advocates, program developers and implementers, and researchers will bring to bear on a problem. Their characteristics help determine whether a program will succeed or fail. The detailed workings of programs cannot be separated from the communities in which they are embedded.

Communities also represent the front line in addressing many behavioral health conditions experienced by children, adolescents, young adults, and their families. Almost half of Americans will meet one or more clinical criteria for mental and behavioral health or substance abuse disorders sometime in their lives, with the first onset usually in childhood or adolescence. Such disorders convey a tremendous personal burden to the affected individuals and their families, and they impose substantial costs on the broader society. The community setting presents a cardinal opportunity for prevention; early intervention; and treatment of mental, behavioral health, and substance use disorders.

Given the importance of communities in shaping the health and well-being of young people, the Forum on Promoting Children's Cognitive, Affective, and Behavioral Health held a workshop in Washington, D.C., on June 9-10, 2016, to examine the implementation of evidence-based prevention by communities (see Appendix A, Workshop Statement of Task). The five previous workshops held by the forum have provided many examples of interventions that can improve the health and well-being of children, noted José Szapocznik, professor and chair in the Department of Public

Health Sciences at the University of Miami and cochair of the workshop, in his opening remarks. But how can such knowledge from researchers, practitioners, and community members best be implemented? "We want to take it off the shelf and put it into the real world," said Szapocznik, "and the question that we're asking in this workshop is: How do we do that?"

Workshop participants included not just researchers and program directors, but also state and local officials, community leaders, health care providers, patient advocates, and other stakeholders with experience in translating knowledge into action. Their task, said Leslie Walker-Harding, cochair of the workshop and chief of the Division of Adolescent Medicine at Seattle Children's Hospital and professor and vice chair of faculty affairs in the Department of Pediatrics at the University of Washington School of Medicine, was to examine questions related to scaling up, managing, and sustaining science in communities. Partnerships among stakeholders are obviously essential in implementing evidence-based programs, she noted, but these partnerships have many origins and take many forms. Researchers "need to work with the community, and I don't see that they're separate," she said. "We should all be a part of the communities in which we live, work, and try to move forward and help."[1]

This proceedings of the workshop is meant to be useful for all of those involved in implementing evidence-based programs into communities, including community stakeholders. Some presentations, such as the methodologies discussed in Chapter 4 and the definitions of terms discussed in Chapter 5, are more oriented toward researchers than practitioners, but even in these cases, clear explanations and mutual understandings of concepts can facilitate implementation. For researchers, the report reveals a rich set of issues and questions related to implementation science. For practitioners, it lays out many of the opportunities and challenges in moving evidence-based programs into the field.

OVERVIEW OF THE WORKSHOP

The workshop proceedings parallels the workshop agenda, which appears in Appendix B. Appendix C contains biosketches of workshop presenters and moderators. Boxes at the beginning of each chapter highlight particularly important points emerging from the presentations and discussions, with the workshop participant who made that point identified in parentheses.

[1]Workshop participants generally used the term *community* to refer to geographically based units, but their observations, as in this case, often apply to socially defined communities as well, either within a particular geographic area or more broadly.

Chapter 2 summarizes the keynote address by Velma McBride Murry, the Lois Autrey Betts chair in education and human development and Joe B. Wyatt distinguished university professor at Vanderbilt University, on putting prevention science to work in communities to improve the health and well-being of children.

Chapter 3 looks at five different approaches to improving practice as exemplars of how selection, implementation, and adaptation of evidence-based programs can emerge from strong partnerships.

Chapter 4 describes some of the cutting-edge methodologies that have been developed to evaluate complex and multilevel community interventions.

Chapter 5 examines whether it is possible to identify similar component elements in evidence-based programs and disseminate those elements, whether identified as principles, practices, or kernels, rather than the programs themselves.

Chapter 6 explores ways to sustain funding to ensure both continued implementation of evidence-based programs and enduring support for those programs once they are implemented.

Chapter 7 considers what communities need and want in implementing evidence-based interventions within the context of the challenges and opportunities they face.

Finally, Chapter 8 summarizes the observations made by three breakout groups at the workshop and the concluding remarks made by the workshop cochairs.

2

Transporting Evidence-Based Preventive Interventions into Communities

Points Highlighted by the Speaker

- Despite areas of agreement, tensions exist between researchers, program developers, community advocates, and other stakeholders because of differing priorities. (Murry)
- The implementation of evidence-based interventions requires strong and enduring relationships among researchers, program developers, communities, and other stakeholders. (Murry)
- To prepare for the inevitability of adaptations in programs by adopters, researchers and program developers and implementers can identify the core components of a program, share available findings about mediational effects, and conduct implementation assessments. (Murry)

In the workshop's keynote address, Velma McBride Murry, the Lois Autrey Betts chair in education and human development and Joe B. Wyatt distinguished university professor at Vanderbilt University, laid out many of the issues involved in putting prevention science to work in communities to improve the health and well-being of children. In doing so, she introduced many of the topics covered in greater detail later in the workshop, including the need for strong relationships among researchers, program developers, and communities and the need to balance fidelity and adaptation.

AREAS OF CONSENSUS AND TENSION

The integration of evidence-based interventions into communities rests on several critical areas of consensus, Murry said, including the following:

- Principles of community engagement are critical to inform and guide the process.
- Establishing partnerships between community members and researchers is key.
- Feedback from community partners is important.
- Mixed methods (qualitative and quantitative) are needed to test programmatic effects and evaluate adoption and adaptation processes.
- Adaptations of evidence-based interventions will occur in real-world settings.

Despite these areas of agreement, tensions exist between researchers, program developers, community advocates, and other stakeholders because of differing priorities, Murry continued. Community partners are interested in improving services for target populations or solving community problems, in increasing program capacity and staff skill development, in locating more stable funding sources, and in documenting the impact of or need for policy changes so as to secure funding or change views about policies.

Researchers and program developers tend to have a different set of priorities, she said. They are interested in generating publishable research results of interest to academic colleagues, in expanding opportunities for students or project staff to learn and serve, in securing additional grant support, and in raising the visibility of an institution within a community. Achieving these ends leads to professional advancement, Murry observed, even when many of the subjects of a research study or participating in the testing of a program are people living in very stressful situations. These are issues that need to be considered in scaling up programs for uptake in community settings, Murry said.

DISSEMINATING AND ADAPTING INTERVENTIONS

Many researchers believe that by publishing their results in the scholarly literature, they are helping to diffuse innovations that can make a difference in communities. But, as Murry pointed out, "How many people in the community are reading our articles? None. And how many policy makers are reading our articles? Very few. So how do we get the word out?"

Several key factors influence the uptake of evidence-based interventions, she said. A particular intervention may offer an advantage over what is currently available. It may be more compatible with the existing values

and practices of a community. It may be simple and easy to use or provide observable results. It also may allow a user to do a trial run to experiment with an innovation or program.

Organizational change theories point to stages that organizations go through in adopting evidence-based interventions. In general, organizations and communities identify the problem or the need for change, search for solutions, choose a course of action, implement the course of action, and institutionalize the change so that it becomes part of the routine workings of an organization or community. However, various social science theories of change emphasize somewhat different steps by which communities recognize and understand the need for change, take action, and maintain those actions (see Table 2-1). For example, a health belief model may focus on perceptions of risks and benefits; a social cognitive model on expectations, self-efficacy, and reinforcement; and a network model on the structure, beliefs, and behaviors of groups.

Researchers or program developers may believe that an intervention is complete and ready to be implemented when it is delivered to a community. But "it's a relationship," Murry reminded the group. To gain acceptance for a particular approach, researchers and program developers need to take the time to build that relationship, she said, noting a potential response: "I'm not going to take something just because you say it's good. The change is going to be due to the extent to which it's really meeting the [needs of the] community."

Researchers and program developers often are reluctant to balance fidelity to a program's design with adaptations to fit a community's context. They may believe that the core elements and processes of a program must be maintained for the desired outcomes to emerge, or they may assume that a program's theory of change is universal. But even if the program's theory of change is universal, the context differs, Murry explained. "Communities aren't such that they can do things just the way that the program developer or research scientist does," she said.

Murry suggested several steps that researchers and program developers can take to prepare for the inevitability of adaptations. They can identify to adopters the core components of a program and provide guidance on how, what, and when to change or adapt a program. They can share available findings of mediational effects and information on all components of the program that may be contributing to change. They can conduct implementation assessments to capture adaptation effects. These steps require that implementation of a program results from a true collaboration in which information flows both ways. Researchers and program developers "could learn a lot from the implementation of our programs in real-world settings by looking at what people do to it once they have it," said Murry. "If program developers see that the intervention is working well and that

TABLE 2-1 Theories of Change

Stages of Change	Health Belief Model	Social Cognitive Theory	Diffusion of Innovations	Social Networks
Precontemplation	Susceptibility	Reciprocal determinism	Relative advantage	Opinion leaders
Contemplation	Severity	Behavioral capability	Compatibility	Groups
Preparation	Threat	Expectations	Complexity	Adding or removing members
Action	Perceived benefits	Self-efficacy	Trialability	Bridging groups
Maintenance	Perceived barriers	Observational learning	Observability	Rewiring groups
Decision Balance	Cues to action	Reinforcement		Network weaving

SOURCE: Murry (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172939.pdf [May 2017].

the program has been adapted to fit the needs of communities, it should be viewed as evidence of balancing fidelity and fit. Both fidelity of implementation and program adaptation are essential elements of scaling up programs," Murry observed, "and program developers need to be flexible in moving these projects into the field."

Another aspect of this flexibility is cultural adaptation. Some adaptations may involve minor revisions to the original materials or activities that address superficial aspects of a target population such as language, music, or food, but with the content remaining the same. Alternately, cultural adaptation may involve deeper processes related to the problem of interest, which is more likely to involve the theory-based mediators of the intervention thought to affect change mechanisms or outcomes (Castro et al., 2004). In either circumstance, Murry suggested starting with the community and moving up (Murry and Brody, 2004). A community can be asked how best to infuse and integrate culturally relevant issues in the context of delivering a program, and the community then can help decide what needs to be done, whether superficial or deeper adaptation. An example of the former is translating an intervention into another language, whereas an example of the latter is a change that would affect the values associated with a program in a particular community, particularly as those values might affect customs, religious practices, worldviews, or everyday experiences (Gonzales et al., 2016).

BALANCING FIDELITY AND ADAPTATION

Murry used the Nurse-Family Partnership as an example of a program that balances fidelity and adaptation as it scales up.[1] The program partners with communities and provides ongoing support for program implementers. It clearly articulates purposes and is designed to accomplish core objectives. Program implementation is monitored and assessed, and information from implementation is used to improve the program and encourage replications. In this way, the program is implemented with success across diverse populations.

As another example, Murry described Invest in Kids, which is based on a community-researcher broker model.[2] The community-researcher broker develops and uses broad-based community support and involvement to identify and pursue the community's goals. The broker then develops strategies and approaches to improve coordination and thereby promote the sustainability of programs through political support and investment in local

[1]More information about the program is available at http://www.nursefamilypartnership.org [May 2017].

[2]More information about the program is available at http://iik.org [May 2017].

leadership. Once programs have been identified for specific communities, Invest in Kids lobbies state legislators and provides data about needs for the program, expected outcomes, costs, and accountability. Invest in Kids then helps to implement programs through agency partnerships and community collaborations while providing ongoing consultation and support for community implementers. In this way, the broker acts as a mediator or conduit to bring all the parties together.

RECOMMENDATIONS FOR IMPLEMENTATION

These and other examples have suggested a conceptual model for the development and implementation of family-centered prevention programs in communities, Murry said. In the model (see Figure 2-1), community partners work with researchers and program developers and implementers in developing both a theory of change and prescriptive theories about how a process or program should be implemented in a community. The model links partnerships between program developers and communities to adaptation, fidelity, and dissemination. This understanding informs the intervention, how to adapt the intervention, and how best to disseminate information about that intervention.

In general, reciprocal relationships between researchers and community partners lead to success, Murry concluded. But these relationships require acknowledging that establishing, building, and sustaining collaborative partnerships is a journey that involves researchers, families, and partners within the community.

In that light, she left the workshop participants with several recommendations for the implementation of evidence-based interventions in communities. Partnerships of program developers, researchers, community stakeholders, and others need to observe best practices for scaling up evidence-based interventions, she said. These partners also need to clearly articulate the core components of such interventions and allow for refinement to fit community needs relying on relevant theories, she continued. Establishing criteria and processes can allow communities to ready themselves for scaling up and maintaining evidence-based interventions. And alternative delivery modalities, including those that use 21st-century technologies and media platforms, can help meet the needs of potential program adopters and their targets.

DISCUSSION

A major topic during the discussion period was how programs can be adapted without losing their original intentions and outcomes. As Murry asked, after observing that a program deliverer may not be able to imple-

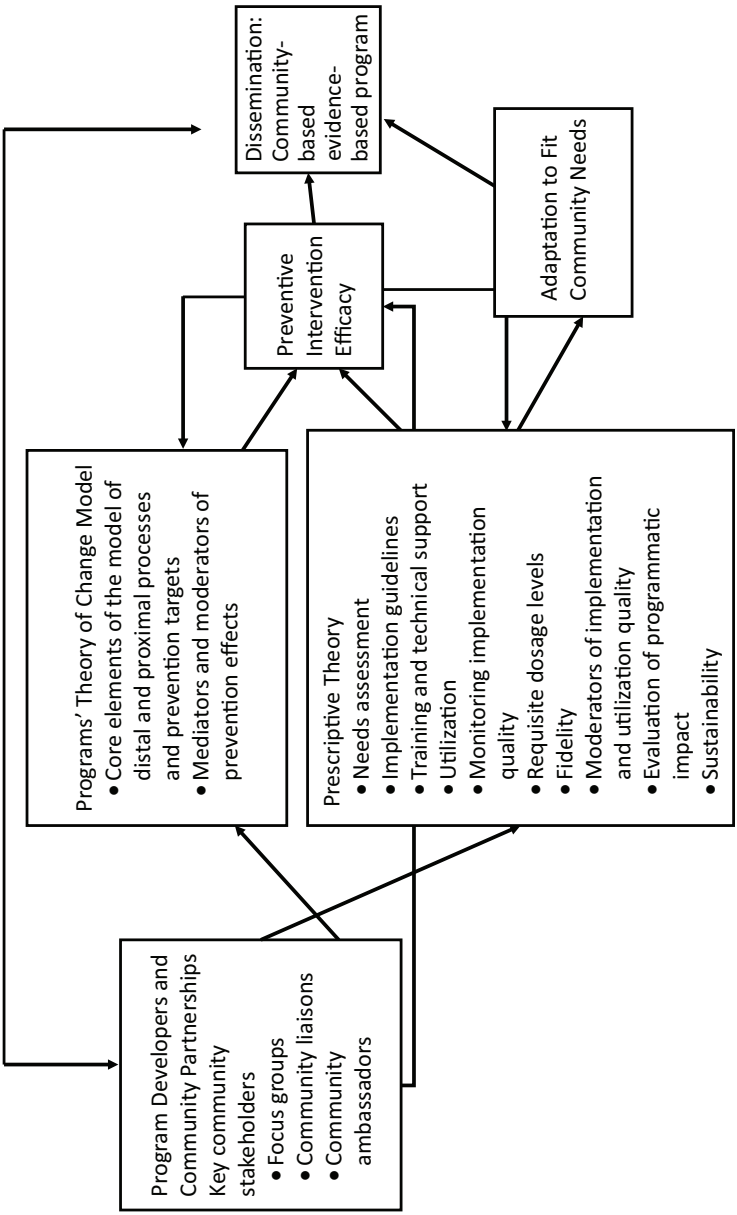

FIGURE 2-1 A conceptual model for the development and implementation of family-centered prevention programs in communities. SOURCE: Murry (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172939.pdf [May 2017].

ment a program as intended: "Do we say to them, 'I'm taking my program back,' or do we say, 'Do it, and let me see what happens as a consequence of what you've done?'" The latter approach can lead to new information that can increase a program's effectiveness not only where a program has been adapted, but also elsewhere. "Then you begin to have an evolving program," she noted. It may still be necessary to maintain core elements in a wide variety of settings. But flexibility makes a program stronger, and "a strong program should be able to withstand" some degree of change, she said.

David Hawkins, University of Washington, drew a distinction between planned adaptations and situational adaptations. The latter often causes more problems than planned adaptations that are designed into a program, he observed. Before a program is implemented, a community may need to look at a program and ask, "What can we do that works for this community, given our culture, given our heritage, given who we are?" But, he continued, if a community says, for example, that it does not have time for a particular part of a program, core elements may be lost.

Planning for adaptation cannot be done from the top-down, Murry observed. The adaptation actually has to emerge from the partnership with a community, not unilaterally from researchers or program developers.

3

Building Community Capacity for Choosing, Adapting, and Implementing Evidence-Based Programs

Points Highlighted by the Speakers

- Guidance that is simple and action oriented and incorporates broad multi-impact measures can help communities to cope with the challenges associated with program implementation. (O'Carroll)
- With trust between the partners, faith-based and other organizations can act as brokers between researchers and communities. (Harris)
- Networked prevention systems, training for the prevention workforce, and sustainable funding mechanisms are key in building capacity for implementing and sustaining evidence-based programs in communities. (Spoth)
- Taking an array of what works to scale requires that academic researchers not only do research, but also take on, and be rewarded for, roles that enable downstream users and implementers to be hypothesis testers with hardwired continuous quality improvement skills and tools. (Belkin)
- Challenges to the implementation of programs include the need for rigorous evaluations, changing demographics, and fiscal constraints. (Carrión)

As Murry emphasized in her keynote address, the selection, adaptation, and implementation of evidence-based programs work best when they emerge from a strong partnership among researchers, program developers, and communities. The first panel of the workshop examined five different approaches to improving practice as exemplars of how such partnerships have played out in specific communities. From these case studies, the presenters drew broader lessons about how communities and program developers can best implement and adapt programs to specific contexts. They also touched upon some of the issues discussed in subsequent panels, including the sustainability of programs and the nature of the relationships among stakeholders.

THE SECOND DECADE PROJECT

In public health, communities tend to focus on specific issues, observed Patrick O'Carroll, health administrator for Region X of the U.S. Public Health Service. One city might focus on bullying, another on obesity, another on active living and good eating, and another on drug abuse. Yet, in all communities, young people in the second decade of life establish many health-promoting or health-damaging behaviors that enormously influence their long-term health status. At the same time, public health administrators have excellent guidance on a wide range of issues, including the ones that dominate local communities. The underlying challenge is to integrate all of this guidance into a framework that is comprehensive, simple, and easy to use.

The Second Decade project, which was launched by the leadership of the U.S. Department of Health and Human Services in Region X, targets community leaders who are champions for adolescent well-being in their communities.[1] These leaders could be mayors, city council members, agency heads, school board members, parents, leaders of community- or faith-based organizations, or many other individuals. The key is that they are in a position to assemble a broad coalition in a community that can be engaged to improve adolescent health and well-being.

To characterize these leaders and their needs, the project conducted more than 30 interviews validating the problem and asking for input. These interviews revealed that what community leaders need is guidance that is simple and action oriented. This guidance must incorporate broad multi-impact measures, the interviews showed, rather than a long list of separate programs.

The findings of the interviews served as a guide for communities to

[1]For more information on the project, see http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172943.pdf [May 2017].

develop an architecture for prevention, O'Carroll said, with coalitions serving as the foundation. The project then adds cross-cutting approaches in four areas—the built environment, school-based health centers, parent engagement, and health and safety zones—along with issue-specific measures in such areas as smoking, teen pregnancy, nutrition, activity, relationships, violence, drug and alcohol use, and auto safety. For example, a particular group might work on an anti-smoking campaign through excise taxes, cessation services, and tobacco-free campuses. At the same time, cross-cutting approaches, such as parent engagement, a school-based health center, and changes in the environment, could contribute to the campaign while simultaneously affecting other issues. The overall concept is to develop "a broad community plan to develop a place . . . that is going to be healthy for adolescents."

The final evaluation draft of the community guide was completed in the summer of 2015, and five pilot test sites were selected from candidate communities across the country. An evaluation is currently under way in these sites to assess the usefulness of the guide in, first, assembling and establishing a broad and inclusive coalition, and, second, developing an appropriate, actionable plan that incorporates proven multi-impact measures. "Is it at the level that makes sense to [communities]?" asked O'Carroll. "Can they produce a plan within a year that has those multi-impact measures?"

BRIGHT STAR COMMUNITY OUTREACH

Since the beginning of 2012, more than 2,100 people have been murdered in Chicago. "Who does the post-trauma counseling for those families, whether the victim's family or the perpetrator's family?" asked Christopher Harris, pastor of Bright Star Church in Chicago and founder of the Bright Star Community Outreach project. "In most cases, nobody."

In urban communities, African Americans, Hispanics, and other community members tend not to go to counseling. They may not know or trust counselors, they may not be able to afford it, and they do not want to be labeled. But trauma "is not just a black or brown problem," said Harris. "It's a human problem."

Through the Bronzeville Dream Center, Bright Star Community Outreach is developing five core competencies to bring effective, sustainable change to Chicago: counseling, mentoring, parenting, workforce development, and advocacy.[2] Bright Star Community Outreach also promotes what Harris called the four C's: concentration, communication, collaboration, and compassion. Concentration focuses attention on particular communi-

[2]More information about the program is available at http://brightstarcommunityoutreach.com/bronzeville-dream-center [May 2017].

ties and the services that need to be delivered. Communication ensures that the community understands what the project wants to do not *for* them but *with* them. Collaboration brings all of the partners to the table to develop an authentic community effort with a collective impact. Compassion unites stakeholders so that they can sit at the same table and address common problems.

In urban communities, churches are bedrock institutions, Harris said. Bright Star Community Outreach is therefore identifying, training, and certifying faith leaders to do post-trauma counseling. More than 40 faith leaders have committed to training in a model developed at a post-trauma counseling center in Israel known as NATAL. The Bronzeville Dream Center has also used the Communities That Care model to develop a framework from risk and protective factors assessed in the community. Multiple workgroups are addressing training, care coordination, and network development.

Researchers need to bring their heads, their hands, and their hearts to the table to work on these issues, Harris concluded. They need to see the families who need counseling as their families, he said, and they need to include the people whom they want to help in the development of these programs. Community leaders in Bronzeville trusted Bright Star Community Outreach as a partner. "The reason our community outreach had so much buy-in is because they trusted us to lead the effort," said Harris. The community also expected the organization to act as a broker between researchers and the community, which required learning information and speaking a language it had never spoken before. "People don't care how much you know until they know how much you care," Harris said. "That's why we're having the success that we're having."

PROMOTING SCHOOL-COMMUNITY-UNIVERSITY PARTNERSHIPS TO ENHANCE RESILIENCE (PROSPER)

As indicated by its name, partnerships also are at the heart of the PROmoting School-community-university Partnerships to Enhance Resilience (PROSPER) project, said Richard Spoth, the F. Wendell Miller senior prevention scientist and director of the Partnerships in Prevention Science Institute at Iowa State University.[3] The partnership creates a network of individual sites, including community teams designed to implement and sustain programs in the community, a prevention coordinator team to link communities to the extension system and provide technical assistance, and a state coordinator/management team to coordinate technical assistance and provide guidance and ongoing support. "The quintessence of PROSPER," said Spoth, "is effective, sustainable partnerships."

[3]For more information about the program, see http://helpingkidsprosper.org [May 2017].

The first goal of the project is to sustain evidence-based programs with high quality to prevent substance misuse and other problem behaviors among youth. The objectives of the community teams include planning and coordinating family programs, including recruitment and monitoring for quality; working with schools to coordinate a school program, also encompassing monitoring for quality; and generating resources for ongoing programming.

The second goal is to build and maintain well-functioning and productive teams. In this regard, the objectives of the community teams include holding regular, effective meetings, maintaining an active membership, building connections with school and community organizations, engaging in strategic communication throughout the community to promote awareness of the project's efforts, and recognizing and rewarding supporters and contributors.

Spoth reported that community teams have achieved high recruitment rates for family program participation, compared to traditional approaches, and that all programs have been implemented with high levels of quality. Social network analyses have indicated reductions in negative peer influences, with additional positive effects for strengthening family relationships, parenting, and youth skill outcomes. Youth have scored significantly lower on a range of problem behavior outcomes, including substance misuse and conduct problems (Spoth et al., 2013a, 2015). In addition, implementation of the family program is more cost efficient through a PROSPER partnership, and PROSPER is cost effective and cost beneficial overall. As an example of PROSPER's effectiveness, Spoth et al. (2017) found that for every 100 young people who likely will misuse prescription drugs long term in non-PROSPER communities, 20 to 26 fewer would be expected to do so in PROSPER communities.

PROSPER fosters linkages with existing infrastructures; the organization of sustainable community teams; proactive, sustainability-oriented technical assistance focusing on benchmarking and web-based support; and capacity-building focused on critical tasks, including recruitment, implementation quality, and sustainability. It has educated and trained partnership members about the importance of quality monitoring and related strategies. It also has assessed benchmarked progress across all phases, with special attention to core components. As a result, the program has had very high, long-term adherence ratings (Spoth et al., 2011).

PROSPER has a wide variety of tools that help partners meet objectives. For example, technical assistance from prevention coordinators, including guidance with the application of a Web-based resource tracker, has helped project communities raise an average of $23,000 per academic year in in-kind and cash contributions (Spoth and Greenberg, 2011).

Spoth drew several overarching lessons from his experiences with PROSPER. Due to the degree of complex systems change required, considerable resources must be devoted in formative stages to ensure that system change barriers are addressed quickly, he said. Assessing readiness, adoption support, implementation capacity-building, and well-functioning implementation staff are key factors for success. With effective systems-level supports for program implementation, program-level adaptations compromising quality are less of an issue, he said.

He also described several possible courses of action to engage in what he called meta capacity-building (Spoth and Greenberg, 2011; Spoth et al., 2013b). Networked prevention systems could be strengthened by building on existing infrastructures, learning from existing implementation systems research, and linking with health care reform efforts such as the Community Benefit program. The prevention workforce could be strengthened by building out currently available training/certification systems and by organizing a network of university-supported trainers. And, he suggested, sustainable funding mechanisms could be expanded through private-public partnerships linked with integrated preventive health homes and through the use of prevention and wellness funds to support networked communities.[4]

THRIVENYC

In 2015, the leaders of New York City came together to unveil the mental health plan ThriveNYC.[5] Gary Belkin, executive deputy commissioner of mental hygiene in the New York City Department of Health and Mental Hygiene, described the plan as ambitious in scope, rigorous in how it defined the problem, expansive in addressing how mental health issues affect all individuals and institutions in society as a broad public health challenge, and comprehensive in calling on all sectors and all citizens to address the issue.

Based on six broad principles—changing the culture, acting early, closing treatment gaps, partnering with communities, using data better, and positioning government to lead—ThriveNYC consists of more than 50 new initiatives funded at close to $1 billion. It is training a quarter of a million New Yorkers in mental health first aid. It is bringing together 29 hospital systems, which collectively are responsible for 80 percent of the live births in New York City, to achieve universal screening and connection to care for pre- and postpartum women with depression. A faith weekend united more than 1,000 houses of worship on the theme of mental health.

[4]For more information on integrated preventive health homes, see http://www.integration.samhsa.gov/integrated-care-models/health-homes [May 2017].

[5]For more information on ThriveNYC, see http://www1.nyc.gov/nyc-resources/thrivenyc.page [May 2017].

A multiagency effort aims to spread socioemotional learning skills to all public prekindergarten and early day care provider staff, who collectively reach 100,000 children each year. A new Mental Health Services Corps is putting 400 clinicians in high-need parts of the city to bring best practices into those settings and to move the system in more innovative directions. "All told, these initiatives will touch, if we do it well, on the order of a million New Yorkers," Belkin said.

ThriveNYC poses a major implementation and evaluation challenge, Belkin observed. Meeting that challenge means "allowing ourselves to embrace the variation, to embrace the fragmentation . . . to purposefully diversify ownership of these best practices." As the components of the project go to scale, necessary learning happens only in the context of variation, driving many opportunities for hypothesis testing, Belkin observed. In this way, continuous quality improvement is a far better fit to the science of implementation and can be hardwired into the project. Indeed, one of the ThriveNYC initiatives is establishment of a Mental Health Innovation Laboratory in the New York City Department of Health and Mental Hygiene to serve as a source of improvement and implementation technical assistance to people who want to innovate. Similarly, the Early Years Collaborative is applying learning collaborative models to whole neighborhoods to improve early childhood outcomes. "The hypothesis testers are the communities, and we're building their capacity to do that," said Belkin. "If they aren't partners, or leaders of testing in real time iteratively, then we can't scale."

Partnering with universities has been frustrating, he noted. Faculty members and their leaders tend to value, and be rewarded to value, a narrow set of practices and ideas regarding how knowledge is generated—"controlled science," as Belkin described it—that are remote to the problems and questions posed by scaled implementation, or "improvement science." ThriveNYC is focused on immediate capacity-building and testing at the local level, which differs from the typical academic model. "We need to reward academics differently," he said. "We need to design grants differently, so they're capacity builders, so the people using these programs become smart implementers."

Belkin also advocated diffusing ownership, even if it means that practices sometimes will divert from the ideal. In addition, best practices need to be packaged in such a way that they can be taken up by diffusion engines to reach the scale needed, he observed, stating, "We need to be bold in task shifting, in having nonspecialists do the steps in these programs that nonspecialists can do." Belkin argued that more research needs to focus on interventions that do not need to go through, or only go through, the behavioral health system. That system and those experts do not have the reach required to meet needs, he said. As a result, ThriveNYC invests in interventions that rest on the larger health system, schools, workplaces, nonhealth

human services, social networks, and other systems, with behavioral health partners holding important referral, coaching, and enabling roles. A public health approach to mental health needs to be fit into larger policy agendas and enlist other partners and diffusion pathways, he said.

IMPLEMENTING EVIDENCE-BASED MODELS IN THE CHILD WELFARE AND JUVENILE JUSTICE SETTINGS

Since 2006, New York City has had a policy of investing in evidence-based interventions in its child welfare and juvenile justice systems. "What we were doing was not working," said Gladys Carrión, commissioner of the New York City Administration for Children's Services. "We wanted to improve outcomes."

One result of this policy has been major declines in foster care placements and juvenile justice placements. "We've done that through heavily investing in prevention," said Carrión. The focus has been on reducing the rate of maltreatment, reducing out-of-home placements, and improving well-being. The city spends more than $80 million on evidence-based models annually, and the amount has been growing every year. It serves thousands of families in a variety of systems. Running such a large and complex system "is not for the faint of heart," she remarked.

The general approach taken has been to embed evidence-based models in the many community-based organizations that have city contracts and case management responsibility. "Communities know their families and their children best," said Carrión. Focus groups and data mining have revealed who is coming into the child welfare and juvenile justice systems, why they are entering those systems, and what issues they have. Implementation science guides the work of both the city and community-based organizations. "If you speak to any of our partners, they're very well versed," said Carrión. "They're able to understand what these models are, what they do, and how implementation and fidelity issues are addressed."

Carrión observed that good working relationships with program developers and implementers have made it possible to make adjustments to reflect differing contexts and needs. "For the most part, we have been very successful in addressing what the challenges are in implementation, identifying what is an adjustment and what is an adaptation, and working to develop those adaptations that we need," she said. For instance, evaluations associated with the use of evidence-based models revealed an increase in the number of very young children coming into the child welfare system. Identifying this trend allowed responses to be developed that would address the issue. Research and data are needed to know which are the best models for a given system and circumstance, she noted. Long-term relationships with program developers then help ensure that models are working and effective.

The drivers of implementation are competency, leadership, and organization, according to Carrión. Support from the "very top" is critical, as is collaboration, given the many challenges. The city does assessments of programs and looks at outcomes, but it does not have the capacity to do rigorous and continuous evaluations of programs. In addition, she said, the city has largely failed to document its work in such a way that lessons can be shared. The changing demographics of the city, variety of languages and cultures, and fiscal constraints all complicate determinations of how programs are working. Questions posed by Carrión include the following: How do fidelity measures and scoring correlate with outcomes? How can a common understanding of fidelity be created to assess the impact of multiple evidence-based models? How can models be adjusted to serve diverse communities?

"Despite those challenges, we have seen tremendous improvements in our outcomes, the reduction of repeat maltreatment, the reduction of children coming into our system, the shortening of length of stays, and improvement in well-being," Carrión concluded—all in a system that does more than 55,000 investigations of abuse and neglect each year.

DISCUSSION

Aligning Diverse Programs

The challenge posed by aligning diverse programs was one focus of the question-and-answer period. Spoth, for example, called attention to the need for integrated systems change. "If you effectively integrate systems, you adopt a larger perspective," he said, noting national attention has been focused on the reform of health care systems, which offers an opportunity to take a broader perspective that encompasses many systems.

Spoth also pointed to the availability of good guidance on working with developers and implementers across programs. In addition, he said that his programs, because of proactive technical assistance work, have had less of an issue maintaining fidelity. A strong support system enables communities to maintain fidelity rather than changing programs in ways that make them less effective or less amenable to evaluation.

Belkin emphasized the importance of aligning policy and programs. In New York City, the establishment of mental health counseling by the mayor brought together "a couple dozen city agencies," he said. "That changes conversations and ways of looking at things." People in public health spend a lot of time looking at interventions, but they spend less time thinking about policy, he said.

Working with Communities to Evaluate Programs

Another topic was the need for communities to understand that programs must be evaluated. "That's the only time you get accountability," said Harris. Community-based and faith-based organizations may not appreciate that they cannot ask for dollars without providing data. Yet evaluators also need to avoid destroying the morale of program leaders by insisting that a program is misguided, Harris observed. "From a communications perspective, tell them that there's a way for them to do it better. And then enable them to do better, educate them to do better, and empower and release them to do better," Harris suggested. Communities also may evaluate programs in a different way than would an evaluator. "That's where you need to build the bridge to bring those two together," he noted.

Belkin observed that a more nuanced and pluralistic understanding of efficacy and knowledge may be needed. He suggested asking what sorts of questions need data from controlled studies, and what sorts of questions need data from iterative improvements.

Coping with Change

The panelists also spoke to the issue of changes in the community that affect their programs, such as new leaders in schools, government, and community organizations. As Spoth said, "It has been the bane of our existence." The turnover of personnel is less rapid in a rural community than an urban center, but it nevertheless occurs. Technical assistance and other support systems can orient new people and sustain relationships, he said.

Harris pointed to the need for a bottom-up rather than a top-down approach to change. People with needs in a community will always be there. New leaders therefore must learn quickly what needs exist. "Speaking truth to power is the most important thing," he stated. This often requires that researchers and program developers speak out in ways that community leaders can understand. He commented, "If you look at many of the brochures that come out from many of our institutions, grandmama can't read that. But if you put it in words that grandmama can articulate, then it changes the whole trajectory of how the communication is set forth."

Change is relentless and inherent, Belkin said. But steps can be taken to foster different habits of community engagement and planning, regardless of personnel turnover. In this way, improvement can become continuous rather than episodic.

4

Taking Advantage of Cutting-Edge Methodologies

Points Highlighted by the Speakers

- Research can relate different combinations of interventions through mediators to outcomes. (Caldwell)
- Innovative experimental designs make it possible to tailor interventions over time based on assessments of ongoing responses or provide individuals an opportunity to choose interventions. (August)
- Knowledge and guidance by the community can extend and improve research, not limit it. (Brown)
- Scientific equity that results in fairness in the types and amount of scientific knowledge produced can help address health disparities. (Brown)

Community interventions are generally complex and multilevel, and evaluations of such programs often require innovative designs. Such designs might include adaptive and preference-based models, randomized roll-out evaluations, and nonrandomized community-based implementation designs. The second panel of the workshop consisted of three presenters who examined several cutting-edge methodologies that can meet the needs of both communities and researchers for information on program implementation and effectiveness.

COMBINING INTERVENTIONS TO ASSESS THE EFFECTS ON OUTCOMES

TimeWise and HealthWise are comprehensive curricula for 8th and 9th graders designed to increase positive leisure time use and experiences, increase self-awareness, increase positive communication with others, establish and maintain healthy relationships, teach skills, and increase knowledge. The goals of the programs are to reduce substance use, risky sexual behavior, and violence while promoting positive youth development.

Both interventions have been studied through efficacy trials, noted Linda Caldwell, distinguished professor of recreation, park, and tourism management and of human development and family studies at Pennsylvania State University. The HealthWise intervention also has been adapted for use in South Africa, where teachers provided feedback in pilot tests and where an efficacy test was conducted in 56 schools. The program has now spread to Zambia "and is ongoing right now, with funding through the University of the Western Cape, not the U.S. government." Other countries, including Iran, Malaysia, Iceland, China, and Kenya, also have either replicated the program or expressed interest in doing so.

The dissemination of the program has required the program developers to identify universal concepts and needs and distinguish them from local needs, focuses, and processes, said Caldwell. Context can differ greatly from country to country, which can affect how to deliver the content. Pedagogies that may be possible in the United States may not be possible in South Africa in schools with fewer resources. People in different countries may even think of terms like *youth* in very different ways, Caldwell pointed out.

The program developers and evaluators have developed a theory of action that relates independent variables through mediators to proximal and distal student outcomes (see Figure 4-1). They also have developed an experimental design in which groups of seven schools each have different combinations of interventions in the areas of enhanced training, support, and enhanced environments. Classrooms have been videotaped so that these independent variables then can be related through mediators to outcomes.

Research evidence indicates that adolescents who are not intrinsically motivated or who are bored in their leisure time have more developmentally problematic outcomes than other adolescents. But, Caldwell added, the details of how to apply these theories and concepts have generated many questions, which themselves need to be investigated, and include the folowing:

- Can groups work together?
- Who will serve as champion of a program?
- How are the fundamental issues different?

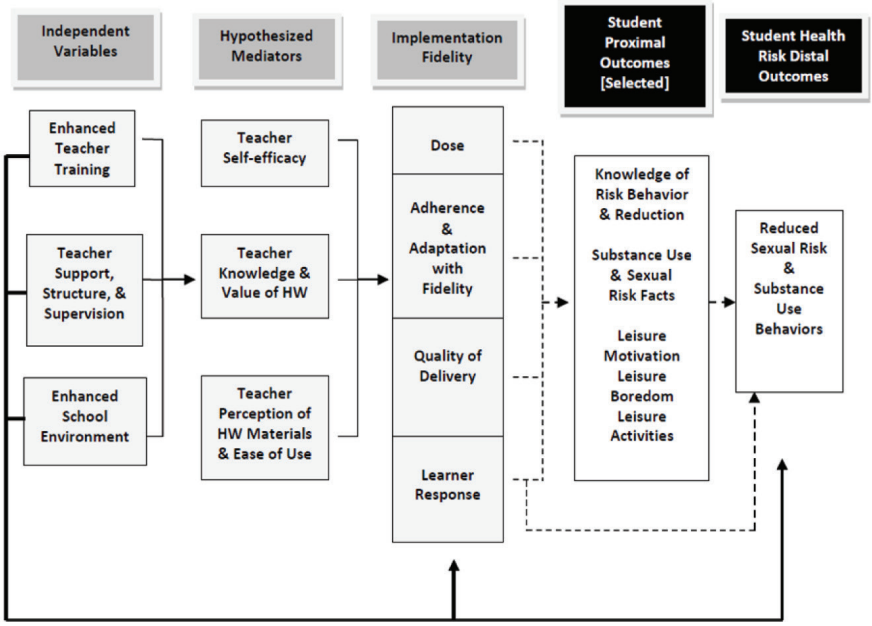

FIGURE 4-1 Theory of action developed to evaluate the TimeWise and HealthWise (HW) curricula.
NOTE: Interactions and control variables not shown in the model. Primary outcomes are represented by a solid heavy line, secondary by lighter solid lines. Dashed lines represent relations that will be tested.
SOURCE: Caldwell (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172957.pdf [May 2017].

- Will the theoretical bases hold?
- What role do language and concepts play?
- For whom and under what conditions is the program effective?
- How best can pilot programs measure processes and content?
- How can sustainability be built into effective programs?
- How can implementation balance fidelity and adaptation?
- How best can adaptation be accomplished?

PRECISION PREVENTIVE INTERVENTIONS FOR YOUTH AT HIGH RISK FOR CONDUCT DISORDER

Evaluative methodologies drawn from other fields have much to offer evaluations of community-based interventions. For example, the National

Institutes of Health has defined Precision Medicine as "an emerging approach for disease prevention, early detection, and treatment that seeks to optimize effectiveness by taking into account individual variability in genes, environment, and lifestyle,"[1] and this approach can be taken to optimize behavioral outcomes as well, said Gerald August, professor in the Department of Family Social Science at the University of Minnesota. What has been called precision prevention has generally involved tailoring behavioral interventions to the characteristics of individuals, but it also can involve targeting groups or communities by modifying care delivery systems, optimizing transmission through social networking, or instituting targeted policy or macroenvironmental changes that differ from one community to the next.

The advantage of precision prevention is that it can respond to the wide heterogeneity and variable intervention response that exists among high-risk populations, August observed. It reduces negative effects associated with burden, iatrogenic consequences, and ineffectiveness and can increase adherence with interventions. It also can increase efficiency and effectiveness while reducing costs.

With support from the National Institute of Mental Health and the National Institute on Drug Abuse, the Center for Personalized Prevention Research at the University of Minnesota, which August directs, has been focusing on the prevention of conduct disorder. Five decades of research on ecosystemic, social learning, and social-cognitive interventions have demonstrated that many interventions for conduct disorder work, said August. He continued, "They work modestly. They don't work for everybody. There are questions about the durability of effects over the long term. They often fail to reach those in most need, the high-risk populations. And even when we get them to the table, participation and completion rates are poor."

The Center for Personalized Prevention Research has been experimenting with new delivery systems, two of which August described at the workshop. The Sequential, Multiple, Assignment, Randomized Trial (SMART) design uses multiple randomizations to assist in the construction of powerful adaptive treatment strategies. An adaptive intervention tailors interventions over time based on an assessment of ongoing response. In the study, August described, individuals are randomized to two different types of interventions, which allows multiple approaches to be assessed in successive stages of intervention (see Figure 4-2). One is a youth-focused intervention that works on decision making. The other is a parenting-focused intervention that works on communication, supervision, and parental involvement skills. Both are brief, consisting of just two or three sessions. The

[1]For more information about the Precision Medicine Initiative, see https://www.cancer.gov/research/key-initiatives/precision-medicine [May 2017].

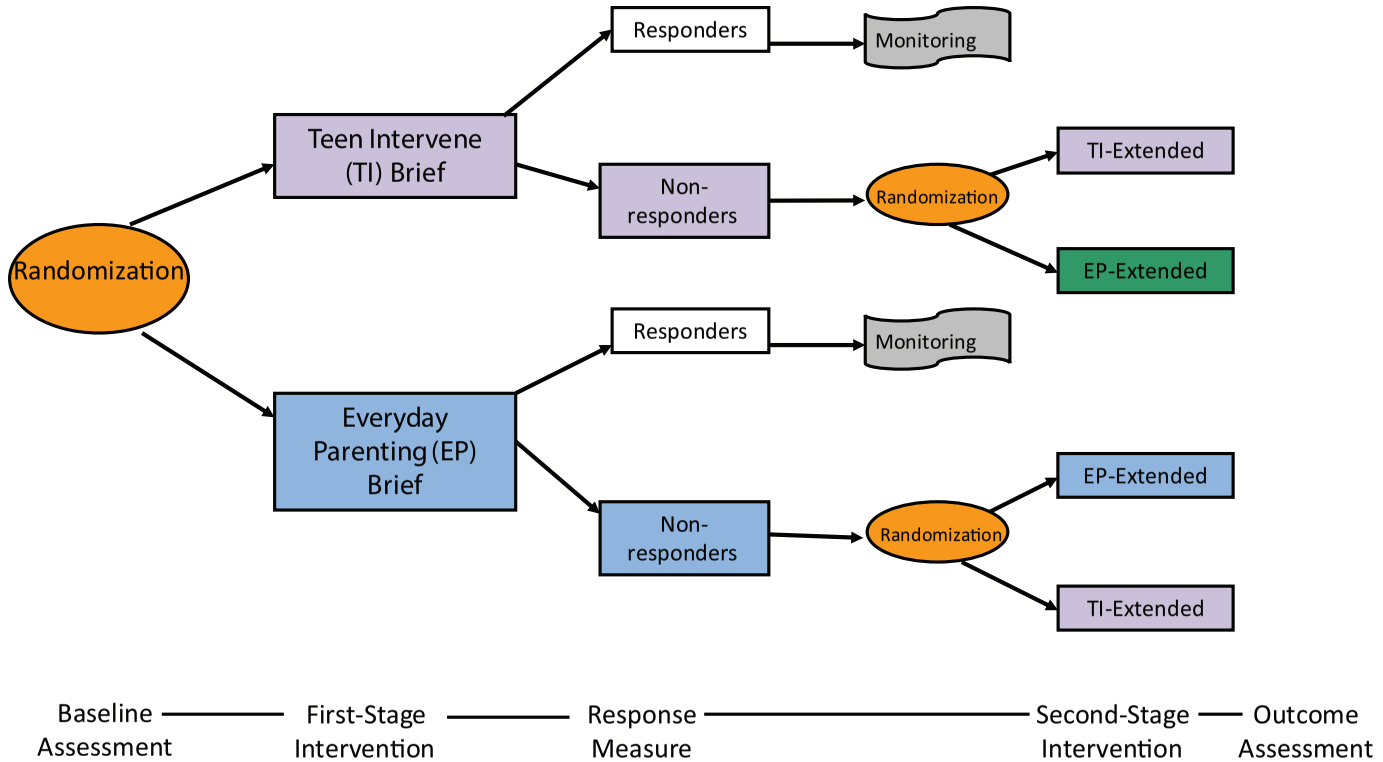

FIGURE 4-2 SMART design for adaptive intervention strategies in conduct-disorder prevention.
SOURCE: August (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172950.pdf [May 2017].

idea is that many individuals at low risk will respond favorably and will be stepped down to monitoring over time. However, some individuals will not change their risk trajectory sufficiently. The nonresponders are randomized a second time to either more sessions of the initial intervention or to a different intervention. In this way, four adaptive intervention strategies can be tested over time.

This design makes it possible to see how various adaptive strategies work, August observed. What is the best first-stage intervention for nonresponders? What is the best second-stage intervention? For those who started with either one, did the intervention facilitate downstream effects? Did a youth-focused or a parent-focused strategy serve better in the long run?

The second model he described is a preference-based intervention. This intervention affords individuals an opportunity to choose their intervention and see whether or not that improves engagement and outcomes. Client participation in health care decision making can improve engagement by providing autonomy, thereby increasing self-efficacy for behavioral change and resulting in enhanced outcomes. The results of understanding why people choose what they choose make it possible to build what are called decision aid interventions, which try to inform them about how to make good decisions.

In one preference design, individuals are randomized either to preference or to no-preference (see Figure 4-3). This design makes it possible to test four different intervention modalities—based on the Parent Management Training-Oregon (PMTO) model to prevent the onset and progression of conduct disorder—in children and families, who can either choose or not choose the treatment they want to receive. Those in the preference group get to choose which intervention they want. Individuals in the no-preference group are randomized a second time. The preference-based model then can be compared with the no-preference-based model in terms of engagement and outcomes. Pre-intervention characteristics also can be examined to look for associations with why a person selected one model over another. What are their expectations about health care? What are their attributions regarding the cause of a behavior? What are their belief systems and cultural traditions? "Those types of variables may be very instructive in helping us understand why people make the choice they choose," said August. "And if it's a good choice, how can we build that into decision aids to inform other people?"

The center is also looking at mobile health interventions, just-in-time interventions, interventions that use smart messaging, and health care coaching. "Precision health care, as it has in other areas of medicine, offers very significant progress in the areas of mental health and substance abuse prevention," August concluded.

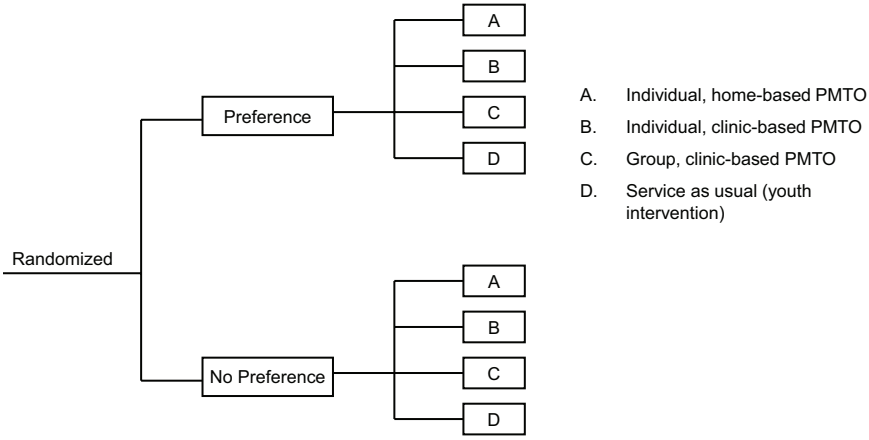

FIGURE 4-3 A preference design to test four different intervention modalities.
NOTE: PMTO, Parent Management Training-Oregon model.
SOURCE: August (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172950.pdf [May 2017].

RESEARCH DESIGNS THAT REFLECT COMMUNITY ENGAGEMENT

Both in implementing and evaluating interventions, researchers need to learn from and be guided by the community, said Hendricks Brown, professor in the Departments of Psychiatry and Behavioral Sciences, Preventive Medicine, and Medical Social Sciences in the Northwestern University Feinberg School of Medicine. He quoted public health psychiatrist Sheppard Kellam's first rule of public health: Don't get kicked out of the community. "It's funny that we laugh at something like that, [because it] is so fundamental. It is the reason why a lot of people in research think that they can't work with communities," Brown said.

Working effectively with communities relies on experience. "You can't do this by just reading and going to a class," Brown said. "You have to be fully engaged and have mentors to be able to help and support [you]." Brown also quoted Christopher Harris from the Bright Star Church (see Chapter 3) that people live in communities; they are not there to serve as research guinea pigs. A research agenda might be one part of a community's agenda, but it is only a part.

Brown also made the point that knowledge and guidance by the community can extend and improve research, not limit it. Researchers never have to give up science when working with a community. But they need to

be more precise even as they remove some of the controls that they might like to impose on a study.

In the Bronzeville community in Chicago, the community and political organization has been outstanding in working with researchers, Brown observed. The community has allowed researchers access to schools and has helped with the completion of student and adult surveys. It has offered feedback on draft surveys to reflect community norms and has otherwise provided opportunities to fill scientific holes. For example, it has advocated the use of treatment as prevention to reduce retaliation, which has become a major strategy in the research going on in the community.

The Communities That Care (CTC) model has been embedded in Bronzeville within a tapestry of existing programs and services. This has made it possible to compare outcomes from the program with current and historical data and to test "one-off" interventions in different contexts. The interventions being studied may include protocol deviations from CTC, which "we know are going to happen," said Brown. "We want to learn about that."

As a specific example, Brown mentioned a study of mediational mechanisms. Maps of neighborhood violence, youth exposure to programs, and adult networking and social processes can be compared to examine alternative diffusion mechanisms that indicate how a program is working across a community and among community members.

Brown's final point involved scientific disparities and scientific equity. Just as health equity can be defined as a fair opportunity for all people to attain their full health potential, scientific equity can be defined as equality and fairness in the amount of scientific knowledge that is produced to understand the potential causes of and solutions to existing health disparities (Brown et al., 2013; Perrino et al., 2015). "We don't do that in our country," said Brown. "We have very limited information." For example, in an examination of 183 preventive trials, only 4 percent were focused on Hispanics and only 9 percent on African Americans, far below their representation in the U.S. population (National Research Council and Institute of Medicine, 2009). Communities do not have enough research findings to do everything they want to do, Brown said, and community research has the opportunity to reduce this disparity.

DISCUSSION

The major topic of discussion during the question-and-answer session was the development of widely shared metrics that can be used in program development, evaluation, and accountability. David Hawkins, University of Washington, observed that many archival data measures are of problem behavior outcomes, even though prevention typically emphasizes strength-

based approaches and protective factors. Risk factors are important, he continued, but determining those factors accurately requires asking young people about both their experiences and the protective factors in their communities. Using those data, communities then can decide what they need to do differently.

As an example of a positive behavior, Caldwell pointed to the work she and her colleagues have done on leisure-based programs, "because kids and teachers really do respond positively." Their research shows that girls who had higher perceptions of perceived leisure opportunities in their communities had lower rates of substance abuse, which she said was the theory behind the programs.

David Shern, Mental Health America, briefly described work he has been doing with a colleague to develop a set of metrics related to healthy development that can be included in ordinary clinical pediatric encounters. "There's an opportunity over the next several months to suggest a series of measures that are responsive to the kinds of outcomes we want to achieve in terms of prevention interventions that could be implemented in pediatric practices," Shern said. He encouraged workshop participants to suggest measures to be included that could contribute to quality improvement and help institutionalize positive measures of development.

Knowing more about both risk and protective factors would advance mediation analysis, observed Patrick Tolan, University of Virginia. While the outcomes of programs are important, understanding how programs work is also important. "How do we start to come to some common understanding of what these programs do and what they don't do?" he asked. "That's an area, it seems to me, where there's been very little good science."

Risk and protective factors need to be "stitched together" with a wide range of data to understand mechanisms, Brown pointed out, stating, "We need to know how many people come to elementary school, for example, ready to read. That's a huge factor." Some existing household surveys provide useful data, but these measures need to be extended, he said. Similarly, August emphasized the need to look at attitudes, values, social competencies, and even neural processes in understanding the mechanisms of change.

Lorece Edwards, Morgan State University, broadened the conversation to the social determinants of health, "which play a key role in risk and protective factors, as well as the determinants of hopelessness, which are a key factor based on culture." Gender differences also play into outcomes, she observed, as in Caldwell's observation that the programs she has been studying are more effective with girls than with boys.

Anthony Biglan, Oregon Research Institute, observed that detailed metrics of the health and well-being of children and adolescents could provide opportunities for natural experiments that would enable the selection of better outcomes. "To the extent that we keep our eye on the ultimate

prevalence of problems in the population, and we are carefully measuring that and feeding that back to people and encouraging the kinds of conditions we need to ensure well-being, we will steadily improve," he said.

The public health community recognizes the need to gather data at the community level, and prominent reports have called for extending this work, said Deborah Klein Walker, Abt Associates. But, she stated, underfunding, discontinuous data, and a lack of political will have resulted in lost opportunities. "You need data at the community level, there's no question, to do some of the things we're doing," she said.

5

Programs or Principles?

Points Highlighted by the Speakers

- Programs that include different practices or principles can be evaluated to determine the effectiveness of either entire programs or their component parts. (Gies)
- Like programs, principles have both implementation requirements and engagement components and need to be tested. (Tolan)
- Kernels can be seen as program components that produce quick, easily measured change and are the active ingredients of evidence-based programs. (Biglan)
- Continued evaluations of individual programs within more comprehensive initiatives can help determine where, when, and with whom programs are most effective. (Margolis)
- A risk of disseminating principles rather than programs is that ineffective interventions will be encouraged. (Botvin)

A prominent question in the prevention field has been whether it is possible to identify similar component elements in evidence-based programs and disseminate those elements, whether identified as principles, practices, or kernels, rather than the programs themselves. This question in turn generates a number of more detailed questions: What needs to be in place or what are the criteria for determining that a principle, practice, or kernel

is effective and ready for dissemination? How can implementation fidelity and outcomes be measured for different kinds of interventions? A panel of five experts examined these and other questions both from the standpoint of researchers striving to achieve a common vocabulary and agreed-upon methods and from the standpoint of communities working with researchers.

EVALUATING THE EFFECTS OF PROGRAMS AND PRINCIPLES

Stephen Gies, senior researcher at Development Services Group, began with a set of definitions for programs, practices, and principles.

A program is a planned, coordinated, and prescribed group of activities and processes designed to achieve a specific purpose, he said. Generally, programs are based on models that are supposed to be implemented as designed.

A practice he defined as a general set of programs, strategies, or procedures that share similar characteristics with regard to the issues they address and how they address them. For example, mentoring can be seen as a practice, as can the idea of a drug court. Practices "follow very similar ideas but can often be implemented in different ways," he said.

A principle—which Gies equated with a component, kernel, or active ingredient—is a behavior-influenced procedure shown through experimental analysis to affect a specific behavior and that is indivisible in the sense that removing any of its components would render it inert. This definition is based on the ideas of Embry and Biglan (2008), but Gies also emphasized the role of the inactive ingredients in a principle, since sometimes these inactive ingredients have unexpected and surprising effects on the active ingredients.

Given these definitions, Gies presented a way of evaluating effectiveness within programs and across programs (see Table 5-1). If different programs share some but not all principles, the effectiveness of the programs or of the

TABLE 5-1 Comparisons Within and Across Programs

Practice Z	Component 1	Component 2	Component 3	Review Outcome
Program A	X	X	X	Program A effectiveness
Program B	X			Program B effectiveness
Program C		X		Program C effectiveness
Program D			X	Program D effectiveness
Program E	X	X		Program E effectiveness
Review Outcome	**Component 1 Effectiveness**	**Component 2 Effectiveness**	**Component 3 Effectiveness**	**Practice Z** effectiveness

SOURCE: Gies (2106). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172961.pdf [May 2017].

component principles can be measured. Furthermore, the effectiveness of programs or principles can be compared through meta-analyses and moderator analyses. A meta-analysis can determine the effect size of a program for a particular outcome. A moderator analysis can determine the effect size for every program that has a particular component.

This analytic approach has both strengths and weaknesses, Gies observed. Among its strengths, it integrates similar programs, multiple versions of programs, and adaptations of those programs, since the components of different programs can be analyzed. It summarizes evidence into a single statistic (generally effect size) while estimating the actual magnitude of this effect. It also increases power and precision by pooling different studies.

Weaknesses include the heterogeneity of programs and principles, the possibility of selection bias, the need for "uncommon" statistical expertise, difficulties of interpretation, and the use of point estimates rather than growth curves or some other output. Nevertheless, programs, practices, and principles in prevention science can provide valuable information for researchers as well as communities considering different interventions.

STUDYING THE EFFECTS OF PRINCIPLES DERIVED FROM PROGRAMS

Patrick Tolan, professor of education and of psychiatry and neurobehavioral sciences at the University of Virginia, used slightly different definitions of programs, practices, and principles. As did Gies, he defined programs as full interventions with multiple activities. They typically involve long time periods and substantial investments.

Practices he defined as the seminal components that are extracted from multiple programs. As Tolan put it, the assumption is that practices "must work because they're in multiple programs."

Principles he defined as activities, processes, or relational orientations that underlie programs and are expressed by practices. He associated principles with the theories underlying a program, commenting, "What do you think you're doing, and what is it about these programs that reflects similar theory?" In that sense, principles act as guiding ideas toward which practices and programs should be moving.

Tolan also defined a set of standards that should be the same across programs, practices, and principles. Trials should be implemented well and without bias, the outcomes should be positive, replication and generalization should be possible, and the implementation requirements should be clear. These standards are a prerequisite to valid scientific inference, he said.

With this context, he focused his presentation largely on principles, which he said have not been investigated carefully. They have both implementation requirements—what people are asked to do—and engagement

components, which are shaped by relationships, motivations, and other factors. Both of these components are factors in going to scale, said Tolan, since they both affect what is required of a practice. At the same time, they both reflect theories of change and behavior.

As described by Gies, mediator analyses can help reveal the nonreducible kernels in a program. Tolan also advocated study of the resistance to nonfidelity. "We have to work in low-fidelity systems," he insisted. "There's turnover. We don't pay these people very much. . . . So how do you test interventions that can work in those conditions?" Some studies of child welfare have assumed that the systems have low fidelity because people who provide good child welfare practice get moved into administration or get burned out and leave. "How can we start to think about that, for example, as the conditions of going to scale?" he queried.

In addition, Tolan called attention to recent mediational analysis work on testing not only how something works, but also how it does not work. For example, a counterfactual explanation or something assumed not to change in a given intervention that could explain an outcome could also be assessed. Also, considering multiple and cascading mediators as processes of interventions are "wonderful ways for us to start to get inside the black box," said Tolan, by helping to reveal the key parts of prevention that make a difference.

Tolan concluded with potential areas of study for this type of research. The first is to use benchmark approaches (critical features of effective interventions) to determine if greater use of prescribed activities leads to better programs. The second is to look at mediation more carefully and in a more complex manner, as described above. The third is to examine the personalization of effects—for example, where an intervention works better for girls than for boys, or where an intervention has very different effects on different children. The fourth is to disassemble interventions to optimize their components and determine the minimal intervention needed for effects. The last is to study whether excellent consulting and technical aid to home-grown programs that people want to implement produces better results than well-implemented and supported prescriptive programs. "We've never tested what happens if somebody came in and said, 'Let me give you the best advice we can on how to make your program work well,' versus 'Here's how you do my program well.' We need to do that, [because] if technical assistance is what makes programs effective, we have a huge potential in terms of impact at a much smaller price than mounting specific programs with extensive training requirements," he concluded.

DISTINCTIONS BETWEEN PRINCIPLES AND KERNELS

According to Anthony Biglan, senior scientist at the Oregon Research Institute, most of the components of evidence-based family and school

interventions were initially developed through single-case experimental designs, which tested the relationship between environmental influences and behavior. These single-case designs may have relied on A-B-A designs, multiple baseline designs, or multi-element designs, but together they have revealed a great deal. For example, Biglan said, work during the past 35 years has resulted in "a careful understanding of the relationships, the interactions, the moment-to-moment interactions between a parent and a child, and the ways in which they affect the development of the child and the ways in which those things can be changed."

Randomized trials have taken center stage in recent years. These trials allow tests of whether an intervention is sufficiently replicable across cases that it produces results superior to comparison conditions. For example, parents can be taught an action that changes a child's behavior, as demonstrated by a trial.

Biglan described an evidence-based kernel as a simple behavior-influence technique that has been extensively validated, mostly through single-case experimental designs (Embry and Biglan, 2008). Kernels are generally simple and indivisible, so that removing any part of them makes them inactive. They produce quick, easily measured change and are the active ingredients of evidence-based programs.

Biglan went on to identify four types of kernels:

1. Antecedent kernels happen before the behavior. A school-based example is a drawing of feet next to a line in an elementary school classroom where students will line up. Another is a technique Biglan called "Beat the Timer," where if a child can get ready for school within 15 minutes, a parent will read a book with the child for 5 minutes.
2. A reinforcement kernel happens after the behavior. An example is a reward offered in the Good Behavior Game.[1] Another example is a note of praise that a child can take home after a prosocial behavior.
3. A physiological kernel changes the biochemistry of behavior. An example that has been evaluated in randomized trials is an omega-3 fatty acid supplement.
4. A relational frame kernel creates verbal relations for a behavior. Biglan described a teacher who asked his students what they would see, hear, feel, and do in a wonderful classroom. The teacher referred to positive behaviors as pax and negative behaviors as spleems. In playing the Good Behavior Game, if student teams had three or fewer spleems, they would get a reward.

[1]For more information about the Good Behavior Game, see http://goodbehaviorgame.org [May 2017].

By definition, kernels have been validated, and their impact or lack of impact on behaviors is in most cases immediately observable. However, Biglan pointed out that the implementation of *any* practice or program needs to be accompanied by monitoring of its impact, just as the treatment of hypertension needs to be accompanied by the measurement of blood pressure. It is not enough to say, "It was researched over here, so we're pretty sure it will work there," he stressed.

Biglan also mentioned two overarching or higher-level principles. The first is the need to minimize toxic social conditions. Reducing the prevalence of toxic social environments is probably the most generic and most important public health challenge that exists, he said. "If the only public health principle we chose to pursue was an increase in the longevity of every member of society, we would quickly conclude that reducing the prevalence of toxic social environments was the most important means of achieving that goal, and so we need to reduce those in childhood," he stated.

The second overarching principle is the need to replace aversive means of control with more positively reinforcing practices. Public policies that reduce poverty and inequality and reduce the use of punishment in schools and the use of punishment in criminal justice systems are vital to improving the well-being of children. "The public health goal needs to be to increase the prevalence of nurturing families," Biglan said.

REBUILDING THE EVIDENCE BASE FOR PROGRAMS

Initiatives that include collections of programs also can provide insights into distinctions between programs and their components. For example, the Office of Adolescent Health's Teen Pregnancy Prevention (TPP) Program is a two-tiered evidence initiative, funded at a level of about $70 million annually, that is intended to replicate programs proven effective through rigorous evaluation. A smaller amount of funding, about $24 million a year, is set aside for developing and testing new and innovative approaches. "The evidence isn't static," said Amy Margolis, director of the Division of Program Development and Operations in the U.S. Office of Adolescent Health. "We need to continue to test and develop new approaches."

TPP is focused on reaching the communities with the greatest need and the most vulnerable youth within those communities. The first cohort funded 102 grantees from 2010 to 2015 and served 500,000 youth in 39 states and the District of Columbia. The second cohort, begun in 2015 and scheduled to last through June 2020, encompasses 84 grantees serving 1.2 million youth. Among 500,000 youth served in the first cohort: 74 percent were ages 14 or younger and 18 percent were ages 15 to 16, while 37 percent were Latino, 30 percent black, and 23 percent white. Ninety-five percent of all sessions were implemented as intended, and 92 percent of all

sessions were implemented with high quality. TPP allows minor adaptations to interventions, but it discourages major adaptations. Youth attendance was high—on average, youth attended 86 percent of all sessions. The program has resulted in 66 manuscripts published and nearly 1,300 national, regional, and state presentations delivered.

TPP has invested significantly in evaluation. During its first 5 years, it supported 41 independent rigorous evaluations through a mix of contracts and grants. For example, one contract evaluated three different evidence-based programs in three different sites to examine the differences among sites. Sixteen different grantee-led evaluations were all designed to meet the program's standards for a moderate or high rating for evidence review. Altogether, 19 evaluations of 10 different evidence-based programs provided information about where, when, and with whom programs are most effective. These evaluations found, for example, that 4 of the 10 evidence-based programs were effective in new settings and with new populations. "We need to know where the programs are effective and where we're not seeing the same sorts of effectiveness, because that helps communities decide which programs are going to be the best fit for them," said Margolis.

Margolis drew several lessons from TPP's history. First, programs need a body of evidence, not just a single evaluation. "We need to start with the evidence that we have, but we should continue to build on that body of evidence," she said. Independent replication evaluations are critical, again to build the body of evidence that supports a program.

Some programs can be generalized to a wide variety of groups with the same results, but other programs work best with more targeted settings and populations. Programs that were effective at one time may no longer be effective later, so new evaluations need to be done over time. Also, she said, the dosage is critical to program outcomes, as is training, technical assistance, and performance measures to ensure quality and rigor.

More time and emphasis need to be spent on program selection, fit, and implementation, said Margolis. Many of the evidence-based programs identified by TPP have been around for a long time, and people are comfortable with them and have invested money in them. "But the decisions about which programs to implement need to be based on the needs of the community and what's best for the community, and that takes time," Margolis observed. Also, using evaluation results to inform program selection can be difficult, which sometimes means moving away from long-standing programs.

TPP is committed to using its evaluation data to continue to improve. It works with its trainees and trains them to collect data to make program decisions for continuous quality improvement. It has used evaluation results from the first cohort to inform the selection of programs for the second cohort. It spends time translating evidence for grantees and communities so

that they can understand and build that into their selection process. It also has identified areas in need of new and continued research.

As an example of how TPP has used evaluation results to inform the selection of programs by the second cohort of grantees, Margolis observed that it has not allowed new grantees to implement a program that has a negative evaluation. If three or more studies are unable to replicate findings from an original study, the program works with grantees to see if a different program might be a better fit in their communities. Evidence more than 20 years old is not considered. The program also is training its grantees and communities to understand what the evidence means, in part by translating the evidence to make it easier to understand. It has added more detailed information to implementation reports while also generating at-a-glance charts that show the differences right away in a single place. It has done interviews with developers to produce nonwritten forms of information. It also has worked with grantees to generate best practices, tips, and possible adaptation. Margolis noted, "We're trying to help folks understand the differences between programs so that they can make decisions based on fit."

With the first cohort, TPP focused on implementing a small number of evidence-based programs. It is now moving away from reliance on a single evidence-based program toward providing adolescents with multiple evidence-based programs. "Something in middle school, something in high school, something when you go to the clinic, something in the community." Margolis said. "We're talking about evidence-based programs in multiple settings and within a more holistic framework." It has emphasized community mobilization, collective impact, engagement of youth and families, encouragement that environments are safe and supportive, trauma-informed services, and linkages to health care while keeping the focus on data, evaluation, dissemination, and sustainability, Margolis said.

UNLEASHING THE POWER OF PREVENTION THROUGH EVIDENCE-BASED PROGRAMS

The case also can be made that interventions based on principles rather than programs are not well enough understood to be widely disseminated. Gilbert Botvin, professor emeritus of health care policy and research at Cornell University's Weill Medical College, made this point by observing that most early prevention efforts focused on trying to increase knowledge or change attitudes. But even where these efforts were able to do that, they tended to have little impact on target behaviors, such as tobacco, alcohol, and illicit drug use. In some cases, increasing knowledge or changing attitudes has increased drug use. "Untested ideas are not just ineffective," Botvin observed, "they actually can make things worse."

A new approach based on risk and protective factors and on a much greater understanding of the developmental course of problem behaviors has radically changed this situation. Interventions based on this new approach have progressed through pilot studies, small efficacy trials, effectiveness trials, and dissemination. The result is more than 60 programs demonstrated to be effective in preventing substance abuse, delinquency, violence, mental health problems such as depression and anxiety, and other behavioral health problems. Government agencies and professional organizations have identified and acknowledged evidence-based programs.[2] Furthermore, research has shown that prevention can save anywhere from $2 or $3 for every $1 invested to as much as $30 or $40 (Lee et al., 2015). Botvin said, "We've made a great deal of progress."

As an example of an evidence-based program, Botvin briefly described the LifeSkills Training he has helped develop. Designed for middle school children, the program teaches a set of self-management and general social skills to decrease the internal motivations to engage in substance abuse and violence. It seeks to decrease vulnerability to influences from the media and from one's peer network that promote substance abuse and violence and to promote resilience. Initially a 1-year program, it now consists of 15 class periods in the first year, 10 in the second year, and 5 in the third year. Interactive teaching methods get students involved and engaged in learning the content; training for teachers and other health professionals helps them implement these programs; and technical assistance enables them to overcome obstacles. More than 30 published studies have demonstrated the effectiveness of the program with diverse populations and different providers, with a benefit-cost ratio of 15 to 1, Botvin observed.

LifeSkills Training demonstrates many of the advantages of proven programs. They have detailed protocols and are carefully operationalized. They use well-tested methods, such as interactive teaching approaches. They contain user-friendly materials that make it easy for providers to implement the program. They can use existing dissemination structures while making available training and technical assistance. And tools exist for assessing implementation fidelity on a granular level, Botvin noted.

Botvin drew on his experience with this program to list some of the disadvantages of disseminating interventions based on principles. Currently, not enough understanding exists of the active ingredients or core components of programs, he said. "If we're to move toward principles-based interventions, to a large extent, at this moment in time, we would be making educated guesses about what the active ingredients are," he stated.

Second, data amassed over the years show that if programs are not implemented as designed, they are less effective. "The further they depart

[2]For more information, see http://www.blueprintsprograms.com/programs [May 2017].

from the design or the program as it was intended, the less effective they tend to be," Botvin said. With a principles-based approach, the specification and operationalization of the principles are likely to be highly variable.

The dissemination of principles rather than programs also risks encouraging ineffective interventions. "The possibility is that we may, at least initially, give license to people in various settings to essentially go back to implementing their own programs or implementing programs that may be similar to the programs that have been tested and shown to be effective but really are not effective," Botvin said. "And, by doing that, we could essentially undermine the progress that we've made in the field."

Though it may be possible eventually to reach the point where principles-based interventions are effective, doing so today would be premature, Botvin said. "To unleash the power of prevention and capitalize on the past 35 years of research, it's important at this point in time to stick to programs that have been tested and proven to be effective," he concluded. "The emphasis now should be more on promoting the dissemination of programs and support systems that are likely to be effective and have been proven to be effective."

DISCUSSION

Kernels versus Practices

The discussion of kernels and practices carried into the question-and-answer period. Biglan began by making a distinction between kernels and principles, defining a kernel as an instantiation of a principle. For example, a principle might be reinforcement of positive behaviors in children, while a kernel is a specific way to perform that reinforcement.

Patrick O'Carroll issued a caution: "We're almost arguing about how to figure out which of the thousands of chemicals in kale is really good for you versus eating kale," he said. Many programs, whether on teen pregnancy prevention, drug abuse prevention, teaching social skills, relationship development, or healthy sexual development, can catalyze each other, so that the whole is greater than the sum of the parts. "If we atomize this down to the kernel level to see what components should be in it, we may miss the catalytic sort of interactive effect of an environment that's, broadly speaking, well informed and healthful in a variety of dimensions. That's not to say we shouldn't do this work, but I am curious how that larger picture would be integrated with the kind of analyses you've been describing," he said.

David Hawkins, University of Washington and moderator for the panel, noted that in the Communities That Care prevention system, communities receive help to make their own decisions about what programs need to be

instituted to address prevalent risks or strengthen protective factors. At the same time, the program teaches social development strategies to create opportunities for activities that are developmentally appropriate for children. "We want to make sure they have the skills to do that, and we want to reinforce them in ways that reinforce their efforts," Hawkins explained.

In places, programs and policies overlap to such an extent that the more appropriate focus is on functioning. "Let's stop talking programs," said Marc Atkins, University of Illinois at Chicago. "Let's start talking functioning. Meaning, what are our outcomes? Where do we want to get to?" As August said, a more effective approach than programs in the school may be to have prevention delivery systems that are plugged into schools and provide screening and intervention. Such an approach would also resolve what Hawkins called the "big fight between people who are advocating policies and people who are advocating programs." For instance, the implementation of evidence-based parenting programs in primary care settings underwritten by funding from Medicaid and private insurance would constitute a change in policies that would make multiple effective programs more widely available, Atkins suggested.

Biglan pointed to parallels in the tobacco control movement. "Most of the impact on smoking came through mass media and policies that changed as a result of mass media. And I can't help but wonder, if we get better and better at communicating to parents the importance of patience and caring and compassion and all the things that are inside all of these programs, that we couldn't have an effect simply by changing norms and public understanding," he said.

Prevention and Health Care Reform

The panelists and workshop participants also explored the links between preventive programs in communities and ongoing reforms in health care. As Biglan, who is working with two coordinated care organizations in Oregon, pointed out, much of the money in health care is spent on people whose problems could have been prevented. Smoking, substance abuse, and depression all contribute to health problems, and all are targets of preventive programs. In addition, data being gathered under health care reform, both at the level of individuals and the community, could feed into the design and support of preventive programs.

Biglan also turned the conversation to a topic that became increasingly salient as the workshop progressed: the role of the social determinants of health. For example, stress in children can trigger inflammatory processes that lead to later health problems, he observed, so that the risk of adult heart diseases increases with more adverse childhood experiences. But with 20 to 40 percent of children in the United States living in pov-

erty, and with high rates of abuse and neglect, many children are being submitted to these stresses. Preventive programs will have a limited impact unless the United States reduces the proportion of children who are living in poverty, Biglan said. "These are huge stressors. We need public policies that change that. And we need to look at that larger social system. There is good research being done on policy that could guide us, but we also need to figure out how to evolve a capitalist system that's built on the goal of ensuring the well-being of every person in society and getting past the view that if I selfishly pursue my own well-being economically, it will benefit everyone," he said.

As Christopher Harris, Bright Star Church, pointed out, community members tend to think that intervention suggests "Let me fix you," while prevention suggests "Let me make sure you never get broken." What is really necessary, said Harris, is "real economic investment into communities that need these programs. . . . The greatest protective factor is intentional and significant community economic investment."

6

How to Sustain Funding

Points Highlighted by the Speakers

- An evidence-based system can support sustainability by producing data on whether programs are able to do what they say they will do. (Peterson)
- Social networks heavily influence decisions about implementing and continuing to support programs. (Atkins)
- Community Benefit funding under the Affordable Care Act can meet a wide variety of needs, including program sustainability. (Thau)
- Flexible funding mechanisms made available by the Centers for Medicare & Medicaid Services can be used to implement and sustain programs. (Whelan)

Sustainable funding can ensure both continued implementation of evidence-based programs and continued support for those programs once they are implemented. But what is the relationship between evidence and sustainability? Can the two support each other, allowing communities to continue to receive benefits while additional evidence is generated? Four presenters examined the question of how to sustain funding of evidence-based programs and systems, using both specific examples and broader rationales to support their views.

MAINTAINING A SUCCESSFUL PROGRAM

In the early 2000s, a retired schoolteacher in Tooele City, Utah, named Milo Barry learned about the Communities That Care model and convinced city leaders that the program would address some of the city's most pressing needs. The result was the successful establishment of several evidence-based courses that were taught in the schools and in the community.

When the initial grant ended, the city faced a choice, said Heidi Peterson, director of the Communities That Care Program for Tooele City, whether to let the program expire or ensure it continued by putting money behind it. Motivated both by the passion the program had inspired and by the solid evidence base it had generated, the city made Communities That Care a line item in the annual city budget. The mayor asked for $160,000, which is "enough to pay for a lot of other city services," Peterson noted, but the mayor "was able to sell that because we had an evidence-based system in place and there were data showing that it would do what it said it would do."

Since 1998, the percentage of lifetime use of alcohol, cigarettes, and marijuana by Tooele City schoolchildren has dropped substantially since the Communities That Care Program was implemented, demonstrating the effectiveness of the program and contributing to its continuance (see Figure 6-1). The presence of the program also made it possible to bring in other evidence-based programs when needs arose. The Second Step Program addressed low commitment to school; the Q.P.R. Suicide Prevention Program addressed depressive factors and suicidality when a wave of suicides occurred in the community; and the Guiding Good Choices Program addressed family conflict. In addition, the Mayor's Recognition Award Program singles out up to eight city youths at every city council meeting for their prosocial achievements. "Over 10 years, that's over 1,600 kids who have been recognized," said Peterson.

TAKING ADVANTAGE OF SOCIAL NETWORKS

As demonstrated by the experience in Tooele City, programs that produce positive outcomes after implementation are more likely to be sustained. Replicating such successes requires the diffusion of innovation, observed Marc Atkins, professor of psychiatry and psychology at the University of Illinois at Chicago, who works with colleagues to redesign community mental health services for urban children in poverty. But people take up new ideas at very different rates, he noted. For example, when Atkins and his colleagues go into urban schools, many teachers are not initially interested in working with them. "There's a lot of wisdom involved in that," he observed. "Early adopters may pick things up quickly, and that may give us a sense that everything's catching on, but it's not until later

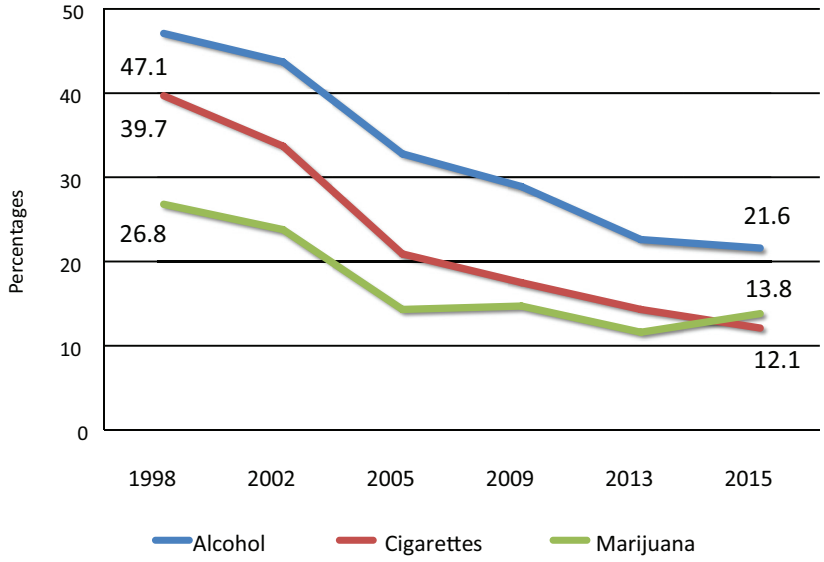

FIGURE 6-1 Adolescents' lifetime use of alcohol, cigarettes, and marijuana in Tooele City, Utah, since implementation of the Communities That Care Program.
NOTE: Data from Tooele City School District, grades 6-12.
SOURCE: Peterson (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172963.pdf [May 2017].

that we find out whether or not it's catching on with others, whether we've hit a tipping point." For that reason, a lack of sustainability for a program may reflect program developers not waiting long enough for social networks to embrace a program.

People are influenced by others in their social networks. In particular, network analysis has pointed to the importance of key informants as a source of information and advice. Key informants "get new information into a setting," said Atkins. "They actually don't have a major influence on picking up the intervention." Rather, they encourage other people to adopt and use an intervention.

The lesson to be learned, Atkins said, is to "pay attention to the social networks within these settings." For example, Atkins and his colleagues have been identifying teachers who are influential with other teachers and asking them what parts of programs are interesting and important. These influential teachers are then in a position to share that information, but, he noted, "this is going to take time, because people have to see other people in the social setting who are in a similar situation."

Drawing on these ideas, he and his colleagues have been taking a public health approach to mental health. They look at the settings that are most influential in children's development and think about how those settings can be modified to produce positive outcomes. This work is not necessarily in the province of mental health providers, Atkins observed. Rather, he said, parents, teachers, school program staff, and mentors "are the real mental health providers, if you will. Not that we want them to do therapy, but they have the major influence, and our work is in support of them."

Achieving this goal requires realigning mental health resources in urban communities, Atkins explained. In Chicago Public Schools, the Chicago Park District, and elsewhere, staff who in the past waited in clinics for families who often did not show up have been reallocated to the settings that are most important for children. "We prioritize settings over programs," Atkins said. In some cases, this requires that programs adapt to their settings, but "we can learn from adaptations by thinking of them as indicating the priorities or the tendencies of people in that setting, as opposed to deviations from fidelity." Thinking of programs in this way promotes a natural extension from prevention to intervention to positive adaptation.

COMMUNITY BENEFIT: A POTENTIAL SUSTAINABILITY MECHANISM

One great advantage of evidence-based programs is that they have the data needed to justify their continuation, observed Sue Thau, a policy consultant for Community Anti-Drug Coalitions of America. For example, the Drug Free Communities Support Program has required that each grantee provide baseline data and collect data over time to prove the program works. According to a national evaluation of the program, grantees have been able to produce substantial declines in alcohol, tobacco, marijuana, and prescription drug use. "This is the basis of sustainability, having something that you can show from a baseline has made a gigantic impact," she said. But national evaluations by themselves are not enough, Thau continued, pointing out that "you need to prove that it works in your community, and that it's worth being funded in your community." In the Franklin County and North Quabbin area in Massachusetts, Drug Free Communities funding through the Communities That Care prevention system resulted in major reductions in alcohol binge drinking, marijuana use, and cigarette use from 2003 to 2012, according to teen health surveys conducted over that period, along with major increases in high school graduation rates and bonding to school.

Many communities now have an opportunity to replicate such successes through the Community Benefit Program, Thau observed. Overseen by the Internal Revenue Service, the program requires nonprofit hospitals

to invest in the health and health care of their communities in exchange for their tax-exempt status. Before the Affordable Care Act, nonprofit hospitals invested much of their Community Benefit funds in charity care or uncompensated care. Now that the number of uninsured people has fallen, nonprofit hospitals are required to do a Community Health Needs Assessment every 3 years, including a prioritized description of community health needs and a process for prioritizing such needs. Hospitals then must develop an implementation strategy that describes how the needs identified in the assessment will be met and why some needs may not be addressed.

In this way, Community Benefit funding can meet an "amazing" variety of needs, noted Thau, including physical improvements and housing, economic development, community support, leadership development and training for community members, coalition building, community health improvement advocacy, and workforce development. In Franklin County, for example, the community coalition introduced the data generated from the funding under Communities That Care into the Community Health Needs Assessment. Community Benefit ended up funding the coalition building, continued collection of data, and backbone support for the coalition. "We have a lot of examples of coalitions that are getting their data into these Community Health Needs Assessments, and are partnering with nonprofit hospitals, to be able to get funding," she said.

Thau concluded with several lessons learned. She urged using community coalitions' health sector contacts to get data from the coalitions into Community Health Needs Assessments. Community leaders also can use hospital contacts to share the value of multisector, data-driven strategies and demonstrate population-level outcomes due to the implementation of coalition strategies. Finally, she urged community leaders to package the entire process into a turnkey approach to solve problems for both hospitals and communities. "Hospitals don't want to start developing programs or picking a program off a list. They want someone to come in and say, 'Here's the problem, I know how to solve it, and I can prove that I can solve it, because I have the data to show you that, over time, I've already done an amazing job solving this problem.'"

USING THE FLEXIBILITY OFFERED BY MEDICAID

Given the prominence of health care institutions in communities, Medicare and Medicaid will continue to be major funders of the services that communities need, observed Ellen-Marie Whelan, chief population health officer for the Center for Medicaid and CHIP Services of the Centers for Medicare & Medicaid Services (CMS), which means building on the payment system that currently exists. "As much as we would all love to perhaps blow the whole system apart and start anew and be able to fund some of

these really creative models that we have going forward, the truth of the matter is we have what we have now in terms of payment," she said.

Government is trying to move away from fee-for-service payments toward population-based payments. This should free up programs that were hampered by a fee-for-service approach, Whelan said. For example, "you can better use the entire workforce, whether it's the traditional clinical workforce or more of the community health workforce, as long as you're moving toward goals."

The question is how to help people and systems make the transition, she said. One answer is by taking advantage of the flexibility that states have in implementing and funding innovative programs. The federal government makes this flexibility available to states, both through authorities under the law and through waivers if necessary. Also, a lot is going on behind the scenes, Whelan said, as the federal government tries to help states do a better job.

Social service providers sometimes express the opinion that they do not want health care to become involved in their activities because they fear onerous regulations and other restrictions. But the health care delivery system has a lot of money, Whelan pointed out, and the funding is relatively dependable.

As an example, Whelan cited an information bulletin written with the Health Resources and Services Administration on how states can use federal funding in part to support maternal and infant home-visiting programs, which have more than 30 years of evidence showing prolonged benefits for children. CMS also has worked with the Department of Education to clarify how providers could be paid for services delivered in schools. It worked closely with the Department of Housing and Urban Development on Medicaid's funding for supportive housing services to help move from institutional care to home- and community-based services. CMS has put out guidance on how states can make sure that they are reimbursing pediatricians for doing maternal depression screenings. It has worked with the Substance Abuse and Mental Health Services Administration on the development of certified behavioral health centers that merge community behavioral health and physical health. It has issued information bulletins on foster care; the Early and Periodic Screening, Diagnosis, and Treatment program; state mental health programs; and other topics.

Whelan invited the workshop participants to encourage their states to work with CMS on flexible funding mechanisms. She also asked for their help on learning how best to scale and disseminate programs. "What are some of the elements that we could be pulling together to look at the scale and spread of some of these models?" she said. "How we did it with the Nurse-Family Partnership is an interesting example. [CMS] looked across states to see what kinds of funding they were doing, and we've pulled

together a model that, if you wanted to do a model like the Nurse-Family Partnership, here's ways you can move forward."

Working with CMS can be a major investment for states, since they need to provide some of the funding themselves. But "it's worth the investment," she said. "These things that we're piecing together now . . . will lay some groundwork for how we're going to move forward."

DISCUSSION

From Sustainability to the Social Determinants of Health

Following up on Whelan's presentation, several workshop participants observed during the discussion session that payment systems can be a powerful influence on the sustainability of funding. For example, David Hawkins, University of Washington, made this point in the context of emphasizing healthy parenting in primary care, and particularly in pediatric practices. He described a possible scenario: "Your pediatrician or your family practice doctor says, 'You're having behavioral management problems with your 2- or 3-year-old. We're doing a program called Incredible Years here at the clinic, and we'd like to recommend that you do this.'" Programs that have taken this approach have had strong responses from parents, he pointed out. However, with a fee-for-service payment system, it can be difficult for physicians to be reimbursed for this work.

Whelan said that CMS has been supporting work of this type, such as centering programs that provide care for pregnant women and for parents in small group settings. In those cases, the providers have been receiving an extra care management fee, and states can look to such programs as precedents. They also have other options, such as targeted case management under Medicaid, which can provide extra care coordination and services. "The best thing is to capture where it's happening in some states, pull back together, and then we can see what the next step would be," she suggested.

Kelly Kelleher, National Children's Hospital and panel moderator, also pointed to the possibility of using savings generated by accountable care organizations to invest in preventive services. "There are ways to do that . . . if we can make a good return-on-investment argument, a utilization argument, and an outcomes argument," he said. He added, however, that spending such savings on things like housing, transportation, and other services can "raise eyebrows." Medicaid and state officials do not necessarily react positively to investing in community crime control, even when that is exactly what is needed, he commented.

Atkins observed that much of his school-based work has been funded through Medicaid. "We just make sure that everything that the mental health providers are doing is billable, which involves writing treatment

plans and so on," he said. "We have found that much of what we would consider good practice, including the Good Behavior Game, is billable."

Atkins also called attention to federally qualified health centers, which were emphasized in the Affordable Care Act. One problem with the centers is that they do not have benchmarks that relate to children's behavioral health, he said, which makes it hard for them to address that issue to the extent that it needs to be addressed. He said a second problem is that community members working on prevention programs cannot bill through the federally qualified health centers, though he and his colleagues have started establishing collaborations between the community mental health staff and federally qualified health centers to affect both health and mental health in a synergistic way.

Whelan cited the difficulty of doing research on children covered by Medicaid, as it is very difficult to get datasets associated with their health and well-being. If those data could become available to researchers, Whelan suggested, they could do a better job of evaluating programs and comparing programs and state efforts.

Thau noted, as a former budget examiner with the Office of Management and Budget, the difficulties associated with integrating all services into the health care system. "We have to fight to keep [and] get more differentiated funding for things like the social determinants of health, and for public health, and for things that don't necessarily belong in the health care system," she stated. Preventive programs are massively underfunded and have been losing funding in recent years, she said, and they need to be defended.

Devoting Attention to the Social Determinants of Health

How to sustain prevention programs is closely related to the much broader program of bringing societal attention to bear on the societal factors that affect health. Atkins pointed to the problems, given the way children live and the issues they face, caused by preventive efforts that remain within their own silos. In his work in Chicago Public Schools, he and his colleagues have become integrated with mental health providers and with community members. "It's very hard for me to stay in my silo anymore," he said. "It's very hard for me to say, 'Sorry, I just do mental health. I don't do education. I don't do substance abuse.'" Peterson noted that the same thing has happened in Tooele City, where collaborations involve "everyone from housing to medicine to the schools. . . . If we're contacted about something, we may not be able to offer that program or service, but we know who does." Such collaborations can be fostered, Whelan added, through metrics that require sectors to work together to achieve success.

Anthony Biglan, Oregon Research Institute, pointed to the broader

potential of metrics and data. The types of programs and the details of their implementation differ throughout the country. By measuring these differences and comparing them with health and well-being outcomes for young people, the efficacy of what is being done can be determined. "We are the people who will change society, not the politicians, and we're doing it on the basis of data," Biglan said. Furthermore, added Whelan, data are available from adult health care, public health, and social services that could provide valuable information for programs directed at youth.

Kelleher wondered if the idea of reciprocity might be better than that of sustainability, emphasizing engagement between communities and programs rather than a one-way flow of support from communities to programs. Such an approach also might tie in better with ways of addressing the social determinants of health, such as housing vouchers, poverty relief programs, and other social services, he said.

7

Being Responsive to Communities

Points Highlighted by the Speakers

- Infrequent adaptations that have a positive fit with a program tend to produce better outcomes than do frequent adaptations that have either a positive or negative fit. (Hansen)
- Integration of behavioral health services can engage families, provide holistic care, improve the quality of care, and reduce costs. (Kolko)
- Population health management programs can help address the social determinants of health by intervening in such areas as transportation, food, or utility bills. (Sterling)
- A coalition model that starts with the community and matches local needs to national issues can tailor programs to diverse communities. (Terrillion)
- Communities want to have a voice and be heard in designing, implementing, and evaluating programs. (Oscós-Sánchez)

Communities have both needs and wants in considering the implementation of evidence-based interventions. Distinguishing the two and addressing them appropriately requires researchers and program developers and implementers to be responsive to communities. Is an evidence-based intervention efficacious for a particular population? When should a program be adapted to meet a need that a community identifies as a high priority? The

final panel of the workshop considered these and other questions in the context of the challenges and opportunities particular communities face. In the process, they revisited many of the themes that emerged during the workshop, such as the inevitability of program adaptations, the advantages of integrated care, and the need for reciprocal relationships among stakeholders.

IDENTIFYING PRODUCTIVE ADAPTATIONS

Responsiveness to the needs of a community can involve showing communities the best way to adapt a program rather than assuming that a program will be implemented and conducted with high fidelity, explained William Hansen, who was president of Tanglewood Research from 1993 to 2016. For example, All Stars is a commercially available drug abuse prevention tool designed for use in schools. In a study in Chicago involving 43 teachers, researchers selected 3 excellent teachers, 3 middle-of-the-road teachers, and 3 teachers who had challenges delivering the program. Every session taught by all 9 teachers was videotaped, resulting in about 27 class sessions for each teacher. The adaptations they made in the program were coded and sorted into adaptations that fit or did not fit with the program model.

Every teacher, in every session, made some sort of an adaptation to the program, Hansen observed. "If there's this idea in somebody's mind that you're going to create an evidence-based program, and you're going to give it out there, and people are going to do it exactly the way you say it should be done, that does not exist," he said. However, some types of adaptations produced better outcomes than others. In particular, infrequent adaptations that had a positive fit with the program produced better outcomes in terms of students remaining drug free, than did frequent adaptations that either had a positive or negative fit (see Figure 7-1). "Those teachers who stuck with the program . . . made adaptations that fit with the model," Hansen said. In turn, the program has taken some of the positive adaptations and incorporated them into revised versions of the curriculum.

Another study of the program looked at teacher effectiveness in Belfast, Northern Ireland. The more engaged students were with the program, the more likely they were to show a beneficial change in such mediation influences as making a voluntary personal commitment to avoid alcohol, tobacco, and other drugs; perceiving that drug use did not fit with their lifestyle; understanding that drug use is not as common as some people might think; having a positive relationship with their parent develop over the issue; and bonding to their schools. "You have to deliver [a program] well and deliver it in a way that's engaging, and that doesn't always happen," Hansen concluded.

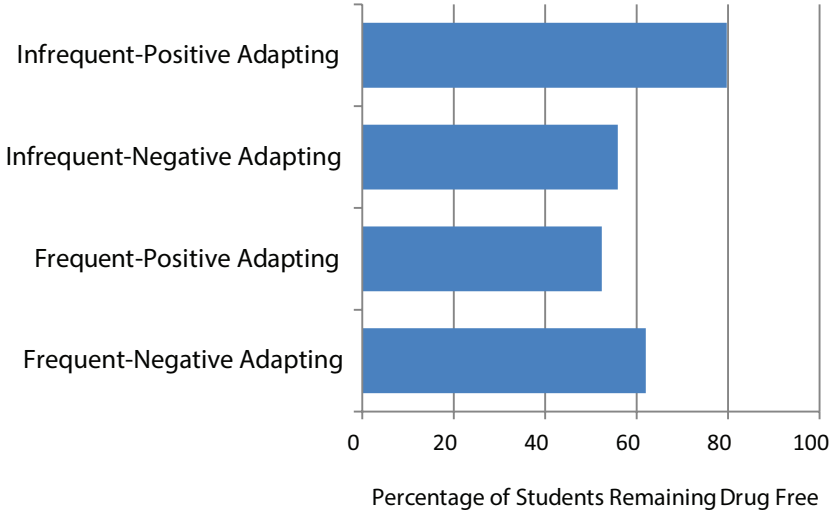

FIGURE 7-1 Effect of All Star Program adaptations by Chicago teachers. SOURCE: Hansen (2016). Available: http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_172967.pdf [May 2017].

THE ADVANTAGES OF INTEGRATED CARE

Another way to meet the needs of communities is through the integration of behavioral health services, said David Kolko, professor of psychiatry, psychology, pediatrics, and clinical and translational science at the University of Pittsburgh School of Medicine. Integration can engage families, provide holistic care, improve the quality of care, and reduce costs, and research bears out these observations, he noted. Asarnow et al. (2015), in a meta-analysis of 31 randomized controlled trials, found that various levels of integration all led to better outcomes, though most of these studies focused on externalizing rather than internalizing problems. The overall effect size was about 0.42, which is modest in overall magnitude but significant, Kolko noted.

Programs were more effective in improving mental health care when they were treatment rather than prevention programs. Also, more collaborative care had a larger effect size than alternative care delivery models, though this difference was not significant. But the evidence suggests that integrated care clearly has an advantage over specialty health care, said Kolko, paralleling what has been found for three decades in adult literature. "Still, there isn't a lot of direction from the research on how to do it, and how to do it well," he observed.

Integrated care involving partnerships among primary care and behavioral health providers has three basic levels in communities, noted Kolko. The first is coordinated care, which involves either minimal collaboration or basic collaboration at a distance. The key element in this kind of care is communication.

The second is co-located care, involving either basic collaboration onsite or close collaboration onsite with some system integration. The key element in this kind of care is physical proximity.

The third is integrated care, involving either close collaboration, approaching an integrated practice, or full collaboration in a transformed or merged practice setting. The key element in this kind of care is practice change. Though desired, developing this level of care requires attention to several resource needs and challenges.

Kolko observed that people do not ask for programs or practices; they ask for help with a problem. That is both a challenge and a blessing, because it implies that communities do not necessarily want what programs do well, but they want to deal with a problem where they are not doing well, "and that's the first step in a collaboration." Also, communities want to gather data first and be provided with evidence second, Kolko said.

Kolko noted that patients are more likely to attend care sessions if they are getting behavioral health care in a primary care setting than if they go to specialty care. "We found that if you build it, they will come," he said. Patients and their families far prefer to get behavioral health care in the primary care setting than in their home or a mental health clinic. Besides improved child behavior, caregivers report less distress and burden on children when behavioral health care is delivered in pediatric settings. Some evidence suggests long-term clinical benefits, and positive benefit-cost ratios are starting to appear. It is harder to make prevention meaningful and marketable without referring to the data or to the particular types of adverse outcomes that it can prevent, Kolko observed, adding, "Then it's an easier conversation."

Kolko also outlined some of the challenges facing greater collaboration. Medicine and behavioral health have been difficult to integrate due to different service delivery systems, regulations, resources, and funding sources. They can have a hard time working together when the roles for care integration are uncertain or unclear. Costs and reimbursement remain problems, he said, and not everyone is a good fit for collaboration.

UNITING BEHIND PREVENTION

Integration is a hallmark of the Kaiser Permanente Northern California health care system, which has 4 million members in and around the San Francisco Bay area and accounts for 46 percent of the commercial market

share in the region. More than 500,000 members are adolescents, with a great deal of ethnic, cultural, and socioeconomic diversity. The system has a fully integrated electronic health record (EHR) system, carved-in mental health and chemical dependency treatment services, and a capitated payment model, which makes it "a really interesting place to study implementation," said Stacy Sterling, a scientist with the Drug and Alcohol Research Team at the Kaiser Permanente Northern California Division of Research.

The Screening, Brief Intervention, and Referral to Treatment (SBIRT) Program is an intervention for adolescents and adults who are at risk for substance abuse problems and other behavioral health problems. In a study of the adolescent program in pediatric primary care, one group of pediatricians was trained to deliver all aspects of SBIRT, another had embedded clinicians in pediatric practices, and a third delivered usual care. Initial results have looked at rates of screening, referral to treatment, treatment initiation, and engagement rates (Sterling et al., 2015). But what Sterling emphasized at the workshop was the finding from the study that families, teens, and providers all wanted expanded brief intervention services in pediatric primary care and more parent and family engagement in these programs, pointing to the value of integration.

Sterling also described a study of the adult SBIRT program, which she described as "a blueprint for our rollout of adolescent SBIRT across the region." The program has very aggressive targets: 90 percent for screening, and 80 percent for brief intervention. That study has led the system to adopt the program across the entire region.

Sterling listed several key factors in implementing a comprehensive and large-scale program like SBIRT. Leadership support is critical, she said: "Even if it doesn't mean providing resources, just showing the organizational will and saying that we are interested in doing this, and this is something that we should be doing, has been critical." The intervention team is multidisciplinary, including researchers, primary care providers, substance abuse counselors, and mental health clinicians. An implementation facilitator provides coaching, and technical support is provided in person and by phone and e-mail. Having a robust EHR system has been important, and access to data is essential, she said. Monthly performance reports compare regions, facilities, and providers. Abundant information is available to providers and to patients in different languages.

Sterling pointed out that Kaiser Permanente's community is not only families and youth, but also pediatricians and other providers. They have competing priorities, which is why Kaiser is trying to increase capacity so services can be available, perhaps by relying on providers other than pediatricians or moving services into pediatric primary care, which she termed a nonstigmatized place compared with specialty treatment clinics.

Sterling also pointed out that Kaiser Permanente is dedicated to pre-

vention. It has population health management programs in hypertension, diabetes, weight, and exercise. It is doing innovative work in addressing the social determinants of health, such as challenges with transportation, food, or utility bills. It is beginning to do work on adverse childhood experiences. "These are all tied together, and, of course, they are tied to the bottom line, which leadership is certainly aware of," she said.

LISTENING TO COMMUNITIES

To implement evidence-based programs in communities successfully, "you have to look at what the makeup of a community is," said Albert Terrillion, deputy director for evaluation and research for the National Coalition Institute of the Community Anti-Drug Coalitions of America (CADCA). "You have to look at who's there, have conversations, and really pay attention to what they're saying."

Founded in 1992 on a recommendation from the President's Drug Advisory Council, CADCA supports a comprehensive data-driven approach to prevent the use of illicit drugs, underage drinking, youth smoking, and the abuse of medicines. It represents more than 5,000 community coalitions and has the mission of strengthening the capacity of community coalitions to create and maintain safe, healthy, and drug-free communities globally.

"The work starts from partnerships and relationships," said Terrillion. Coalitions receive three periods of training during their first year, with continued technical assistance, training, and support throughout and after that first year. Relationships start from the ground up, he said. With training and technical assistance, coalitions have the capacity to implement essential processes. They can pursue comprehensive strategies to change communities and improve population-level outcomes.

Terrillion distinguished between what he called a "low-agency" and "high-agency" evidence base. High agency refers to a relationship with a lot of contact and back and forth with community members. Low agency refers more to the political context as a way to create community change. For example, many of the interventions promoted by CADCA are low-agency approaches that affect policy in such areas as limited hours for the sale of alcohol, taxes, and other evidence-based practices.

High-agency relationships can be more complicated, Terrillion observed, in part because communities are diverse and always changing. "We have to be very careful about what we drop into these communities that doesn't come from within those communities," he said. Also, many communities do not have abundant resources, so it may be necessary to find outside sources of support. Finally, researchers cannot just drop into communities and deliver knowledge, he said. They need to bring people

back to their offices and make them a part of the decision-making process. "By listening to the people who are living there, we can pay attention to the social determinants [of health] and be mindful of the needs that are there," he stated.

He also observed that prevention saves money in the long term, though more needs to be learned about this issue. He noted, "If we're going to ask CMS to pay for this, and if we're going to ask for insurance to pay for this, we're going to have to determine what those numbers are."

GIVING COMMUNITIES A VOICE

Familias en Acción, which is a community-academic research partnership to develop, implement, and evaluate youth violence prevention programs in an urban Latino community, has gone through four different projects to date, said Manuel Ángel Oscós-Sánchez, professor of medicine in the Department of Family and Community Medicine at the University of Texas Health Science Center at San Antonio, and that experience has taught him what communities want: "They want to have a voice. But that's not enough. They want to be heard." Too many times, said Oscós-Sánchez, he has seen programs that did not have this community input. According to him, "That won't work very long."

Researchers are encouraged to have cultural competence to work in communities. But the people who really have cultural competence, said Oscós-Sánchez, are the community members who are able to work with researchers. "We were lucky, in our community, that we had some bold community members who stood up and said, 'No, that's not going to work, it has to be this way,' and we listened to them. Power goes in multiple directions," Oscós-Sánchez stated.

Communities do not need someone from the outside to tell them what is wrong with them and how to fix it. Rather, they need someone who can do what Oscós-Sánchez called genuine listening. He was involved previously in the Communities That Care system, which begins by asking communities about the issues that they view as critical. "Going through that process was very fruitful in letting the community tell us what it was that they needed," he said. "We built on that, in terms of developing programs based on what the community said that they needed."

One form of expertise that communities do need is in developing community meetings, Oscós-Sánchez noted. The person who is most reluctant to talk at a meeting may be the person who has a key idea. Researchers need to provide their expertise "in developing those processes and running the meeting so that those ideas actually have a chance to come out," he said.

Researchers also have expertise in evaluation, and communities generally are willing to engage in that process. An evaluation with which Oscós-

Sánchez was involved found that a particular program was not working in the community, "and they were willing to accept that and to move on to other strategies."

Finally, communities want to be acknowledged for all the work they do in designing, implementing, and evaluating programs, Oscós-Sánchez said.

DISCUSSION

Policies and Programs

Much of the discussion following the presentations focused on the distinction made by Terrillion between low-agency and high-agency programs. Sue Thau, CADCA, for example, pointed to the power of environmental policy strategies. Bans on smoking indoors, restrictions on sales to youth, and changing social norms all had dramatic effects on smoking trends. "We can't miss the public health aspect of this and the types of strategies that get us population-level outcomes. . . . If you go from programs to social determinants of health, you're missing the whole public health part of this that is population based," she said.

Terrillion agreed, observing that "culture eats strategy for breakfast." Hospitals are spending hundreds of millions of dollars through Community Benefit programs, and a lot of that is going for public health. "There's promise there, but we're scratching the surface when it comes to those kinds of things," he stated, referring to environmental strategies suited to deal with issues like the opioid epidemic as an example.

Hansen pointed out that "part of what helped tobacco control and drinking were data that showed that these broad social policies had an effect. If there hadn't been the data, . . . it wouldn't have had the support." As Sterling pointed out, evidence on costs and benefits does exist, but there is a disconnect between that evidence and the people who are making decisions in communities. The information needs to be packaged in ways that policy makers and community members can understand and embrace, she said.

Prevention and the Social Determinants of Health

Workshop participants also discussed the relative merits of preventive programs and their relationships to the social determinants of health. For example, Kelly Kelleher pointed out that prevention in an adult population can have relatively short-term payoffs. "If you try to prevent diabetes in an adult population, or heart disease recurrence, or anything like that, you can see a benefit within a year," he said. Prevention in children has a much longer time frame, he added, noting, "Pediatric care is a long-term

process. Community development is a long-term process. Family engagement is a long-term process. These are results that have 5-, 10-, and 15-year outcomes."

Sterling pointed out that the Affordable Care Act, by requiring that children can stay on their parents' health insurance policies through age 26, implicitly makes this point. She also observed that growing information about comorbidities, where behavioral health problems cause physical health problems that translate into costs, can help show how preventing behavioral health problems can lessen physical problems.

Hansen pointed to the work that Kaiser Permanente is doing with systems in the community, such as school-based health centers and federally qualified health centers. People come and go as Kaiser members, so the system has a stake in keeping everyone in the community healthy regardless of insurance coverage at the moment. If all systems have an emphasis on prevention, all of them will benefit over time.

However, in response to a question about how best to change the systems woven into the lives of children and adolescents, such as the public education, health care, and social service systems, to serve communities, Hansen pointed to how much has changed in the past 40 years, and the pace of change is even greater today. "I'm having a very difficult time figuring out what 10 years from now these systems are going to look like," he commented.

As Joyce Sebain, Substance Abuse and Mental Health Services Administration, pointed out, a public health approach encompasses the social determinants of health because it includes all of the sectors—including housing, labor, employment, and business—that need to be at the table. She also pointed out that when people talk about health, they still do not necessarily think about behavioral health.

Patrick Tolan, University of Virginia, emphasized the concept of positive youth development. Education is part of how society produces healthy people. But education includes things like self-control, emotional literacy, and managing one's body. Policy makers and grant makers are starting to realize that education and health are not two sectors; rather, they are intimately tied, he said, noting, "How we educate kids, and opportunities to educate kids, have big effects on what our health care costs and the health of the nation are." Oscós-Sánchez agreed but argued against broadening the missions of schools too greatly. "They need equality in education so that they can then become competitive in our world. . . . That's why I'm always resistant to doing things during school time, because I want my kids to learn how to do math and science and read and learn the fine arts. . . . We can't forget the inequalities in our educational system that then have long-term effects," he asserted.

Anthony Biglan pointed out that the scientific knowledge already exists

to ensure that virtually every young person arrives at adulthood with the skills, interests, values, and health habits they need to lead a productive life and have caring relationships with other people (National Research Council and Institute of Medicine, 2009). "That's a vision that we need," he said. And as Atkins concluded, "What is the new paradigm? How do we do this? It's not enough to say social determinants are important. That's not going to get us anywhere. What's going to get us somewhere is to say, How can we contribute to this? What is it that we can do differently?"

8

Reports from the Breakout Groups and Final Discussion

Points Highlighted by the Breakout Groups

- A systems approach to public health that focuses on populations and equity can engage all levels of communities in collaborative decision making and shared accountability for actions and change. (Breakout group 1)
- Prevention and wellness funds for needs-based community implementation of efforts that support functioning within communities could promote healthy child development. (Breakout group 2)
- Consideration of healthy child development in all public policies could facilitate sustainable funding for services. (Breakout group 2)
- Consistent definitions for the terms *programs*, *practices*, *principles*, and *kernels* and criteria (e.g., empirical evidence) regarding when to scale up and disseminate a program, practice, principle, or kernel would benefit prevention efforts. (Breakout group 3)
- Implementation of the Affordable Care Act and improved community monitoring and program evaluation provide opportunities for prevention. (Breakout group 3)

Before the final plenary session of the workshop, participants broke into three groups to discuss three central issues associated with implement-

ing evidence-based prevention by communities to promote cognitive, affective, and behavioral health in children:

Group 1: Responsiveness to Community Needs and Building Capacity
Group 2: Sustainability and Funding
Group 3: Programs versus Principles and Innovative Methodologies

This final chapter of the workshop proceedings summarizes the reports from representatives of the breakout groups in the final plenary session and the concluding remarks of the workshop cochairs.

EMPOWERED AND INCLUSIVE COMMUNITIES

The first breakout group, co-moderated by Deborah Klein Walker, Abt Associates, and José Szapocznik, University of Miami, discussed responsiveness to community needs and building capacity. In its report back to the plenary session, the group emphasized the need to take a systems approach to public health that focuses on populations and equity. Public health should be seen as "the practice of social justice using the best evidence possible," said Klein Walker, who reported back for the group.

Participants in the breakout group also discussed the need to engage all levels of communities, including individuals who are not affiliated with any organizations, in collaborative decision making and shared accountability for actions and change. "The community is the organization that is responsible for ongoing change," said Klein Walker. "They are the ones making the decisions."

To achieve this goal, the workforce of researchers, practitioners, and others needs to have competencies in community engagement and systems change, Klein Walker continued. "Everyone needs to be involved, with a special outreach to people who are usually disenfranchised," even though researchers and practitioners are not currently trained in many of the skills needed to partner with those who do have these competencies to ensure outreach to disenfranchised communities.

In the discussion following Klein Walker's summary of the group's discussions, Albert Terrillion, CADCA, pointed out that the lack of "diversity and inclusion means that certain people are not at the table now. They need to be at the table from the beginning on all decision-making level processes." Klein Walker added that people with disabilities should also be included in addressing issues around diversity and inclusion.

Workshop participants also discussed how to integrate systems within a broader public health approach. As David Hawkins, University of Washington, pointed out, considerations of public health do not reside only in public health departments. "All the organizations, all the institutions, all

the agencies—the juvenile justice system, the child welfare system, health and human services—all these groups need to be involved," he said. By labeling a set of issues as public health, other agencies may think that they do not need to be involved; yet these agencies need to know that they are integral to the public's health.

Klein Walker agreed, pointing out that previous Institute of Medicine reports on public health encompass all the sectors that need to work together in a broader system, not just public health departments. However, "the assurance function to make sure that [a systems approach] happens has to be rooted in a shared place in a community," she added. This approach is currently being operationalized in health care under the Affordable Care Act, but "from a public health perspective, you'd want to look at a population to be the entire community," not just the people in a particular health care system.

SUSTAINABLE FUNDING

The second breakout group, which was co-moderated by Kelly Kelleher, Nationwide Children's Hospital, and Belinda Sims, National Institutes of Health, focused on sustainability in funding. The group discussed the need to support the development of prevention and wellness funds for needs-based community implementation of efforts that support functioning within the community, with a goal of promoting healthy development through the integration of systems and elimination of carve-outs (i.e., a program that excludes certain services). One result of this approach could be metrics on children and adolescents included in all ongoing community and agency needs assessments. "That would be our overarching statement," said Sims.

By emphasizing the idea of "functioning," from the individual to the community and governmental levels, group participants said they sought to convey the need to address issues at multiple levels, beginning with immediate and urgent needs and expanding from there. They also discussed how to generate funding for these efforts. One promising approach would be to extend "health in all policies" to "healthy development in all policies," which would place the focus on both health and healthy development and facilitate sustainable funding for services, Kelleher reported. Health in all policies, he explained, means that all public policies—whether tax policy, transportation, housing, or policies on any other subject—should include an assessment of their impact on health. Healthy development in all policies would promote consideration of child cognitive, affective, and behavioral health in all policies. "If we were to do that at the local, state, and federal levels, we would provide a roadmap on different funding opportunities for communities, researchers, policy makers, and others," Kelleher said. Essentially, considering healthy development in all policies

would establish social justice and equity as core principles of policy development, he added.

Other possibilities suggested by group members would be to use a collective impact model to pursue funding and policies, to broaden networking, to reduce duplicative efforts through better communication, and to prioritize children's health in the Affordable Care Act. As Marc Atkins, University of Illinois at Chicago, observed on this final point, the Affordable Care Act prioritizes chronic diseases, not children's health, but an emphasis on healthy development would affect not only short-term conditions, but also long-term and chronic conditions.

PROGRAMS, PRINCIPLES, AND INNOVATIVE METHODOLOGIES

The third breakout group, co-moderated by Wilma Peterman Cross, National Institutes of Health, and David Hawkins, looked at programs versus principles and at innovative methodologies. Group members noted first the need to better define such terms as programs, practices, principles, and kernels. As Hawkins, who reported back for the group, noted, presentations at the workshop made considerable progress on this issue, but the field as a whole could gain from consistent definitions of these terms.

In addition, Hawkins noted, that asking what works is not the end of the question. Instead, we need to go further in asking "what works for whom, when delivered by whom." For example, some practices could be disseminated through psychologists who have learned cognitive behavioral health skills, whereas others may need other forms of dissemination. "There may be different criteria for dissemination depending on who is supposed to implement this intervention," he said.

The group also talked about leveraging the opportunities for evaluation of preventive approaches being presented by implementation of the Affordable Care Act. For example, the Center for Medicare & Medicaid Innovation could capitalize on the investments and innovations currently being made in health care to learn what works for whom, and other research funders could be included in this effort.

Improved community monitoring and program evaluation could reveal areas of progress and lack of progress, breakout group members noted. Monitoring and evaluation data could have many audiences, from communities that want to make changes to funding agencies to researchers interested in innovative research designs. "If we have these kinds of monitoring systems in place, then it's possible to use improvement designs consistently in communities to see if we are making progress," said Hawkins.

Finally, the group talked about the potential value of a future workshop under the forum where people at the forefront of technology development and use could discuss the integration of technologically based approaches

into interventions. Such integration could encourage more collaboration not just among health care and human service providers but among the people who are developing and using technology to improve children's cognitive, affective, and behavioral health.

FINAL REMARKS

In their final remarks at the workshop, Szapocznik and Walker-Harding called attention to the gradual broadening of the workshop's scope over the day and a half of discussions. As Szapocznik said, to move the needle in a major way, it may be necessary to move from a strict focus on programs toward a broader focus on the social context and the social determinants of health. Social context may be changed at an individual level, a family level, a community level, or a population level. Interesting experiments are under way, such as using Medicaid funds to address housing issues. "Is there a way we could start thinking about addressing social determinants in a broader context?" he asked.

In broadening the agenda, the workshop could be "a fork in the road for the direction of our forum," Szapocznik continued. It opened up "new avenues that we might want to consider in terms of the role of the environment, our focus on social equity, and social determinants. This group has achieved something important in helping to clarify—and maybe broaden or redirect—the thinking of the forum."

Walker-Harding agreed, saying "We're at the edge of a change here. We're bringing up things in very different disciplines and different language. We need to begin to think differently." As she put it, everyone is on the same journey, but they are not necessarily aware of the others traveling in the same direction. "Whether we're talking about communities, or government, or the private sector, or the different systems of substance abuse or mental health. We're all trying to find a common language," she said.

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Appendix A

Workshop Statement of Task

Implementing Evidence-Based Prevention by Communities to Promote Cognitive, Affective, and Behavioral Health in Children

Statement of Task: An ad hoc steering committee will plan a 2-day open, interactive public workshop featuring presentations on research, practice, and policy surrounding implementation of evidence-based prevention of mental health and substance use disorders in community settings aimed at improving the well-being of children, adolescents, and their families. An important component in addressing the mental and behavioral needs of children and families is implementation of evidence-based prevention, interventions, and policies in the community setting where children and their families live, work, and learn. The committee will identify specific topics to be covered at the workshop from current areas of interest including the selection of prevention interventions by communities, adaptation to local needs, methodological developments, and involvement of the community in the implementation research enterprise. The committee members will also select and invite speakers and other participants and moderate the discussions. A brief summary and a full-length summary of the workshop presentations and discussions will be prepared by a designated rapporteur in accordance with institutional guidelines.

Appendix B

Workshop Agenda

Implementing Evidence-Based Prevention by Communities to Promote Cognitive, Affective, and Behavioral Health in Children

June 9-10, 2016

National Academy of Sciences Building
2101 Constitution Avenue, NW
Washington, DC

AGENDA

Day 1: Thursday, June 9, 2016

8:50 a.m. **Welcome and Overview of Goals and Agenda**
José Szapocznik, University of Miami
Leslie R. Walker-Harding, Seattle Children's and University of Washington

9:00 a.m. **Keynote Presentation**
Velma McBride Murry, Vanderbilt University

9:45 a.m. **Panel 1: Building Community Capacity: Choosing and Implementing Evidence-Based Programs with Fidelity**
Moderator: Patrick O'Carroll, U.S. Public Health Service

- Pastor Christopher T. Harris, Sr., Bright Star Church, Chicago
- Richard Spoth, Iowa State University
- Gary Belkin, New York City Department of Health and Mental Hygiene
- Gladys Carrión, New York City Administration for Children's Services

Discussion: What has been learned about implementing evidence-based prevention programs and systems in communities? What works, what doesn't work, and what needs to be in place to be successful? What are the next steps in terms of a research agenda?

11:15 a.m. **Panel 2: Taking Advantage of Cutting Edge Methodologies to Meet the Need for Efficient, Optimized Interventions**
Moderator: Wilma Peterman Cross, Office of Disease Prevention, National Institutes of Health

- Linda Caldwell, Pennsylvania State University
- Gerald August, University of Minnesota
- C. Hendricks Brown, Northwestern University

Discussion: Community interventions are generally complex and multilevel, and evaluations of such programs to improve their implementation and effectiveness often require innovative designs. Such designs need to meet both community and researcher needs. There is a strong need to have efficient, optimized prevention interventions as well as an interest in having individually tailored interventions. There is also a need to develop strategies that can be adapted based on community needs and resources, cultural context, setting, etc. This panel will present examples of how to implement programs in communities with fidelity, adaptive and preference-based models, randomized rollout evaluations, and nonrandomized community-based implementation designs including simulation models. Presentations will be followed by a moderated discussion to promote a dialogue between community representatives and researchers about needs and challenges when implementing evidence-based programs in communities.

1:15 p.m. **Panel 3: Programs Versus Principles: What Does the Evidence Tell Us?**
Moderator: J. David Hawkins, University of Washington
- Gilbert Botvin, Weill Cornell Medical College
- Amy Margolis, HHS Office of Adolescent Health
- Anthony Biglan, Oregon Research Institute
- Stephen Gies, Development Services Group
- Patrick H. Tolan, University of Virginia

Discussion: There is much discussion these days regarding the implementation of principles of prevention versus programs. An evidence base exists for prevention interventions, but is there an evidence base for principles and kernels? What evidence do we still need?

3:00 p.m. **Panel 4: How to Sustain Funding of Implementation of Evidence-Based Programs/Systems?**
Moderator: Kelly J. Kelleher, Nationwide Children's Hospital
- Heidi Peterson, Tooele City, Utah
- Marc Atkins, University of Illinois at Chicago
- Sue Thau, CADCA
- Ellen-Marie Whelan, Centers for Medicare & Medicaid Services

Discussion: What have we learned from these examples? What do community leaders think, do they think they could be implemented in their communities? What are research questions moving forward regarding sustainability?

4:15 p.m. **Closing Remarks and Reflections on Day One**
José Szapocznik, University of Miami
Leslie R. Walker-Harding, Seattle Children's and University of Washington

Day 2: Friday, June 10, 2016

8:50 a.m. **Welcome and Overview of Day Two**
José Szapocznik, University of Miami
Leslie R. Walker-Harding, Seattle Children's and University of Washington

9:00 a.m. **Panel 5: Being Responsive to Communities in Implementing Evidence Based Programs: What Do Communities Need and What Do They Want?**

Moderator: Alexa Eggleston, Conrad N. Hilton Foundation

- William B. Hansen, Tanglewood Research
- David Kolko, University of Pittsburgh School of Medicine and Western Psychiatric Institute & Clinic
- Stacy Sterling, Kaiser Permanente
- Albert Terrillion, Community Anti-Drug Coalitions of America
- Manuel Ángel Oscós-Sánchez, University of Texas Health Science Center at San Antonio

Discussion: Communities want to know if evidence-based interventions are efficacious for different populations (e.g., gender, minority populations) and when an intervention needs to be developed for a specific population. What does the evidence tell us? What evidence do we still need?

10:30 a.m. **BREAK (transit to breakout groups)**

10:45 a.m. **Breakout Group Activity**

Participants will divide into three moderated small groups. Each group will concentrate on a different topic related to themes from the workshop panels. All groups will discuss the following objectives from their unique perspective:

- Selecting programs and taking interventions to scale
- Research agenda and needs
- Sustainability and funding
- Engaging the public and policy makers in prevention

Group 1: Responsiveness to Community Needs and Building Capacity

Co-moderators: Deborah Klein Walker, Abt Associates and American Orthopsychiatric Association, and José Szapocznik, University of Miami

Group 2: Sustainability and Funding

Co-moderators: Kelly J. Kelleher, Nationwide Children's Hospital, and Belinda E. Sims, National Institute on Drug Abuse

Group 3: Programs vs. Principles & Innovative Methodologies
Co-moderators: Wilma Peterman Cross, Office of Disease Prevention, National Institutes of Health, and J. David Hawkins, University of Washington

11:45 a.m. **BREAK (reconvene in large group)**

12:00 p.m. **Group Activity Report Back and Discussion**

1:00 p.m. **Closing Remarks**
José Szapocznik, University of Miami
Leslie R. Walker-Harding, Seattle Children's and University of Washington

Appendix C

Biosketches of Workshop Speakers and Moderators

Marc Atkins is professor of psychiatry and psychology and director of the Institute for Juvenile Research at the University of Illinois at Chicago (UIC). He also directs the Dissemination and Implementation Research and Policy Program for UIC's Center for Clinical and Translational Science. He has been the recipient of several grants from the National Institute of Mental Health and private foundations in the areas of childhood attention-deficit/hyperactivity disorder and aggression and community mental health services for children and families living in high-poverty urban communities. He is a frequent consultant to the Chicago Public Schools as well as the Illinois Division of Mental Health and the Illinois State Board of Education. He has served on the executive committee of the Academy of Psychological Clinical Science of the Association for Psychological Science and is past president of the Society for Clinical Child and Adolescent Psychology (Division 53) of the American Psychological Association.

Gerald J. August is a professor in the Department of Family Social Science at the University of Minnesota. He also serves as director of a National Institute of Mental Health-funded Center for Personalized Prevention Research in Children's Mental Health and codirector of the Institute for Translational Research in Children's Mental Health. He specializes in the areas of development psychopathology and prevention science. He has published numerous papers addressing issues pertaining to ADHD diagnosis and classification, comorbidity, natural history, and treatment. His research interests also include the prevention of childhood conduct problems and associated

health compromising behaviors. He is founder of the Early Risers "Skills for Success" prevention program.

Gary Belkin is the executive deputy commissioner of mental hygiene in the New York City Department of Health and Mental Hygiene and was most recently the medical director for behavioral health in the Health and Hospitals Corporation of the City of New York, which operates 11 public hospitals in New York City. He has served as chief of psychiatry (interim) at Bellevue Hospital and has led large delivery systems and policy development in urban health settings through advancing innovative approaches to public mental health. He was associate professor in the Department of Psychiatry at New York University (NYU) School of Medicine and founding director of the NYU program, which was developed to advance innovative implementation and policy approaches to scale and improve population mental health strategies.

Anthony Biglan is a senior scientist at the Oregon Research Institute. His research over the past 30 years has helped to identify effective family, school, and community interventions to prevent the most common and costly problems of childhood and adolescence. He is a former president of the Society for Prevention Research. He was a member of the Institute of Medicine Committee on Prevention. His recent review of preventive interventions concluded that diverse psychological, behavioral, and health problems can be prevented through the promotion of nurturing families, schools, and communities. His (2015) book, *The Nurture Effect: How the Science of Human Behavior Can Improve Our Lives and Our World,* describes the progress that behavioral science has made in improving human well-being.

Gilbert Botvin has been on the faculty of Cornell University's Weill Medical College for more than 32 years, where he currently is professor emeritus of health care policy and research. Previously, he was professor of public health, professor of psychiatry, chief of the Division of Prevention and Health Behavior, and director of Cornell's Institute for Prevention Research. He has published more than 250 scientific papers and book chapters, is a fellow and past president of the Society for Prevention Research, and is founding editor of its journal, *Prevention Science*. He has received numerous awards, including a MERIT award from the National Institutes of Health for his achievements as an outstanding prevention researcher, and the Society for Prevention Research's Presidential Award for his lifetime contributions to prevention science. He is the developer of the Life Skills Training drug abuse and violence prevention program. He is also founder and president of National Health Promotion Associates.

C. Hendricks Brown is professor in the Departments of Psychiatry and Behavioral Sciences, Preventive Medicine, and Medical Social Sciences in the Northwestern University Feinberg School of Medicine. He also holds adjunct appointments in the Department of Mental Health at the Johns Hopkins Bloomberg School of Public Health and in the Department of Public Health Sciences at the Miller School of Medicine at the University of Miami. He directs the National Institute on Drug Abuse-funded Center for Prevention Implementation Methodology for Drug Abuse and HIV, and a National Institute of Mental Health-funded study to synthesize findings from individual-level data across multiple randomized trials for adolescent depression. He is also the codirector of the Centers for Disease Control and Prevention-funded Prevention of Youth Violence Center. Since 1985, he has received National Institutes of Health funding to direct the Prevention Science and Methodology Group. He cochairs the National Academy of Medicine Forum on Promoting Children's Cognitive, Affective, and Behavioral Health and serves on numerous federal panels, advisory boards, and editorial boards.

Linda L. Caldwell is distinguished professor of recreation, park, and tourism management and human development and family studies at Pennsylvania State University. Her research primarily focuses on interventions that develop youth competencies, promote healthy lifestyles, and reduce risky behavior in and through leisure. She is the co-developer of two interventions that focus on preventing adolescent risk behavior through positive use of free time: TimeWise: Taking Charge of Leisure Time and HealthWise South Africa: Life Skills for Young Adults. She is coauthor of an edited book, *Recreation and Youth Development*. She is currently chair of the Children and Youth Commission of the World Leisure Association, past president of the Academy of Leisure Sciences, and an elected member of the American Academy of Park and Recreation Administration.

Gladys Carrión has been recognized as a national leader in efforts to reform New York State's juvenile justice system and an advocate for children and families involved in the child welfare system. She has received numerous awards and served on national advisory committees focused on reforming the juvenile justice system and promoting the well-being of young adults. She was appointed commissioner of the New York City Administration for Children's Services (ACS) in January 2014. She is now responsible for implementing Close to Home, the city's juvenile justice program. Prior to her appointment to ACS, she was commissioner of the Office of Children and Family Services (OCFS), overseeing New York State's child welfare, early childhood care, and juvenile justice systems. As OCFS commissioner,

Carrión is credited with implementing a differential response model known as Family Assessment Response and overhauling the juvenile justice system.

Stephen Gies has experience with program research and evaluation as well as data gathering, data analysis, database development, and report writing. Currently he is a senior researcher at Development Services Group, and he is also the principal investigator for an evaluation of safe harbor laws funded by the Office of Juvenile Justice and Delinquency Prevention (OJJDP). He recently completed another OJJDP-funded evaluation of the Girls Circle Program and two National Institute of Justice evaluations of the California Department of Corrections and Rehabilitation's program for monitoring high-risk gang and sex offenders. Previously, he directed a 5-year project funded by the Department of Health and Human Services, Administration for Children and Families, to evaluate the Boys Town Healthy Choices Program. He also serves as the quality of research review manager for the National Registry of Evidenced-based Programs and Practices. In addition, he is the deputy director and principal designer of the OJJDP Model Programs Guide and a senior reviewer and principal developer of the CrimeSolutions Program.

William Hansen served as president of Tanglewood Research between 1993 and 2016. He has served on the faculty at the University of California, Los Angeles; University of Southern California, and Bowman Gray School of Medicine. He has been the principal investigator or project director on numerous grants and contracts. He has written numerous curricula for school and community-based prevention, including Project SMART, Project STAR, and All Stars. He has authored more than 130 articles in scientific journals on research and evaluation methods, prevention theory, and strategies for successful prevention practice. In 2013, he was named a fellow of the Society for Prevention Research. He is currently working with the nonprofit Barnardo's Northern Ireland on a project to prevent substance use and violence among teenagers.

Christopher Harris is the spiritual leader of Bright Star Church in his native Chicago. A noted gospel and jazz singer, he has ministered in song in more than 20 countries and recorded on over 15 projects. He is also the founder of Bright Star Community Outreach, a nonprofit organization dedicated to youth antiviolence programs, educational enrichment, and school improvement in the Bronzeville Community. He is a national council member of the American Israel Public Affairs Committee and travels the country building relationships between African American and Jewish clergy.

David J. Kolko is professor of psychiatry, psychology, pediatrics, and clinical and translational science at the University of Pittsburgh School of Medicine where he directs the Services for Kids in Primary Care Program, which is designed to promote integrated pediatric health care. Dr. Kolko is also director of the Special Services Unit at Western Psychiatric Institute and Clinic, a program devoted to the development and dissemination of evidence-based practices for children or adolescents served in diverse community settings or systems including juvenile justice, child welfare, pediatric primary care, and mental health. He is board-certified in child and adolescent psychology by the American Board of Professional Psychology. He is a fellow of the Society of Clinical Child and Adolescent Psychology (Division 53) and the Society for Child and Family Policy and Practice (Division 37) of the American Psychological Association. He also serves as adjunct staff in the Section of Behavioral Health at Children's Hospital of Pittsburgh. Specific areas of current interest include the integration of behavioral health services in pediatric primary care and family health centers, adaptations of the collaborative care model, personalized treatment targets, and the promotion of academic health care partnerships to advance the science of implementation. He is co-developer of Alternatives for Families: A Cognitive Behavioral Therapy.

Amy Margolis is the director of the Division of Program Development and Operations in the Office of Adolescent Health (OAH), and the lead for the office's National Evidence-Based Teen Pregnancy Prevention Program. She is responsible for developing programmatic and policy guidance, monitoring program implementation, overseeing training and technical assistance for grantees, and communicating lessons learned and program successes. Prior to joining OAH, she oversaw research and evaluation projects related to family planning for the Office of Population Affairs. She began her federal service in the Division of Adolescent and School Health at the Centers for Disease Control and Prevention, where she worked with national, state, and local organizations to implement and evaluate school health programs to prevent HIV infection and promote physical activity and healthy eating.

Velma McBride Murry is the Lois Autrey Betts chair in education and human development, Joe B. Wyatt distinguished university professor, and professor of human and organizational development in Peabody College at Vanderbilt University. She has conducted research on African American parents and youth for more than 15 years. Findings from these empirical studies informed the development of a curriculum, the Strong African American Families Program. She recently completed a National Institute of Mental Health-funded program entitled Pathways to African Americans' Success. She is the author of more than 100 scientific articles. She is a member of the

National Academies of Medicine, Board on Children, Youth, and Families and member of the Healthy Parenting and Primary Care Task Force; she also chaired the American Psychological Association's Committee on Psychology and AIDS. She has received numerous awards, including the 2014 Society for Prevention Research Award for Contributions in Community, Culture and Prevention Science and the 2014 American Psychological Association Presidential Citation, Distinguished Research and Contributions for Children, Youth, and HIV/AIDS.

Patrick O'Carroll is the regional health administrator for Region X of the U.S. Public Health Service (USPHS). He led the epidemiology research unit for the prevention of suicide and violence at the Centers for Disease Control and Prevention (CDC) National Center for Injury Prevention Control. In 1992, he began working in public health informatics. He co-led the development of CDC WONDER, was lead scientist on the CDC Prevention Guidelines Database project, and developed the nation's first training course and textbook in public health informatics. As associate director for health informatics at CDC's Public Health Practice Program Office, he developed and directed CDC's Health Alert Network Program. In his more than 30 years with CDC and USPHS, he has received numerous awards and recognition for his work. He holds affiliate associate professor appointments in the University of Washington (UW) School of Public Health and Community Medicine and the UW School of Medicine.

Manuel Ángel Oscós-Sánchez is a professor of medicine in the Department of Family and Community Medicine at the University of Texas Health Science Center at San Antonio. Since 2005, he has sustained a successful community-academic research partnership to develop, implement, and evaluate youth violence prevention programs in a Latino community with the use of a Positive Youth Development framework. Community members, primarily adolescents and their parents, are full participants in the research process. The community has participated in conception, design, grant submissions, data collection, intervention development and implementation, data analysis and interpretation, and dissemination of results.

Heidi Peterson currently works as the director for Communities That Care Program in Tooele City, Utah. She coordinates efforts to identify local risk and protective factors, then implement evidence-based programming to positively affect outcomes. In her work, she helps families and youth to thrive and specializes in suicide prevention, training community members and key leaders in suicide prevention and best prevention practices.

Richard Spoth is the F. Wendell Miller senior prevention scientist and the director of the Partnerships in Prevention Science Institute at Iowa State University. He provides oversight for an interrelated set of projects addressing research questions on prevention program engagement, program effectiveness, culturally competent programming, and dissemination of evidence-based programs through community-university partnerships. Among his National Institutes of Health-funded projects, he received a MERIT Award from the National Institute on Drug Abuse for a large-scale study evaluating combined family- and school-based interventions. He has served on numerous federally sponsored expert and technical review panels addressing issues in prevention research and research-practice integration and briefed many policy makers on these topics. He received the Prevention Science Award from the Society for Prevention Research, as well as the Service to the Society for Prevention Research Award for leadership on the Task Force on Type 2 translation research and the Presidential Award for lifetime scientific achievement.

Stacy Sterling is a scientist with the Drug and Alcohol Research Team at the Kaiser Permanente Northern California (KPNC) Division of Research. Her current research focus is on developing systems for implementing evidence-based, integrated behavioral health services into primary care. She has overseen the implementation of region-wide alcohol Screening, Brief Intervention and Referral to Treatment (SBIRT) in KPNC adult primary care. She is the principal investigator (PI) of a Conrad N. Hilton Foundation-funded study to develop predictive models for adolescent use problem development, and of a Hilton Foundation-funded trial of single-session versus multisession SBIRT for adolescents and parents in pediatric primary care. She is also the Kaiser PI of a National Institute on Alcohol Abuse and Alcoholism (NIAAA) adolescent SBIRT trial in pediatric primary care; an NIAAA survey of pediatrician attitudes toward and practices of adolescent behavioral health risk screening and intervention; and Robert Wood Johnson Foundation and Center for Substance Abuse Treatment-funded studies of adolescents in drug and alcohol treatment at Kaiser.

Albert Terrillion is the deputy director for evaluation and research for the Community Anti-Drug Coalitions of America's federally funded National Coalition Institute. He is a health professional with more than 20 years of experience at the local, state, and national levels. He has worked in and with rural and urban communities in Louisiana, Virginia, and other states and territories. His work has included building partnerships between health systems and community groups and supporting communities to use data and evidence-based practices to improve health outcomes. He worked in academic translational research, community improvement, and health

workforce training and prevention education, including leading several initiatives to support recovery from Hurricane Katrina in New Orleans.

Sue Thau is a public policy consultant representing Community Anti-Drug Coalitions of America. She is nationally recognized for her advocacy and legislative accomplishments on behalf of the substance abuse prevention field. She has an extensive background in public policy and has held high positions at the federal, state, and local levels. She was a budget examiner and legislative analyst at the Office of Management and Budget, in the Executive Office of the President for more than 10 years. She worked for the passage, reauthorization, and full funding of the Drug-Free Communities Act. In addition, she has worked to save and enhance funding for other federal substance abuse prevention and treatment programs over the last two decades. She has an undergraduate degree from Cornell University in human development and family studies and a master's degree from Rutgers University in city and regional planning.

Patrick H. Tolan is professor of education and of psychiatry and neurobehavioral sciences at the University of Virginia (UVA), where he is director of Youth-Nex: The UVA Center to Promote Effective Youth Development. Prior to starting the center in 2009, he directed the Institute for Juvenile Research at the University of Illinois. For the past 30 years, he has conducted longitudinal research with multiple collaborators on an ecological-developmental understanding of youth psychological and social functioning. He is a fellow of five divisions of the American Psychological Association, the Society for Research in Aggression, and the Society for Experimental Criminology. In 2007, he was awarded the Star of Science Award from the Children's Brain Research Foundation, and in 2008, he received a Presidential Citation from the American Psychological Association. He was the 2016 recipient of the Nicholas Hobbs Award from the Society for Child and Family Policy and Practice.

Leslie R. Walker-Harding is currently professor and chair of the Department of Pediatrics at the Penn State Hershey Medical Center and medical director of Penn State Children's Hospital. She was previously professor and vice chair of faculty affairs in the Department of Pediatrics and chief of the Division of Adolescent Medicine at the University of Washington and Seattle Children's Hospital. She is the codirector of Seattle Children's Adolescent Substance Abuse Program. She is the director of the Maternal and Child Health-funded multidisciplinary training program for Leadership in Adolescent Health. Her research has been focused on adolescent risk behaviors, adolescent and young adult substance abuse, and ADHD to adolescent pregnancy prevention. She is a past president of the Society

for Adolescent Health and Medicine. She was appointed to the American Academy of Pediatrics' Committee on Substance Use and Prevention and elected to the American Pediatric Society Council.

Ellen-Marie Whelan is the chief population health officer for the Centers for Medicare & Medicaid's (CMSs) Center for Medicaid and CHIP Services and a senior adviser at the CMS Center for Medicare and Medicaid Innovation, coordinating the pediatric portfolio across the center. In both positions she assists in the design, implementation, and testing of delivery system transformation and payment reform initiatives. Before coming to CMS, she was the associate director of health policy at the Center for American Progress (CAP). Prior to joining CAP, she was a health policy adviser in the U.S. Senate for 5 years, was a health services researcher and faculty member at the University of Pennsylvania and Johns Hopkins University, and practiced as a nurse practitioner for more than a decade. She has worked in a variety of primary care settings and started an adolescent primary care clinic in West Philadelphia.