

TECHNICAL REPORT

# Evaluating the Impact of Prevention and Early Intervention Activities on the Mental Health of California's Population

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Sponsored by the California Mental Health Services Authority



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The research described in this report was sponsored by the California Mental Health Services Authority and was conducted within RAND Health, a unit of the RAND Corporation.

The California Mental Health Services Authority (CalMHSA) is an organization of county governments working to improve mental health outcomes for individuals, families and communities. Prevention and Early Intervention (PEI) programs implemented by CalMHSA are funded through the voter-approved Mental Health Services Act (Prop 63). Prop. 63 provides the funding and framework needed to expand mental health services to previously underserved populations and all of California's diverse communities.

It is our hope that the work we have conducted to develop a Prevention and Early Intervention evaluation framework will prove useful to state and county decisionmakers, providers, and advocates for mental health system transformation and improvement. While we benefited greatly from the insights and advice of the Mental Health Services Oversight and Accountability Commission (MHSOAC), the California Mental Health Services Authority (CalMHSA), the Statewide Evaluation Experts (SEE) and from diverse stakeholders, the approach and views expressed in this document are the authors', and we are solely responsible for any errors or omissions.

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## Preface

The Mental Health Services Act, passed by California voters in 2004, provides the funding and framework to expand mental health services to previously underserved populations and all of California's diverse communities. Twenty percent of the funding was dedicated to prevention and early intervention (PEI) programs and initiatives. The Act also established the Mental Health Services Oversight and Accountability Commission, which was given statutory mandates to evaluate how PEI funding was being used, what outcomes have resulted from those investments, and how services and programs could be improved. Consistent with this role, the Commission coordinated with the California Mental Health Services Authority (CalMHSA) to seek development of a statewide framework for evaluating and monitoring the short- and long-term impact of PEI funding on the population of California. CalMHSA selected the RAND Corporation to develop a framework for the statewide evaluation. CalMHSA is an organization of county governments working to improve mental health outcomes for individuals, families, and communities.

The information contained in this report should be of interest to a wide range of stakeholders both within and outside the state of California, from organizations and counties implementing PEI programs, to policymakers making key funding decisions in this area. It will help stakeholders decide whether and how to evaluate the impact of this historic funding and the existing resources that could be used to support an evaluation.

This document was prepared with the input of stakeholders across the state of California. Forty-eight individual stakeholders were interviewed, including technical subject-matter experts, consumers, and representatives of state and local governments. In addition, members of the CalMHSA Statewide Evaluation Experts (SEE) Team and the Mental Health Services Oversight and Accountability Commission staff and evaluation subcommittee provided input to guide the development of the document and feedback on a draft of the report. The SEE is a diverse group of CalMHSA partners and community members, including CalMHSA board members, representatives of counties of varied sizes, representatives of the California Mental Health Directors Association, a representative from the California Institute for Mental Health, members of the MHSOAC, a representative from the California State Department of Mental Health, individuals with expertise in cultural and diversity issues, behavioral scientists with evaluation expertise, and consumers and family members who have received mental health services.

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# Executive Summary

## Background

In 2004, California voters passed the Mental Health Services Act. The Act was intended to transform California's community mental health system from a crisis-driven system to one that included a focus on prevention and wellness. The vision was that prevention and early intervention (PEI) services comprised the first step in a continuum of services designed to identify early symptoms and prevent mental illness from becoming severe and disabling. Twenty percent of the Act's funding was dedicated to PEI services. The Act identified seven negative outcomes that PEI programs were intended to reduce: suicide, mental health-related incarcerations, school dropout, unemployment, prolonged suffering, homelessness, and removal of children from the home.

The Mental Health Services Oversight and Accountability Commission coordinated with the California Mental Health Services Authority (CalMHSA), an independent administrative and fiscal intergovernmental agency, to seek development of a statewide framework for evaluating and monitoring the short- and long-term impact of PEI funding on the population. CalMHSA selected the RAND Corporation to develop a framework for the statewide evaluation.

## Approach

### Interviewing Key Stakeholders

In order to develop the goals for the evaluation framework, RAND researchers conducted interviews with 48 key stakeholders and elicited their perspectives on how the frameworks might be used as well as attributes that would make the frameworks useful.

### Developing Frameworks

We used a widely accepted model of how health services affect health to develop our overall framework and applied it to the specifics of PEI implementation.

We created two types of frameworks: an "overall approach" framework and specific frameworks for each of the key outcomes specified by the Act. The frameworks identify, at the conceptual level, the key components that should be measured and tracked over time. The frameworks can provide information that would be useful to a broad range of stakeholders and decisionmakers, including state planners interested in the mental health of California's population, consumers and individual providers.

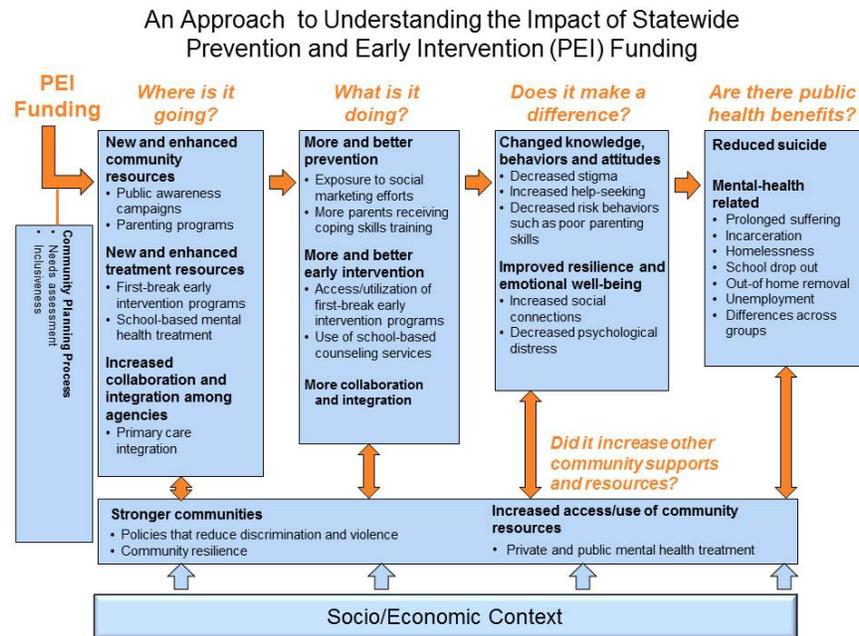
The frameworks include individual and family outcomes (population-level measures of emotional well-being and family functioning), program and service-system outcomes (the quality and timeliness of treatment and increased collaboration across agencies), and community outcomes (stronger and more resilient communities, population-level measures of negative outcomes, such as unemployment or suicide).

# Evaluation Frameworks

## Overall Approach Framework

Figure S.1 depicts the overall approach framework for the evaluation. The framework asks a series of questions about PEI funding: where is the funding going, what it is being used for, does the funding make a difference, and are there resulting public health benefits?

**Figure S.1**  
An Approach to Understanding the Impact of Prevention and Early Intervention Funding



Moving from left to right in the figure, we see the following:

- **Box 1, “PEI funding”:** The initial community planning process in each county to determine funding priorities
- **Box 2, “Where is it going?”:** The types of programs that were funded using PEI resources and the programmatic capacity that was developed.
- **Box 3, “What is it doing?”:** The “process” of delivering the programs—what prevention activities reached which target populations?
- **Box 4, “Does the funding make a difference?”** The direct, short-term outcomes that PEI is intended to bring about—changed knowledge, behaviors, and attitudes and improved resilience and emotional well-being—measured at the population level
- **Box 5, “Are there public health benefits?”:** The ultimate outcomes measured at the population level. Changes in short-term outcomes are intended to reduce these seven negative outcomes identified by the Act.

In most cases, the data relevant to boxes 2 and 3 would be provided by programs and counties. Data relevant to boxes 4 and 5 would come from existing national or statewide surveys or vital statistics. The social and economic context influences how PEI was implemented and what it is accomplishing; therefore, socioeconomic context is shown at the bottom of the figure as affecting all of the components.

## **Examples of Outcome-Specific Frameworks**

We developed an evaluation framework for each of the key outcomes identified by the Act.

## **Data Sources and Measures**

Appendixes to this report contain detailed description of existing databases relevant to the evaluation, as well as potential measures for each component in the evaluation frameworks, including the numerator and denominator, data source, and other relevant notes.

## **Analytic Approaches to Evaluating the Impact of Prevention and Early Intervention**

### **Inherent Limitations of a Prevention and Early Intervention Evaluation**

A PEI evaluation has some important inherent limitations. Because the programs and activities were not randomly implemented and there are no geographic areas or populations within California that were not exposed to PEI activities, it would be technically difficult (although not impossible) to estimate the causal impact of PEI on outcomes. What can be done more easily is to relate changes in PEI program activity to changes in outcomes, without establishing causality. A second limitation is the fact that PEI programs and services were meant to function as part of a continuum of services that included treatment and recovery services. Unless some population groups were systematically exposed to one program but not the other, it is not analytically possible to separate the impact of PEI from those of other treatment and recovery services.

### **Evaluation Designs**

There are three evaluation designs that could be used to estimate the impact of PEI funding on outcomes:

#### ***Time-Trend Analysis of Observational Data (Before-After Design)***

In this design, the evaluator compares outcomes for the study population before and after a program is implemented. This evaluation design is simple and often easy to implement, but it is also not as robust as other designs. The principal limitation is that it is difficult to distinguish the “causal” effect of the program from the effect of overall time trends.

#### ***Difference-in-Differences Design***

This approach compares what happens in California with what happens in other states that are similar to California and assumes that time trends would be the same in the treated and comparison groups. If data were collected each year, it would be possible to document the

yearly “benefit” of PEI program activity and to assess how utilization and outcomes are affected by changes in the social and economic context.

### ***Synthetic Control Method***

The synthetic control method modifies the difference-in-differences (D-in-D) framework to make it particularly suitable for evaluating programs in which, like PEI, there is only one “treated” unit—in this case, California. This approach produces a much better comparison group than one in which all the untreated units are essentially given the same weight.

### **Using Descriptive Statistics for Inference**

Our evaluation framework can also be used to monitor the effects of PEI programs by collecting and reporting descriptive information or statistics. Descriptive data can help policymakers to continuously monitor progress toward benchmarks and can serve as “early warning” indicators of implementation failures. An effective and efficient way to provide descriptive data about PEI programs is to create a web tool.

## **Conclusions**

### **Usefulness of the Evaluation Framework**

The negative outcomes identified by the Act are broad social outcomes that are affected by many different social forces, and changes in these outcomes will take years to observe. Although it is analytically possible to evaluate the causal impact of the Act on population-level outcomes, we do not recommend this approach. Rather, we suggest using existing data to track over time the population-level outcomes identified in the Act and ultimately to provide the data needed to estimate how this historic initiative has affected the mental health of California’s population. This is an excellent time to establish a surveillance system that can be used to provide important information about the early phase of PEI activity. We recommend using resilience and emotional well-being to monitor and track changes at the population level.

### **Data Development**

We recommend additional data development to support implementation of the evaluation framework:

### ***Immediate Prevention and Early Intervention Program Information Needs***

It is essential to develop standardized, core information about the programs funded under the Act’s PEI initiatives, the activities carried out by these programs, and the individuals reached by these activities. At minimum, all programs should report on the number of individuals served or exposed to the intervention, the type of program, and the target population. A next step would be for programs to report on the demographic and social characteristics of the individuals reached by the programs. Last (and significantly more difficult) would be to implement data systems that can track individuals across programs and service systems.

### ***Prevention and Early Intervention Performance Indicators***

Currently, there are few standardized and widely accepted measures of the quality of PEI services, but measures could be developed over time. Some examples of potential performance indicators include whether a program meets certification standards, client satisfaction with program activities, and whether training or other interventional activities are delivered with fidelity to evidence-based protocols.

### ***Maintaining and Improving Tracking of Population Outcomes***

Existing data sources can be used to populate constructs in the PEI evaluation framework, but, in some cases, these data sources could be improved. A key example is suicide statistics. National standards provide guidelines for more-consistent reporting, and these could be adopted to improve suicide statistics and their utility for PEI evaluation.

### **Other Important Evaluation Issues**

#### ***Evaluating Program Efficacy***

In many cases, the literature provides insufficient evidence on the efficacy of specific PEI activities. We recommend that the state or counties strategically develop the evidence base for PEI programs by conducting rigorous evaluations of strategically selected promising programs.

#### ***Evaluating Cultural Competence***

There are currently no broadly accepted and reliable measures of cultural competence that could serve as performance indicators in an ongoing statewide monitoring system. If the development of cultural-competence assessments at the program level is a priority, we recommend obtaining advice from national experts.

#### ***Developing Program Capacity for Quality Improvement***

Although routinely assessed outcomes are not useful to evaluate the comparative effectiveness of programs, they can and should be used for ongoing quality improvement efforts. We recommend developing program capacity for quality improvement.

### **Next Steps**

We suggest a three-year phased implementation of the statewide evaluation framework.

The first year would include (1) demonstration of development and reporting of PEI program-level information; (2) psychometric assessment and refinement of program-level and population-level measures, which would also include pilot testing new measures; (3) development of descriptive analytic and reporting templates; and (4) proposed work plan and resources required for full implementation and ongoing maintenance. The second and third years would focus on implementing the full evaluation framework, including the infrastructure required to acquire, store, analyze, and routinely report data.

# Abbreviations

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CalMHSA	California Mental Health Services Authority
D-in-D	difference-in-differences
MHSA	Mental Health Services Act
PEI	prevention and early intervention

## Chapter One

# Background

The Mental Health Services Act (hereafter, the Act), passed by California voters in 2004, called for transforming California’s community mental health system from a crisis-driven system to one that included a focus on prevention and wellness. Transformation was to be accomplished in part by dedicating a portion of the Act’s revenues to Prevention and Early Intervention (PEI) services. The focus on prevention and wellness represented a historic change in the way that California addressed the problem of serious mental illness and the consequences of mental illness for individuals, families, and communities.

The Act was intended to convert the public mental health system from a “fail-first” system to a system in which people would get the services and community supports they need as early as possible. It was to prevent the development or worsening of a mental illness and reduce the negative consequences of mental illness, including suicide, homelessness, incarceration, and school failure. The vision was that prevention and early intervention made up the first step in a continuum of services designed to reduce stigma and discrimination associated with mental illness, to identify early symptoms and prevent mental illness from becoming severe and disabling, and ultimately to contribute to stronger and healthier communities.

This vision is well aligned with research evidence from the Institute of Medicine’s Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities report (O’Connell, Boat, and Warner, 2009), which emphasized that the “first symptoms typically occur two to four years before the onset of a full-blown disorder—creating a window of opportunity when preventive programs might make a difference” (pp. 50, 55, 72). There is a wide range of evidence-based prevention programs that can reduce the risk of mental illness and decrease psychiatric symptoms and disability (World Health Organization, 2004). The Act also explicitly emphasized expanding services to reach historically underserved populations and developing culturally and linguistically appropriate services to meet the unmet mental health needs of California’s diverse communities.

The Act required that 20 percent of revenues be allocated toward PEI programs. The programs should (1) prevent mental illnesses from becoming severe and disabling; (2) improve timely access to underserved populations; (3) offer outreach to families, employers, primary care health care providers, and others to help them recognize the early signs of potentially severe and disabling mental illnesses; (4) provide access and linkage to medically necessary care provided by county mental health programs for children, adults, and seniors with severe mental illness as early in the onset of these conditions as practicable; and (5) reduce stigma and discrimination associated with either being diagnosed with a mental illness or seeking mental health services (California Department of Mental Health, as of September 17, 2012).

The Act identified seven negative outcomes, also referred to as *key outcomes* in this report (see Figure 1.1), associated with untreated or inadequately treated mental illness that PEI programs

were intended to reduce: suicide and, to the extent that they are related to underlying mental illness, incarcerations, school failure, unemployment, prolonged suffering, homelessness, and removal of children from the home.

**Figure 1.1.**  
**Seven Negative Outcomes (Key Outcomes) Identified in the Mental Health Services Act**

1. Suicide
- The following outcomes to the extent that they are related to underlying mental illness:
2. Incarcerations
  3. School failure
  4. Unemployment
  5. Prolonged suffering
  6. Homelessness
  7. Removal of children from the home

In addition to these population health–level outcomes, the Act specified goals for the process of decisionmaking regarding use of the Act’s funds. Stakeholders, particularly consumers of services, family members, parents, and caregivers, were to participate in planning, implementing, and overseeing the Act’s programs at the state and local levels.

The legislation also established the Mental Health Services Oversight and Accountability Commission (hereafter, the Commission), which was given statutory mandates to evaluate how funding provided by the Act was being used, what outcomes have resulted from those investments, and how services and programs could be improved. Consistent with this role, the Commission coordinated with the California Mental Health Services Authority (CalMHSA), an independent administrative and fiscal intergovernmental agency, to seek development of a statewide framework for evaluating and monitoring the short- and long-term impact of PEI funding on the population. In general, the evaluation would ensure that the process of deciding how PEI funds were allocated reflected the Act’s principles—e.g., was the process open to all stakeholders? Did it address the Act’s goals appropriately? Were programs selected on the basis of evidence that they work? In addition, the evaluation would provide information about whether quality services were delivered to the targeted populations. Finally, the evaluation would make it possible to assess the public health impact of PEI spending on targeted outcomes. CalMHSA selected the RAND Corporation to develop a framework for the statewide evaluation.<sup>1</sup>

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<sup>1</sup> RAND was tasked with five specific activities. In this report, information relevant to each task is covered in one or more sections and, in most cases, one or more appendixes: (1) Identify a consolidated list of overall goals across PEI programs and conceptualize each goal in terms of potential outcome measures that could be used for evaluation purposes (Section Four and Appendix A); (2) identify data sources that are either available or could be

In this document, we describe the work we conducted to develop the evaluation framework. Our discussion is organized as follows. We begin by presenting the rationale for our approach. We then describe the methods used to develop the frameworks—both the overall framework and frameworks for each specific negative outcome identified by the Act—and we identify the data sources and measures with which to populate the frameworks. We describe the components of the frameworks and summarize the descriptive and inferential analytic approaches that could be used to track program capacity development, reach, and statewide population outcomes. Appendixes provide descriptions of each data source, measure specifications, and technical details of our analytic approach. We conclude with a discussion of potential next steps and recommendations for data development.

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available to populate potential measures, and investigate the utility of PEI evaluation frameworks and data sources that counties have developed (Sections Three and Five and Appendix B); (3) develop a conceptual PEI statewide evaluation framework and analytic approach that logically link programs and program strategies with outcome measures (Sections Four and Six and Appendixes A and D); (4) develop measure specifications, including the data sources required to implement measures, and detail the strengths and limitations of the data sources and measures (Section Five and Appendixes B and C); and (5) identify ways to link PEI evaluation to the overall evaluation of the act (Section Seven).

## Chapter Two

# Goals and Approach

A first step of the project was to more fully develop the goals for the evaluation framework. To accomplish this, we conducted interviews with 48 key stakeholders, as described in Chapter Three. During the discussions, many stakeholders observed that the seven negative outcomes identified in the Act are typically not directly and immediately affected by individual PEI programs; rather, these outcomes should be reduced over the long run if the entire system (the continuum of prevention, early intervention, and treatment) is strengthened. There was broad recognition that system changes take time and that the benefits of PEI efforts are likely to accumulate over years.<sup>2</sup> For example, the benefits from parent training programs or social media campaigns to educate the public about suicide prevention are likely to have some immediate effects on the knowledge and attitudes of those exposed to them; however, effects on suicide rates or school dropout rates can be distant in time. Some programs might also benefit individuals who did not directly participate in the program—for example, a program for at-risk teens might affect a school’s overall climate, which might, in turn, benefit teens at the school who were not exposed to the program.

In addition, the benefits of PEI programs often logically depend on access to and use of appropriate interventions or resources. For example, screening and early detection of child behavioral and emotional problems is an effective early intervention strategy only if these children and their families are linked to appropriate treatment services. Hotlines can prevent suicide through timely support and interventions that encourage callers to get treatment that alleviates their suffering (Gould et al., 2012). Other interventions or resources might include the availability of affordable housing or entry-level jobs.

We believe that the statewide evaluation approach should reflect expectations that reductions in the seven negative outcomes are longer-term, system-wide effects, rather than direct and immediate effects of PEI programs. There are three important implications of this expectation:

- The negative outcomes should be measured for the population as a whole, rather than only among individuals participating in or exposed to any particular PEI program.
- The effects that PEI programs can have on these outcomes cannot logically be distinguished from effects of treatment and can be thought of only as broader system transformation effects. This means that, although the frameworks we developed (both the overall framework and the area-specific frameworks focused on the seven negative outcomes) are focused on PEI, the proposed approach could and should be extended to include the continuum of treatment and recovery services, funded by Community

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<sup>2</sup> One analogy for how PEI effects accumulate is the example of the significant reductions in cigarette smoking; these are small in any given year but have been sustained over a decades and have resulted in many health benefits, such as reduced incidence of lung cancer and emphysema. Educational campaigns, policy changes, and smoking-cessation treatments are all believed to play a part in this public health success story.

Services and Supports. Measuring the provision of PEI services can help to determine whether there are gaps in the treatment system.

- Long-term tracking of the seven negative outcomes is essential: The benefits of system transformation are likely to be small and probably undetectable in the short run; however, with sustained programmatic efforts, small effects should accumulate and result in a positive trend over time.

Although the measurement and tracking of outcomes should be done at the level of the population, the evaluation framework must also include information about the specific programs that were funded and the utilization and quality of these programs. Although it may be difficult to identify the short-term impact of PEI funding at the population level, the approach we offer should be able to answer these important questions in the short run: Is the state putting into place the kinds of PEI programs and interventions that were intended? Are these programs reaching the state's diverse and high-risk populations as intended? Evaluating and monitoring these intermediate steps should provide important information that could be used to ensure that the programs implemented are reflective of stakeholder priorities.

## Chapter Three Methods

In this chapter, we describe how we developed and refined our evaluation frameworks and how we identified the databases that would be relevant for a statewide PEI evaluation.

### Interviewing Key Stakeholders

To develop the overall evaluation framework, we first needed to understand the goals of the legislation, how the goals were implemented, who the target population for PEI program activities was, and how the results would be used. We began by conducting key informant interviews with 48 individuals. Half were subject-matter experts with academic credentials in evaluation research or in measuring the key outcomes; the rest were either consumers or state or county administrators.

Interviews with subject-matter experts focused on defining key outcomes and constructs identified by the Act and by the Commission, as well as identifying available state data sets and existing measures. Interviews with consumers and administrators elicited their perspectives on how the frameworks might be used, as well as attributes that would make the frameworks useful.

We solicited input on the intent behind the legislation and, in the case of county respondents, how the county they represented had developed and implemented PEI programs. We asked how they saw using the information from the framework and whom they anticipated would use the information. We also asked about specific data sets that could be used to assess PEI activities. In interviews conducted during the latter part of the interview process, informants reviewed and provided feedback on draft versions of the relevant frameworks.

### Developing Frameworks

In our discussions with stakeholders, it became clear that the evaluation frameworks needed to accomplish three objectives:

- Enable tracking and accountability over time.
- Monitor progress toward mental health equity.
- Take a public health perspective and look at the mental health of the population of California while also providing useful data for local performance improvement.

We used a widely accepted model (Donabedian, 1980) of how health services affect health to develop our overall framework and applied it to the specifics of PEI implementation. The model provides an approach for examining how PEI funding led to programs and activities that resulted in improved individual, family, service-system, and community outcomes. We refined the model using the results of our key informant interviews and by reviewing the model with the Statewide Evaluation Experts Team, CalMHSA, and the Commission.

We created two types of frameworks: an “overall approach” framework and specific frameworks for each of the key outcomes specified by the Act. In Chapter Four, we describe the components of the overall approach framework and give two examples of “key outcome” frameworks in detail. Appendix A provides an illustration of the logic model for each framework.

The evaluation frameworks provide a theory-based approach to answering the question “Are we putting in place the kinds of interventions we wanted to, and are they reaching the populations we thought they should?” Use of the frameworks over time should enable tracking and accountability and provide an assessment of the Act’s impact on the mental health of California’s population. The frameworks are intended to capture the extent to which the system is being transformed from a “fail-first” system to one in which PEI becomes part of a public health-oriented continuum of services linking, as needed, to treatment and other community services and supports. In addition, the frameworks can help assess how well PEI activities are reaching underserved populations and improving their outcomes. Finally, the frameworks can provide information that would be useful to a broad range of stakeholders and decisionmakers, including state planners interested in the mental health of California’s population, consumers/family members and individual providers.

The frameworks are flexible and include individual and family outcomes (population-level measures of emotional well-being and family functioning), program and service-system outcomes (the quality and timeliness of treatment and increased collaboration across agencies), and community outcomes (stronger and more resilient communities, population-level measures of negative outcomes, such as unemployment or suicide). The frameworks identify, at the conceptual level, the key components that should be measured and tracked over time. Individual, family, and community outcomes are measured, and the unit of analysis is identified as the state, region, or county, depending on the data source and measure. (When national data are available, it will be useful to compare California’s performance with that of the nation.) Program and service-system outcomes are measured by aggregating measures across programs. An example of this type of measure is one that reports the proportion of suicide hotlines that have received national accreditation.

## **Identifying Databases**

We used our key informant interviews to identify state or national databases or vital statistics that could be used to measure individual or family outcomes at a population level. To be included, each database had to contain data relevant to at least one of the PEI outcomes, and the data had to have been collected at more than a single point in time to allow for comparisons over time.

We described each database in terms of its content; the populations that it covered and to which it could be generalized; the instrument type; years for which the data were available; the frequency with which the survey or interview producing the data were repeated; information about reliability and validity, availability, and cost; information about administration and

scoring; and contact information. We also provided links to the instruments and to the data when such links were available.

Detailed descriptions of the databases available for the PEI evaluation appear in Appendix B.

## Chapter Four

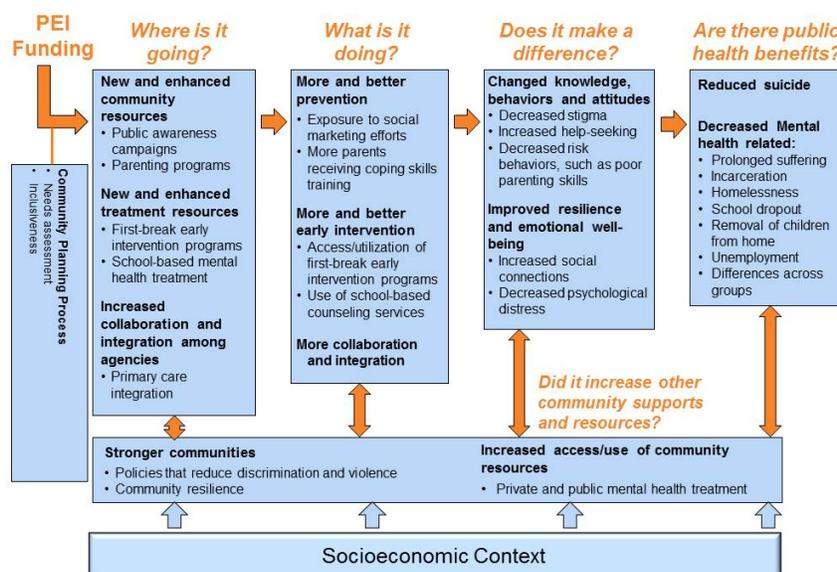
# Evaluation Frameworks

We created two types of frameworks: an overall approach framework, as described in Chapter One and shown in Figure 4.1, and specific frameworks for each of the key outcomes specified by the Act, examples of which appear in Figures 4.2 (suicide prevention) and 4.3 (reduced suffering). As noted earlier, the key outcomes are broad social outcomes with multiple determinants. Therefore, in addition to looking at specific measures of each outcome, the frameworks also identified antecedent factors that were either known to, or that we hypothesized would, affect each outcome and that we posited to be influenced by PEI funding. That is, PEI programs directly affect short-term, or intermediate outcomes, which, in turn, can influence broad social outcomes, all other things being equal. For example, PEI programs could improve parenting skills, which is known to improve child well-being and resiliency, which, in turn, is hypothesized to lead to decreased school dropout rates.

### Overall Approach Framework

The evaluation frameworks are based on a model of how spending on specific programs ultimately affects population health. In many cases, especially for PEI programs, the connection between spending and population health is complex, involving multiple steps that play out over time. To understand the impact of PEI programs and activities, one must first understand what the funding was intended to accomplish and how the funding was used. Our overall approach conceptual framework highlights these issues. The overall approach framework, depicted in Figure 4.1, is meant to be read from left to right. In effect, the framework asks a series of questions about the funding provided by PEI: Where is it going, what it is being used for, does it make a difference (primarily in short-term or intermediate outcomes), and are there resulting public health benefits? Although the framework was developed to understand the impact of PEI funding, it could be used to understand the impact of all Mental Health Services Act funding.

**Figure 4.1.**  
**An Approach to Understanding the Impact of Statewide Prevention and Early Intervention Funding**



With the exception of the community planning process, which occurred before the initial distribution of PEI funding, the overall approach framework shows the factors that should be measured as part of the evaluation process. In most cases, data for the second and third boxes (“Where is it going?” and “What is it doing?”) would be provided by programs and counties; data for the fourth and fifth boxes (“Does it make a difference?” and “Are there public health benefits?”) would be available from existing national or statewide surveys or vital statistics.

The social and economic context influences how PEI was implemented and what it is accomplishing; therefore, we show socioeconomic context at the bottom of the figure as affecting all of the boxes. However, although context is important, we do not include specific measures of the social and economic context because this will vary based on the specific analysis being conducted. And, because PEI funding was posited to have indirect effects on use of community resources, we include those in the frameworks as well. Where possible, we include measures of community supports and resources in the specific frameworks.

The content of each box in the overall approach framework is as follows, proceeding from left to right:

- **Box 1, “PEI funding”:** Initially, each county undertook a community planning process to determine funding priorities.<sup>3</sup> In most cases, this process also included a needs assessment.

<sup>3</sup> Information about the initial community planning process is contained in the document “The PEI Component of the Three-Year Program and Expenditure Plan” produced by each county.

- **Box 2, “Where is it going?”:** This question addresses the types of programs that were funded using PEI resources. PEI funding went to new and enhanced community resources, new and enhanced treatment (primarily early intervention) resources, and support for increased collaboration and coordination among agencies. The activity indicated by this box assesses the “structure” of the programs—that is, the programmatic capacity that was developed.
- **Box 3, “What is it doing?”:** This question addresses the specific ways in which the programs engaged the target population. PEI-funded programs and activities were intended to provide more and better prevention programs and resources, more and better early intervention treatment and resources, and more collaboration and integration among social service agencies and between mental health and primary care providers. This part of the framework assesses the “process” of delivering the programs—what prevention activities reached which target populations.
- **Box 4, “Does it make a difference?”:** This question addresses the key outcomes that the program is intended to affect among the target population, which may be intermediate outcomes with respect to public health. The framework identifies the direct, short-term outcomes that PEI is intended to bring about—changed knowledge, behaviors, and attitudes and improved resilience and emotional well-being. Note that these outcomes could be measured at the program and the population levels, although the population level is the most relevant for assessing the Act’s impact on the mental health of California’s population.
- **Box 5, “Are there public health benefits?”:** These are the ultimate outcomes measured at the population level. Changes in short-term outcomes are intended to affect the broader, long-term public health benefits identified by the Act. These include reducing the suicide rate and decreasing mental health–related prolonged suffering, incarcerations, homelessness, school dropout rates, removal of children from the home, unemployment, and disparities across these outcomes.

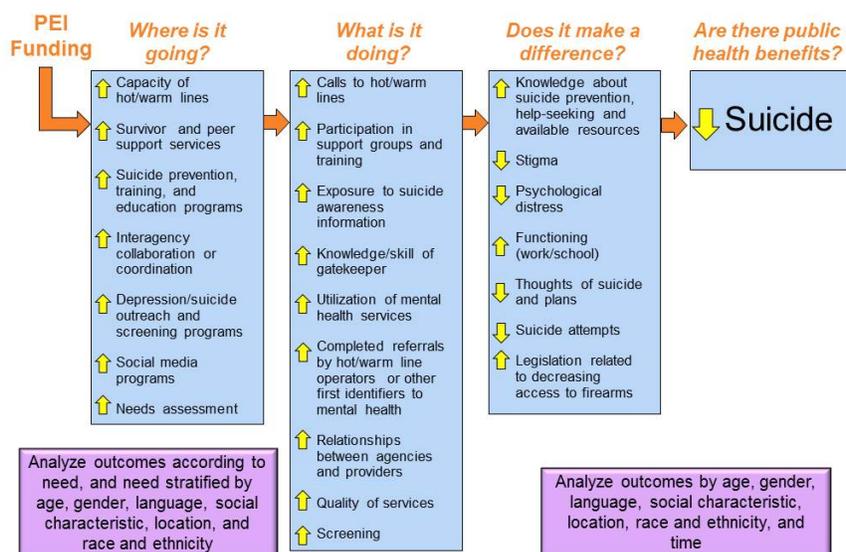
The public health benefits are the ultimate targets for PEI activities. However, these long-term outcomes are difficult to measure and to directly link with PEI funding. What can be measured more easily are the processes and consequences of funding programs; the ways in which the programs involved the intended populations; and the direct, short-term outcomes that PEI is intended to bring about—changed knowledge, behaviors, and attitudes and improved resilience and emotional well-being.

PEI programs were expected not only to improve individual and family outcomes but also to indirectly result in healthier and more resilient communities and more use of privately funded mental health treatment. We show these outcomes below the five boxes. There are arrows between this box and each of the five upper boxes because we hypothesize that these indirect effects are reciprocally related to each of the other five boxes. As mentioned above, we also include the socioeconomic context, which is posited to affect every aspect of the overall approach framework.

## Outcome-Specific Frameworks

In addition to the overall approach framework, we developed an evaluation framework for each of the key outcomes identified by the Act. We briefly discuss the Suicide-Prevention Framework (Figure 4.2) and the Reduced-Suffering Framework (Figure 4.3) as examples; illustrations of logic models for all outcome-specific frameworks appear in Appendix A.

**Figure 4.2.**  
**Suicide-Prevention Framework**



### Suicide-Prevention Framework

We obtained information about the content of each component of the Suicide-Prevention Framework from our key informant interviews and from reviewing program description documents.

PEI funding for suicide prevention programs has been allocated to increase the capacity of hot/warm lines; survivor and peer support services; suicide prevention, training, and education programs; and the other activities shown in the second box (“Where is it going?”) in Figure 4.2. Note that this is not an exhaustive list of suicide prevention programs, and new suicide prevention programs could be developed in the future. In the evaluation framework, these activities should lead to increased calls to hot/warm lines, participation in survivor support groups and training, exposure to suicide awareness information, and the other factors described in the third box (“What is it doing?”).

The short-term effects of PEI funding for suicide prevention include increased knowledge about suicide prevention, help-seeking, and available resources; decreases in self-stigma,

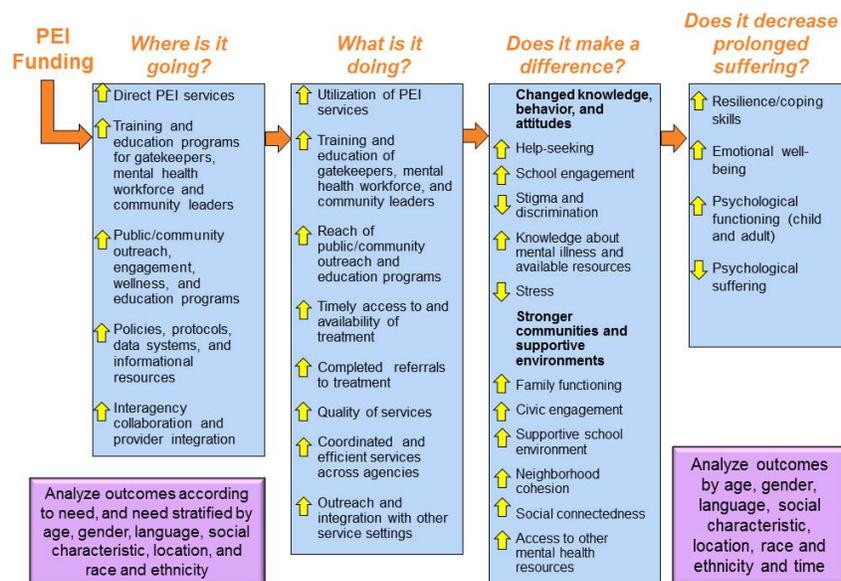
psychological distress, and thoughts of suicide; and the other outcomes shown in the fourth box (“Does it make a difference?”).

The public health benefit of PEI funding in the suicide area is straightforward: reduction in the rate and number of suicides and of suicide attempts.

## Reduced-Suffering Framework

One of the key outcomes identified by the Act is “reduction of prolonged suffering.” Because of the difficulty measuring the length of time associated with suffering and establishing whether suffering has been “prolonged,” we focused instead on measuring “reduced suffering,” and we suggest measuring the timeliness of treatment access as a component of the duration of suffering (see Figure 4.3). Note that the types of programs funded are examples and not a complete list.

**Figure 4.3.**  
**Reduced-Suffering Framework**



Included in the Reduced-Suffering Framework are the related concepts of resilience and well-being. Because resilience and well-being are related to suffering and are key intermediate outcomes related to all the long-term outcomes identified by the Act, we believe that it is the most important outcome to track longitudinally at the level of the population. Changes in resilience and emotional well-being are hypothesized to precede changes in all the negative outcomes and thus can be used to monitor the Act’s overall impact on public mental health. Although we are not aware of any population studies that have tested this hypothesis, one could argue from first principles that, for example, in order to reduce mental health–related school failures, resilience and well-being, which are recognized protective factors for school failures, would have to be increased.

## Chapter Five

# Data Sources and Measure Specifications

As noted above, the data used to measure where funding from the Act is going (the second box) and how it is being used (the third box) will come primarily from programs and counties. Some programs and counties are already collecting this information; however, it is not collected in uniform ways across programs and counties, and counties do not provide these data to the state for analysis. One of the recommendations we make is that program-level data be collected using a uniform template so that the information can be aggregated and used for comparisons.

In some cases, data not currently being collected from programs and counties should be relatively simple to collect and report—for example, data on how many individuals received a particular early intervention program or how many calls were received by the suicide hotline. In other cases, the new data will be more difficult to collect, either because there are not good measures (e.g., there are few reliable and valid measures of PEI program quality) or because the data would be difficult to collect (e.g., measuring completed referrals or the timeliness of access). A common problem for counties is the lack of a data-collection infrastructure to track PEI services.

To measure the contents of the fourth box (“Does it make a difference?”) and the fifth box (“Are there public health benefits?”) in the frameworks, we use population-based measures of outcomes. Some of these data already exist; others do not. In either case, the burden of collecting or creating the data varies substantially. For example, in some cases, data exist only at the state level; in others, data are available at the county level. Where possible, we also identified where comparable national or regional data exist. As noted above, a detailed description of existing databases relevant to the evaluation appears in Appendix B.

Appendix C shows the potential measures for each component in the evaluation frameworks, including the numerator and denominator, and data source. Where possible, for convenience and cost considerations, we have recommended using existing measures and specifications. Using existing measures also permits comparisons with other populations and with previous years.

We recommend pilot testing any new measure before it is used to determine the sample size needed for a meaningful evaluation and the statistical power each sample size will have to determine causal relationships between program elements and outcomes. The pilot test would also establish the reliability of the data, consistency of reporting across counties, and the extent to which missing data should be anticipated.

## Analytic Approaches to Evaluating the Impact of Prevention and Early Intervention Programs

The standard program evaluation framework considers the effect of a particular intervention or “treatment” on one or more outcomes. The challenge for the program evaluator is usually three-fold: (1) to determine which outcomes are expected to be affected by the intervention, (2) to detect and measure changes in the outcomes of interest, and (3) to credibly attribute cause to effect (in other words, to determine *how much* of the observed change in the outcomes can be attributed to the intervention). The use of appropriate conceptual frameworks, theories of change, or more-complex theoretical models can help the evaluator in defining the relevant outcomes, while appropriate data collected from a sufficient number of “treated” units (individuals or communities that received the services) can help to address the second concern. Establishing causality is much more difficult, especially in the context of social programs in which other variables associated with the outcomes of interest might also be changing.

We have laid out a conceptual framework for thinking about the possible effects of PEI programs and activities (Figure 4.1). Building on the insights from this overall approach framework, we have identified several intermediate and long-term outcomes that can be monitored to assess the impact of PEI and the Act. The primary outcomes of interest as shown in the specific evaluation frameworks are included in boxes 4 and 5 and include resilience and emotional well-being, suicide rates, attempted suicides, and mental health–related rates of homelessness, incarceration, unemployment, removal of children from the home, and school dropout.

Before considering different evaluation designs, it is important to acknowledge the inherent limitations of a PEI evaluation. Because the programs and activities were not randomly implemented and there are no geographic areas or populations within California that were not exposed to PEI activities, it would be technically difficult (although not impossible) to estimate the *causal* impact of PEI on outcomes. What can be done more easily is to relate changes in PEI program activity to changes in outcomes, without establishing causality.

Although it may be tempting to estimate causality using a simple before-and-after study design, we believe that this would be hazardous and could lead to incorrect conclusions, making it appear either that effective programs are ineffective or that ineffective programs are effective. An invalid design defeats the purpose of evaluation. Many specific factors might affect both program-level and population-level outcomes—in particular, the recession, cuts to other mental health programs, and cuts to education. In addition, one must consider the reverse side of the coin. For example, even if school dropouts associated with mental illness increased during the period of PEI implementation, it is possible that the increase would have been even greater if the PEI programs had not been in place. Drawing the conclusion that the PEI

programs were not effective simply on the basis of the historical trend could point policymakers in the wrong direction.

A second limitation is the inability of the analysis to separate the impact of PEI funding from the impact of funding for Community Services and Supports, which funded treatment and recovery services. PEI programs and services were meant to function as part of a continuum of services that included treatment and recovery services, and both PEI and treatment are meant to affect outcomes. Long-term treatment and recovery services were generally not funded by PEI monies (apart from short-term early intervention services, an important component of PEI). However, implementation of Community Services and Supports, also funded by the Act, occurred at the same time as implementation of PEI programs and activities. When we discuss estimating the impact of PEI on population health, what we are actually doing is estimating the impact of the entire Act, assuming that we can take into account changes in the social and economic context. Unless some population groups were systematically exposed to one program but not the other, it is not analytically possible to separate the impact of PEI from those of treatment and recovery services funded by the Act.

We now consider three evaluation designs that could be used to estimate the impact of PEI funding on outcomes. The technical details of the statistical analysis are described in Appendix D. We follow the discussion of evaluation designs with an assessment of how descriptive data could be used to make inferences about PEI impact.

### **Time-Trend Analysis of Observational Data (Before-and-After Design)**

In this design, the evaluator compares outcomes for the study population before and after a program is implemented. For example, one might measure overall or age-specific suicide rates in California before the PEI and again after the PEI and assess whether there is a “meaningful” change in the suicide rates.

This evaluation design is simple and often easy to implement, but it is also not as robust as the other designs we discuss in this chapter. The principal limitation of the simple before-after comparison is that it is difficult to distinguish the “causal” effect of the program from the effect of overall time trends.<sup>4</sup> As an example, homelessness is one of the outcomes that might be affected by PEI funding, but homelessness also fluctuates over time in response to other factors, such as economic conditions. If we find that homelessness rates have fallen since the PEI program was implemented, we cannot conclusively say that the falling rates were due to the PEI program rather than to the economic climate. In this example, homelessness rates would still have fallen even if the PEI had not been implemented. The next two designs address this limitation of the before-after design.

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<sup>4</sup> There are advanced econometric techniques that rely on only time-series data, but these methods typically require many years of data and rely on very strong assumptions.

## Difference-in-Differences Design

In order to disentangle the effects of the PEI program from the effects of other confounding variables, an evaluator needs a comparison group—i.e., another population with similar characteristics that is also affected by overall time trends but was *not* exposed to the PEI program. With such a group, the evaluator can then compare changes in the outcomes for the population exposed to the PEI program (treated group) with changes in the same outcomes for the non-PEI group (“untreated” or comparison group). The outcomes will change in the latter group simply as a result of overall trends, while changes in the outcomes of the treated group will include the effects of the PEI program *plus* the effects of time trends. Because we know the size of the time-trend effect (from the comparison group), the evaluator can simply subtract the time-trend effect from the estimate obtained for the treated group. If data were collected each year, it would be possible to document the yearly “benefit” of PEI program activity and to assess how utilization and outcomes are affected by changes in the social and economic context.

Table 6.1 illustrates the difference-in-differences (D-in-D) design with a case in which the before-after difference was 4 percent in the treated group and 1 percent in the comparison group. The “net” effect of the program, i.e., the difference between the before-after differences, is therefore 3 percent.

**Table 6.1.**  
**An Illustration of the Difference-in-Differences Design: Suicide Rates (%)**

Measurement	Before the PEI	After the PEI	Before-After Estimate
Treated group	10	6	4
Comparison group	9	8	1
<b>D-in-D estimate</b>			<b>3</b>

Because potentially everyone in California was exposed to the PEI program, it is challenging to identify a comparison group. One alternative is to compare outcomes in California with the outcomes for surrounding states, e.g., Arizona, Nevada, and Oregon. This tactic assumes that comparable data are available for the other states and that none of the other states implemented a similar program.

An important assumption underlying the D-in-D design is that of commonality in time trends. In other words, if other states’ populations are used as the comparison group in a D-in-D design, one must assume that, in the absence of the PEI program, the trends in suicide rates for California would resemble the trends in the comparison states. This raises the important issue of comparability between the treated and untreated units. The more dissimilar the treated and comparison groups, the more implausible the assumption that the trends over time would be similar. For example, North Dakota might not be an appropriate comparison for California, but neighboring states should be. However, using neighboring states’ populations also raises the

potential for spillover or contamination effects because events in California may have effects that extend to adjoining states. As a simple example, the implementation of the PEI program in California might attract mental health providers from neighboring states, which might, in turn, affect the outcomes in those states.

To avoid the problem of contamination, an evaluator could select for comparison any state within the continental United States, provided that the state was sufficiently similar to California.<sup>5</sup> However, this would mean identifying the relevant characteristics on which to select. For example, should the evaluator pick states with a similar population size and composition, states with a similar rate of homelessness or suicides, states with a similar number of mental health providers, or perhaps some combination of these?

A new econometric technique described in the next chapter removes some of the subjectivity from this choice. Instead, it uses a data-driven method for selecting similar comparison units.

## **Synthetic Control Method**

The synthetic control method, outlined in Abadie, Diamond, and Hainmueller (2010), is based on the D-in-D framework but with modifications that make it particularly suitable for evaluating programs that, like PEI, have only one treated unit—in this case, California. The key insight of the synthetic control method is to use a weighted average of untreated units. Higher weights are assigned to untreated units that are more similar on explicit quantifiable dimensions to the treated unit. This approach produces a much better comparison group than one in which all the untreated units are essentially given the same weight.<sup>6</sup>

The weights are chosen to replicate as closely as possible the outcomes in California before the PEI program was implemented. Using suicide rates as an example, the evaluator attempts to match as closely as possible the values of a set of predictors of suicide rates for California before implementation of the PEI. The determinants of state-level suicide rates may include the age composition of the population, the state unemployment rate, divorce rates, average income levels, alcohol consumption per capita, and whatever other factors the evaluator deems relevant. In most cases, these predictors are informed by the literature. This method has been successfully used to evaluate various state programs (Abadie and Gardeazabal, 2003; Buchmueller, DiNardo, and Valletta, 2011).

The discussion above assumes only state-level variation: In other words, because the PEI is a state program, we assume that *all* of California was treated. This is the reason why we use other “unexposed” states as a comparison group. However, it is possible that there is meaningful variation *within* California that an evaluator can exploit to learn something about the effect of PEI programs. For example, one might expect variation at the county level because the amount of PEI funding varied from county to county (one can think about this as different

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<sup>5</sup> The evaluator could also use all of the states.

<sup>6</sup> This is the same intuition behind propensity weighting methods.

intensities of treatment) or, alternatively, because different counties implemented different types of programs.

To the extent that an evaluator is interested in assessing county-level variation, some of the methods described here can also be used. As we discuss in the next paragraph, the before-after and D-in-D designs, in particular, are quite general and can be applied easily.

If there were variation in the amount of PEI funding per capita at the county level, then an evaluator could use a D-in-D design to compare changes in outcomes in counties with higher levels of per capita funding (high-PEI-intensity counties) to changes in outcomes in counties with lower levels of per capita funding (low-PEI-intensity counties). The expectation would be that counties that received more funding per capita would have better outcomes, all else equal. Continuing with our illustration in Table 6.1, treated and comparison groups would then be replaced with high-PEI-intensity and low-PEI-intensity counties, respectively. Alternatively, if there were variation in the *types* of PEI programs implemented—for example, if some counties focused on programs of a certain type (call it *Type A*) while other counties implemented predominantly *Type B* programs—then an evaluator could assess differences in outcomes between counties that implemented *Type A* versus *Type B* programs to learn something about which programs are more effective.

More generally, an evaluator might simply be interested in whether some counties outperform other counties and, if they do, he or she may then want to understand *why* those counties performed better. For example, do counties with better outcomes share particular characteristics, such as better management and oversight or a focus on certain types of programming? The results from this kind of analysis can be very useful and can help policymakers to identify what works. Such knowledge can inform future program refinements.

Note that the use of any one of these designs does not preclude use of any of the others. In general, it is good practice to use multiple ways of assessing how robust the estimates of program effects are with respect to the choice of evaluation design. If all the methods produce similar results, that similarity increases confidence in the reliability of the estimate. If methods produce divergent results, then more weight should be given to estimates from the most rigorous assessment design.

## **Using Descriptive Statistics for Inference**

The evaluation framework we have developed can also be used more generally to monitor the effects of PEI programs by collecting and reporting descriptive information or statistics. This information can range from very basic—such as counts of people served by various programs at the state level—to more-detailed information, such as program outcomes disaggregated by population subgroup or geographic area. Descriptive data have their inherent limitations and cannot, or at least should not, be used to make causal statements about the impact of PEI programming. However, they can help policymakers to continuously monitor progress toward benchmarks and can serve as “early warning” indicators of implementation failures. Descriptive

data are relatively easy to produce and relatively easy to digest, particularly if presented in consumer-friendly ways, such as in simple figures and charts. Data should be reported at regular intervals, such as annually or quarterly.

An effective and efficient way to provide descriptive data about PEI programs is to create a web tool from which individuals can obtain descriptive statistics on various program indicators for their areas, as well as for the state as a whole. Data that can be reported via this web tool may include data on the cost of individual PEI program activities, the types of services provided, and the number of individuals using or exposed to various PEI-funded services. These data can also be benchmarked against data from other programs in the state or from similar programs in other states. The web tool could include data on program utilization and performance, ideally disaggregated by geographic area, by population subgroups (e.g., gender, age group, or race and ethnicity), or by other characteristics, such as the lesbian, gay, bisexual, transgender, and questioning subpopulations. It is important that the results be reported in a simple way for public consumption. Such reporting can be done using graphs, bars, or pie charts or with an interactive, online geographic information system map. The web tool should also be easily customizable so that public users can choose indicators in which they are interested and can drill down to specific groups or areas of interest. Users should also be able to specify the time period for which they want data.

Although useful, this reporting system has additional implications that should be considered. The main one is the size of the population in the area of the user's interest. Because some of the mental health outcomes being studied are rare, estimates for areas with a small population can be unstable, with extreme variability or large confidence intervals around any estimates. Such estimates could easily be misinterpreted and should not be made available for public use. It will be necessary to decide at what level of variability this restriction should be put into effect.

Establishing such restrictions will also alleviate potential threats to participant privacy: If only one or two people in a small area have a reported outcome, they will not be perfectly deidentified in a user's request in the tool. For example, if there were only a single suicide by someone of Hispanic ethnicity in a given area, it might be possible to identify him or her. When dealing with rare outcomes, such as suicides, advanced statistical techniques, such as empirical Bayes methods (Carlin and Louis, 2000), can be used to smooth estimates. The method of modified Kalman filter developed at RAND (Lockwood et al., 2011; Setodji et al., 2011) can also be used to smooth estimates over time when the outcome is rare.

## Chapter Seven

# Conclusions

In this chapter, we provide concluding comments on the utility of the evaluation framework if it were to be implemented using existing data sources and core program-level data, and we discuss the applicability of the framework to the broader evaluation of the Mental Health Services Act. We make recommendations for additional data development to support the evaluation framework. We also identify some areas in which supplemental evaluation activities could address important system evaluation priorities that cannot feasibly be addressed as part of an ongoing statewide data monitoring and evaluation capability. We conclude by recommending next steps for developing and implementing the PEI evaluation framework.

### **Usefulness of the Evaluation Framework**

It is analytically possible to evaluate the Act's causal impact on population-level outcomes. However, we believe that it would be a mistake to make evaluating causality the focus of a statewide evaluation plan. Because the negative outcomes identified by the Act are broad social outcomes that are affected by many different social forces, and because the expectation is that changes in these outcomes will take years to observe, it is possible that changes in these outcomes will not be apparent at the population level, leading to a potentially false conclusion that PEI and the Act's monies have not improved outcomes. In addition, establishing causality would involve technically complex analyses that might be difficult to interpret.

If CalMHSA and the Commission feel that establishing causality is essential, we recommend that the evaluation focus on changes in resilience and emotional well-being. Resilience and emotional well-being are intermediate outcomes that are logically antecedent to the seven negative outcomes, and changes in resilience and well-being should eventually result in changes in these longer-term outcomes. Because most PEI activities have as a common goal increasing resilience and emotional well-being, it is likely that changes in this outcome will both precede and be larger (and thus more easily observed at the population level) than changes in longer-term outcomes, such as unemployment or homelessness.

However, despite the difficulty in establishing causality, there are tremendous opportunities to use existing data to track over time the population-level outcomes identified in the Act and ultimately to provide the data needed to estimate how this historic initiative has affected the mental health of California's population. We believe that the frameworks we have developed and the associated measures we have defined can produce useful descriptive information—based on existing data, without the investment of significant new funding. This is an excellent time to establish a surveillance system that can be used to provide important information about the early phase of PEI activity—who is being reached, who is using PEI services, have disparities in access changed, what kinds of programmatic activities are being carried out, and by whom. In sum, the evaluation frameworks provide a theory-based way to answer the question “Are we putting in place the kinds of interventions we wanted to, and are they reaching the populations we thought they should?”

The surveillance system should also monitor changes in outcomes at the population level, so as to identify early movement in these outcomes. Similar to our recommendation to use resilience and emotional well-being to measure the causal impact of PEI, we recommend using these same measures to monitor and track changes at the population level. Changes in resilience and emotional well-being are likely to be the most sensitive to the new programmatic activities funded by the Act.

There is another, perhaps even more important, reason to monitor changes in outcomes at the population level. Even small changes in the average mental health of the population as a whole could greatly reduce the number of individuals who develop a new mental illness in a given time period (Rose, 1992). This is because epidemiologic studies suggest that the prevalence of mental illness and emotional well-being is distributed in the population in the form of a bell-shaped curve. Most individuals have an “average” amount of emotional well-being, with very few having either very low or very high emotional well-being. A shift in the whole distribution of population values toward more emotional well-being necessarily implies a decrease in the occurrence of extreme values (individuals with very low emotional well-being).

In other areas of health, it has been shown that prevention programs focusing on high-risk individuals have had disappointing impacts on the total burden of disease in the population because most of the incidence of new disease arises from the many individuals at low risk rather than the few individuals who are at high risk (Rose, 1992). Because primary prevention programs are population-based and focus on providing many individuals with a little benefit (e.g., public service announcements), and because PEI programs are meant to build synergistically upon each other (e.g., school- and community-based after-school programs for transitional-aged youth), the cumulative impact of PEI may shift the distribution of risk for all members of society. This shift may have a large benefit at the population level, and, unless one monitors impact at the population level, this benefit will not be identified.

## **Applying the Framework to the Broader Evaluation of the Mental Health Services Act**

As we noted in Chapter Six, it is not possible to disentangle the impact of PEI initiatives on key population-level outcomes of interest from the impact of the broader treatment system. This is because PEI initiatives, by design, are intended to complement and promote equitable access to and early use of treatment and because PEI was implemented at the same time as other new treatment services.

Our development of an evaluation framework and consideration of data sources and measures focused on PEI program activities because we were tasked to develop a PEI evaluation framework. However, we believe that the framework we developed could readily be extended to apply broadly to programs funded by the Act. This broader evaluation would require additional work to identify key concepts, other relevant data sources, and indicators. Because treatment service information systems and performance indicators have been in use for many

years at the statewide and county levels, there is extensive service-level information on which to build.

## **Data Development**

We recommend additional data development to support implementation of the evaluation framework. Some of the recommendations focus on near-term data needs; others suggest ways to improve data collection to support ongoing evaluation.

### **Immediate Prevention and Early Intervention Program Information Needs**

It is essential to develop standardized, core information about the programs funded under the Act's PEI initiatives, the activities carried out by these programs, and the individuals reached by these activities. This information is needed to populate the constructs in the evaluation framework that answer the questions "Where is it going?" and "What is it doing?"

It is a challenging task to develop and implement data definitions and data systems that can capture this information. However, we believe that the key information can be developed relatively quickly (over one or two years). Because PEI programs are relatively new and are not embedded in existing treatment system data systems, the state and counties have before them a unique opportunity and a window of time in which to develop consistent definitions and data-capture systems across PEI programs and across counties. At minimum, all programs should report on the number of individuals served or exposed to the intervention, the type of program, and the target population. A next step would be for programs to report on the demographic and social characteristics of the individuals reached by the programs. Last (and significantly more difficult) would be to implement data systems that can track individuals across programs and service systems.

### **Prevention and Early Intervention Performance Indicators**

Important information about the quality or performance of PEI programs is not easy to develop for routine use in an ongoing statewide evaluation framework. Currently, there are few standardized and widely accepted measures of the quality of PEI services. But these could be developed over time. Some examples of potential performance indicators include whether a program meets certification standards (e.g., suicide hotline certification), client satisfaction with program activities, and whether training or other interventional activities are delivered with fidelity to evidence-based protocols. Developing reliable and valid performance indicators is an important area for further research.

### **Maintaining and Improving Tracking of Population Outcomes**

This report has cataloged existing data sources that can be used to populate constructs in the PEI evaluation framework. In some cases, these data sources have limitations and could be improved. A key example is suicide statistics. Currently, there are variations in the way that deaths by suicide are reported across counties in California. National standards provide guidelines for more-consistent reporting, and these could be adopted to improve suicide statistics and their utility for PEI evaluation. Another example is surveys of school-aged

children. Not all schools participate in the California Healthy Kids Survey, and even fewer collect data using the optional modules, a significant limitation to the use of these surveys for population surveillance and monitoring.

In other cases, existing data sources could potentially be enhanced to be more useful for PEI evaluation. For example, there are currently no good measures of stigma and discrimination that are collected at a population level. However, it would be feasible to add these measures to the California Health Interview Survey or the California Healthy Kids Survey. Consistent measures of resiliency and emotional well-being could be included in most (if not all) population-based surveys, which would allow for comparisons across different priority populations.

## **Other Important Evaluation Issues**

### **Evaluating Program Efficacy**

Existing research provides information on the efficacy of some specific PEI interventions and the effectiveness of some multicomponent PEI campaigns. The evidence base for the efficacy of specific program interventions can be used to support the development of performance indicators that could be incorporated into ongoing assessment of program activities.

In many cases, however, the literature provides insufficient evidence regarding the efficacy of PEI program activities. PEI programs may be innovative, or existing programs may be modified for new target populations. And some broadly disseminated programs have not been well evaluated.

In this report, we do not recommend attempting to determine the comparative effectiveness of different programs through routine monitoring of client or participant outcomes. Routine assessment of relevant client and participant outcomes can be important as part of a program-specific quality improvement process. However, appropriately evaluating and comparing the effectiveness of programs would require well-designed and controlled studies. We recommend that the state or counties strategically develop the evidence base for PEI programs by conducting rigorous evaluations of strategically selected promising programs.

### **Evaluating Cultural Competence**

The cultural competence of programs is a very important issue given the diversity of California's population and the importance of reaching traditionally underserved groups through PEI programs. The importance of cultural competence is broadly accepted, and it is supported by extensive literature describing culture-specific barriers and needs. However, there are currently no broadly accepted and reliable measures of cultural competence that could serve as performance indicators in an ongoing statewide monitoring system.

It may be a priority for the Commission, CalMHSA, and other stakeholders to pursue development of cultural-competence assessments at the program level. If so, we recommend

obtaining advice from national experts who can provide a review of state-of-the-art approaches to cultural-competence definitions and assessment and assist in exploring the most-appropriate strategies.

### **Developing Program Capacity for Quality Improvement**

Programs can develop capacity for ongoing evaluation and quality improvement by developing reports that describe the delivery and reach of program activities and the demographic characteristics of program participants. Standardized information systems, measures, data definitions, data-entry protocols, and reporting formats can facilitate the development of this capacity.

We have argued that routinely assessed outcomes are not useful for comparing effectiveness of programs or evaluating the efficacy of PEI programs, given the limitations of observational data. However, observational data can be very useful at the program level for evaluating program implementation and reach, understanding program clients and audiences, targeting and trying improvements, and creating an organizational climate for continuous quality improvement.

### **Next Steps**

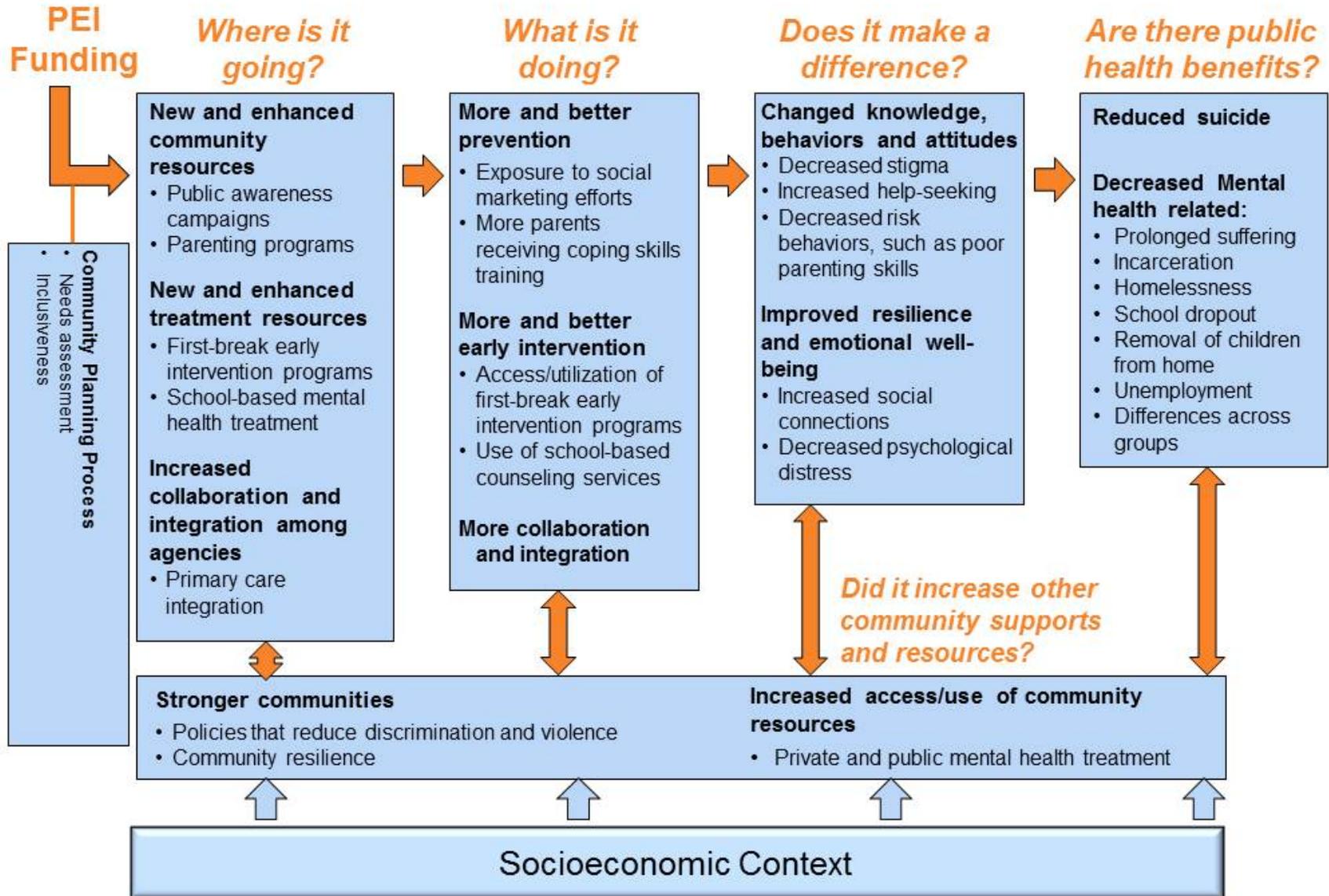
We suggest a phased implementation of the statewide evaluation framework. An initial three-year phase would allow for implementation of a basic framework that would be extremely useful for evaluating current PEI activities and would establish a basis for longer-term monitoring of program activities and key outcomes.

We recommend that several tasks be accomplished in the initial year: (1) demonstration of development and reporting of PEI program-level information, in collaboration with interested counties, corresponding to boxes 2 and 3 of the frameworks; (2) psychometric assessment and refinement of program-level and population-level measures, which would also include pilot testing new measures to determine sample size and, where needed, reliability and validity (this would probably need to occur over a two-year period); (3) development of descriptive analytic and reporting templates; and (4) proposed work plan and resources required for full implementation and ongoing maintenance. The second and third years would be focused on implementing the full evaluation framework, including implementation of infrastructure required to acquire, store, analyze, and routinely report data. Development of a web-based reporting system could be included as part of years 2 and 3.

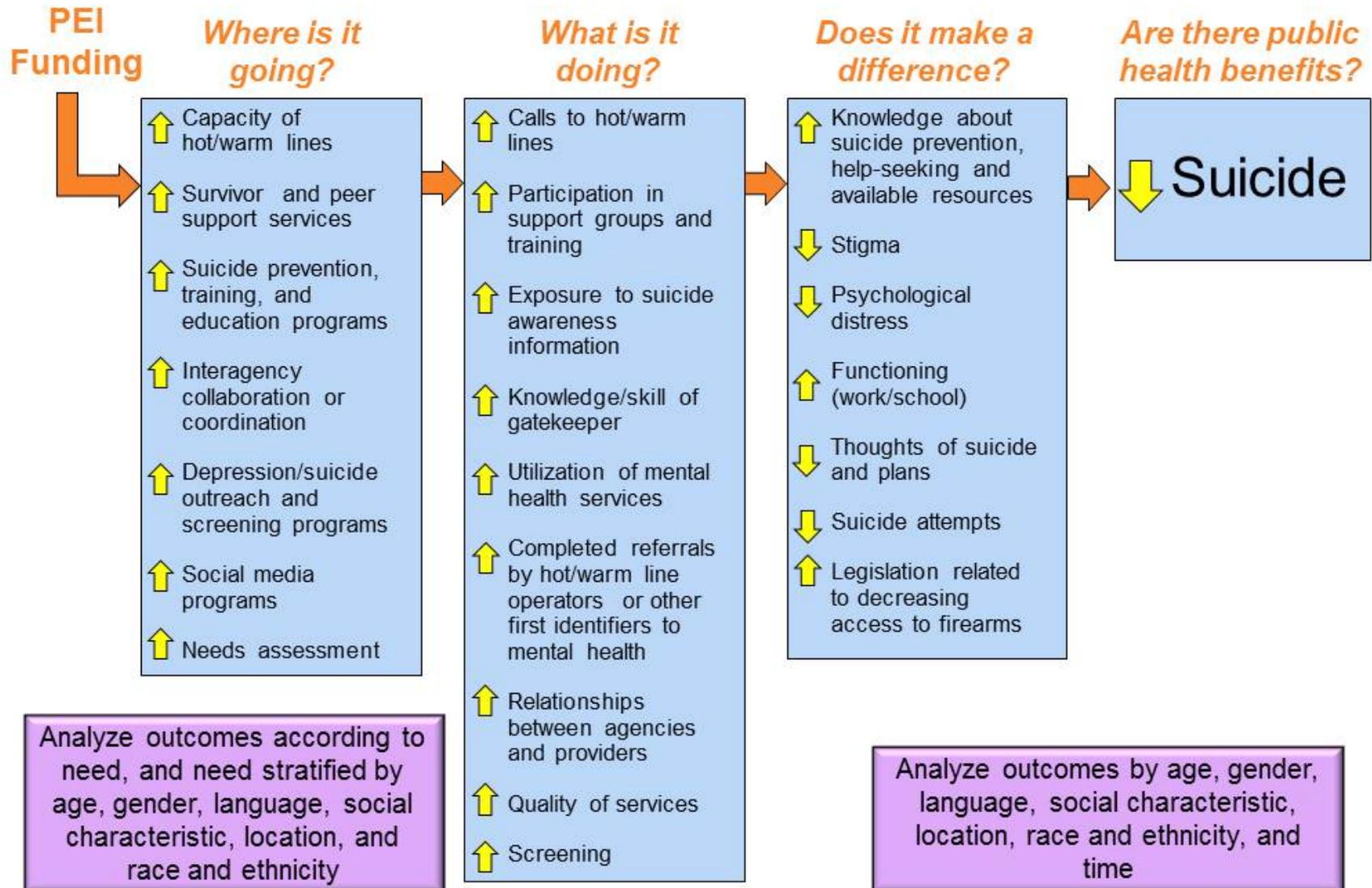
Subsequent phases beyond the first three years could focus on improvements, such as development of performance indicators. It would be important for the Commission, CalMHSA, county mental health departments, and other stakeholders to consider longer-term priorities for improvements in ongoing evaluation and to establish priorities for special studies.

Appendix A.  
**Framework Logic Models**

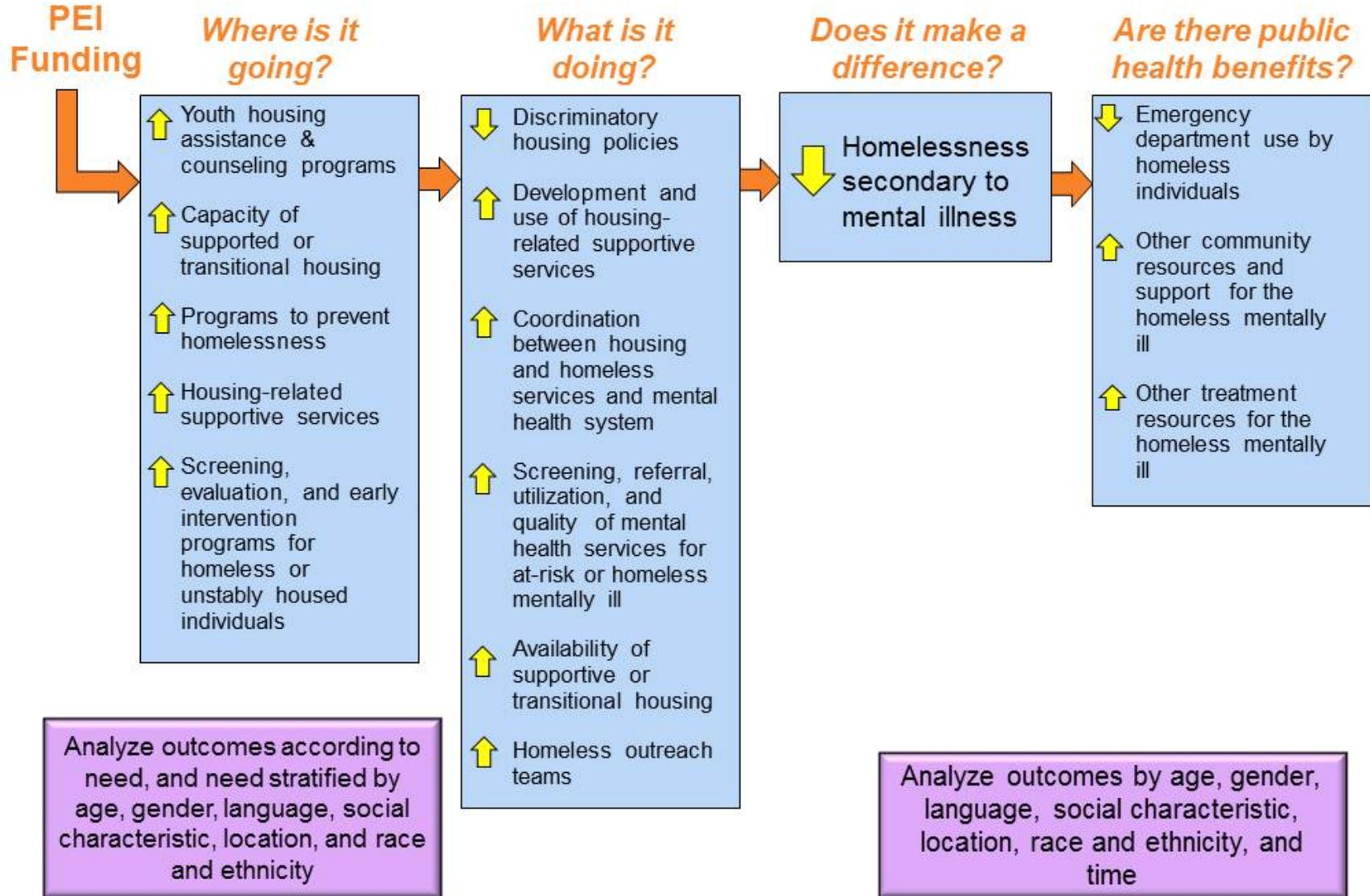
# An Approach to Understanding the Impact of Statewide Prevention and Early Intervention (PEI) Funding



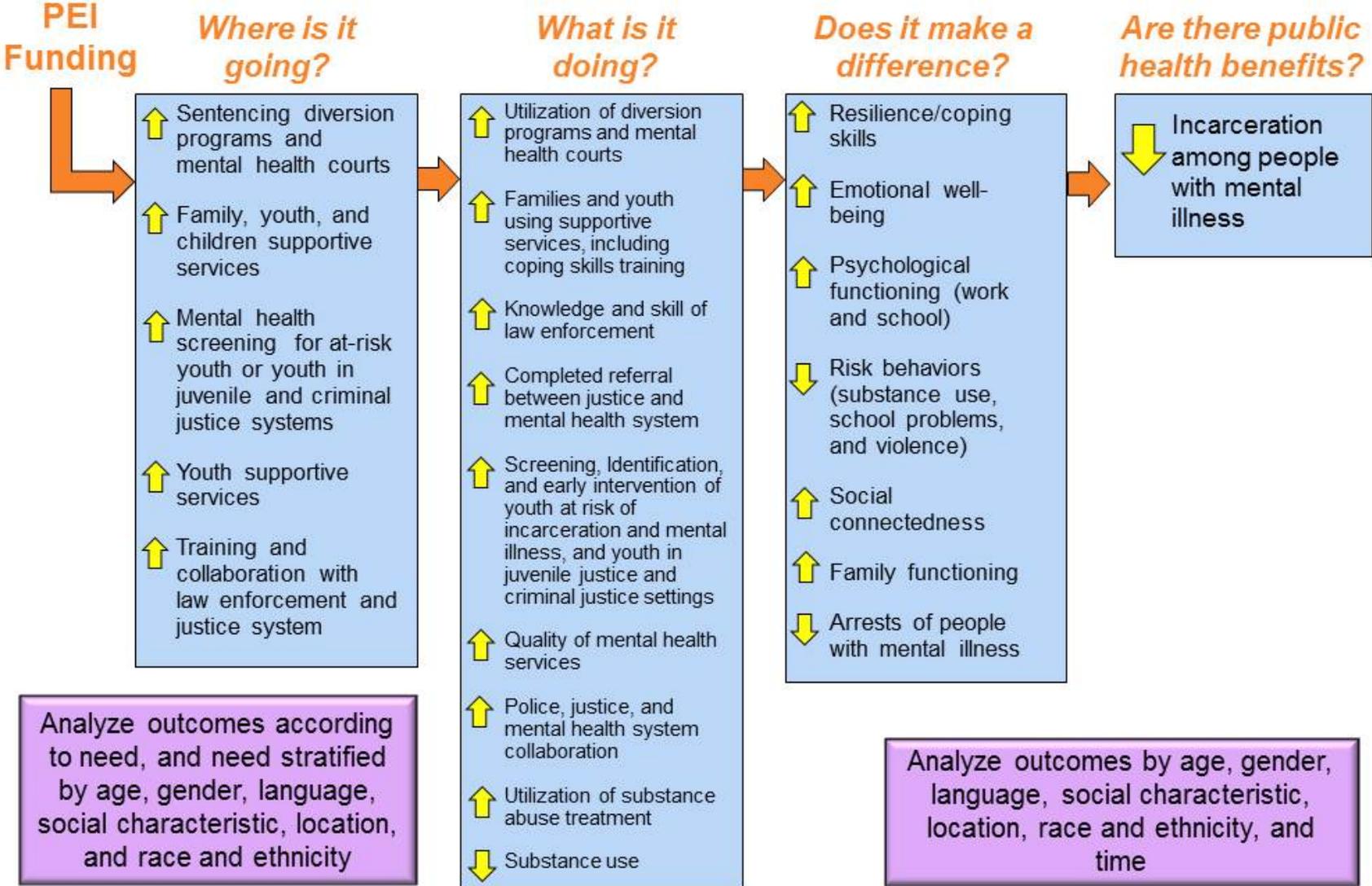
# Suicide Prevention Framework



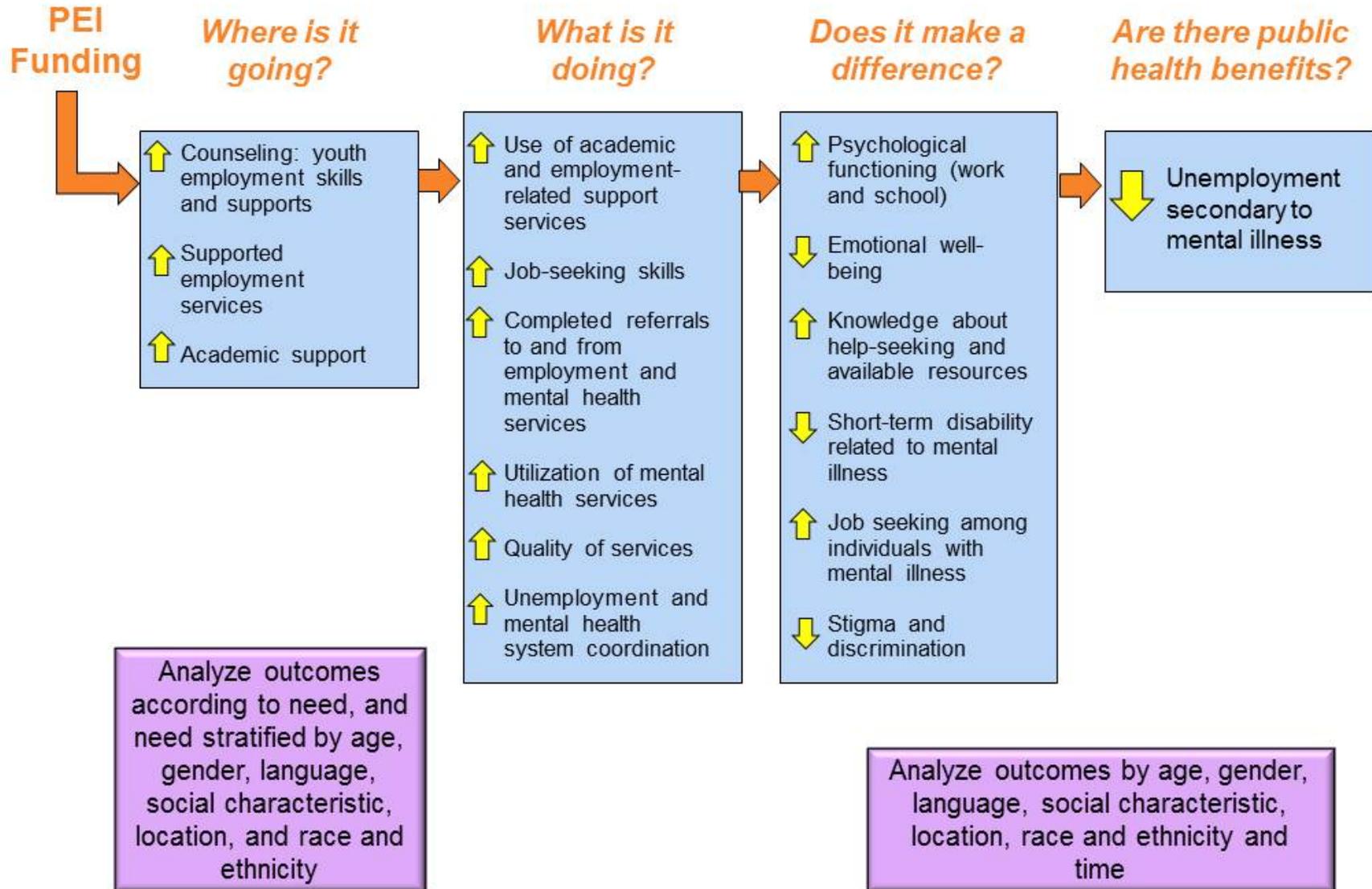
# Homelessness Prevention Framework



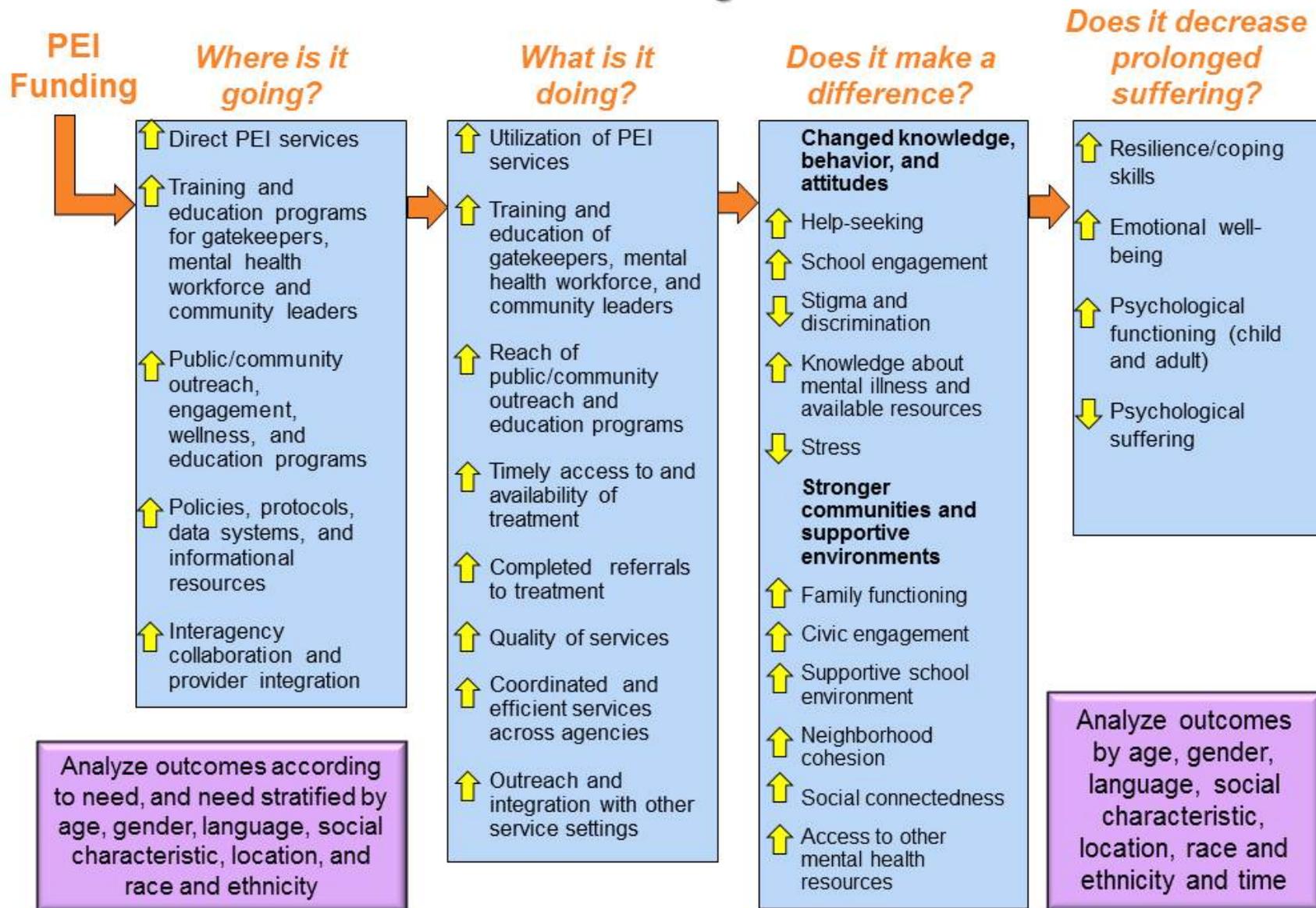
# Incarceration Prevention Framework



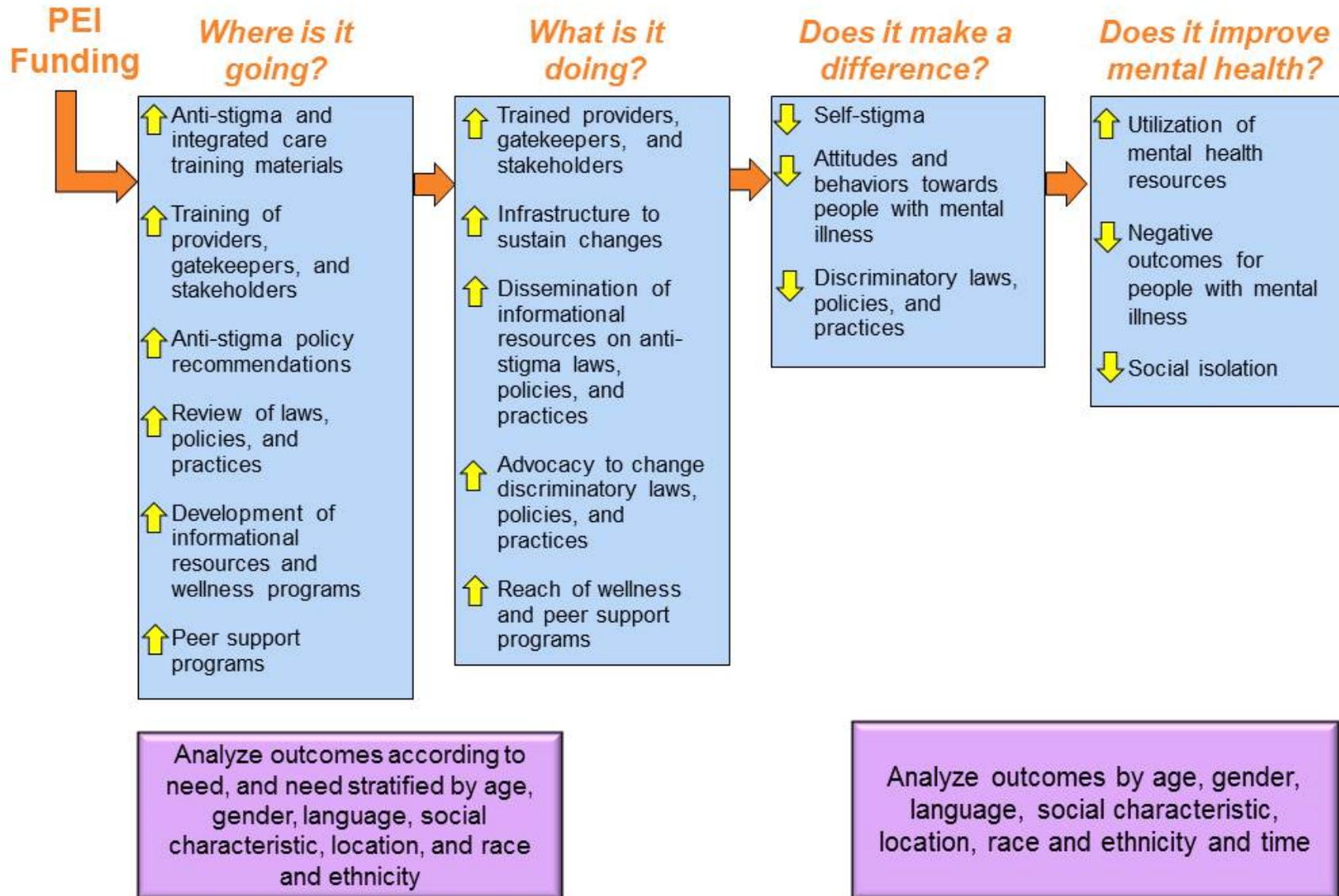
# Unemployment Prevention Framework



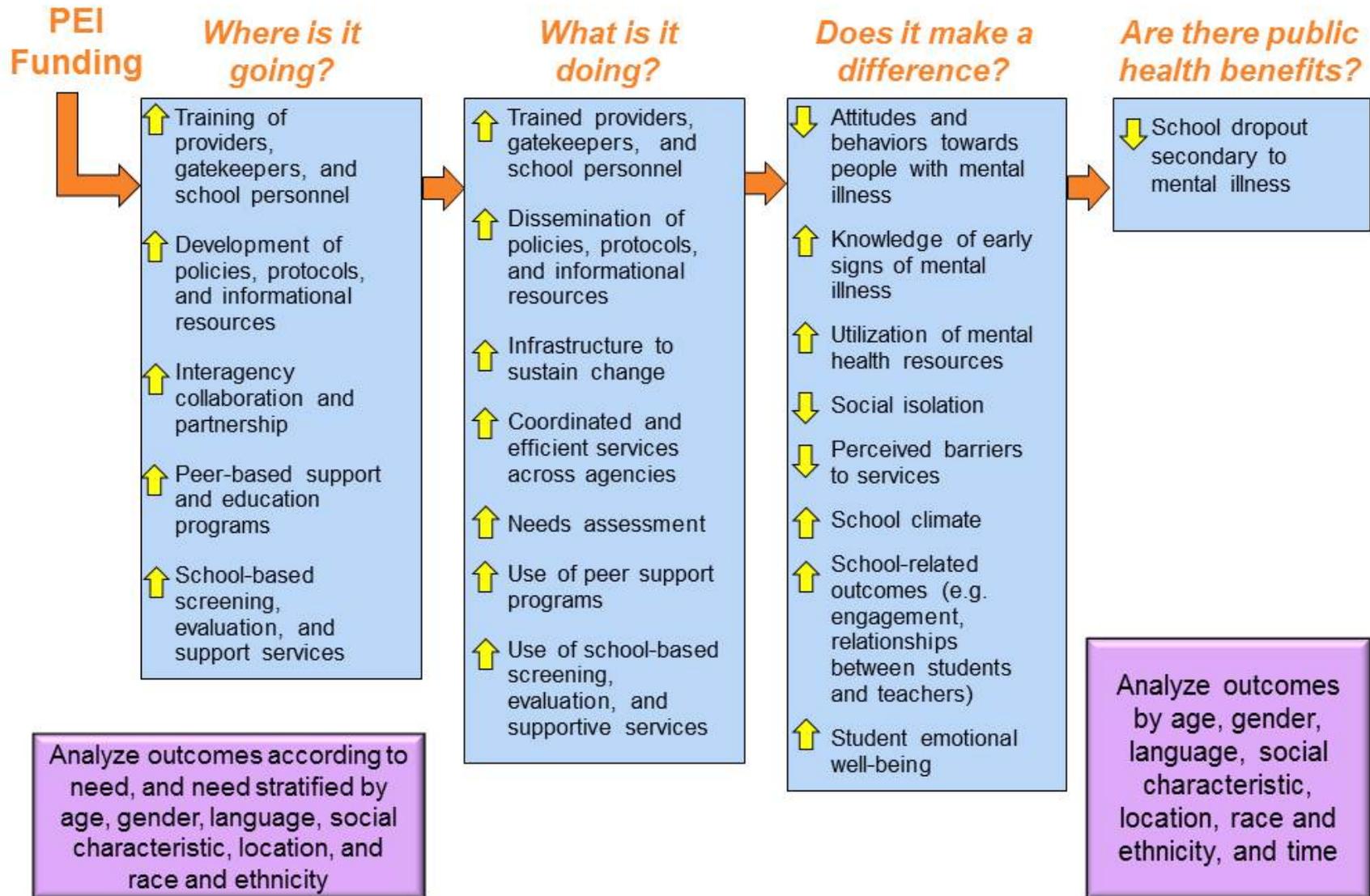
# Reduced Suffering Framework



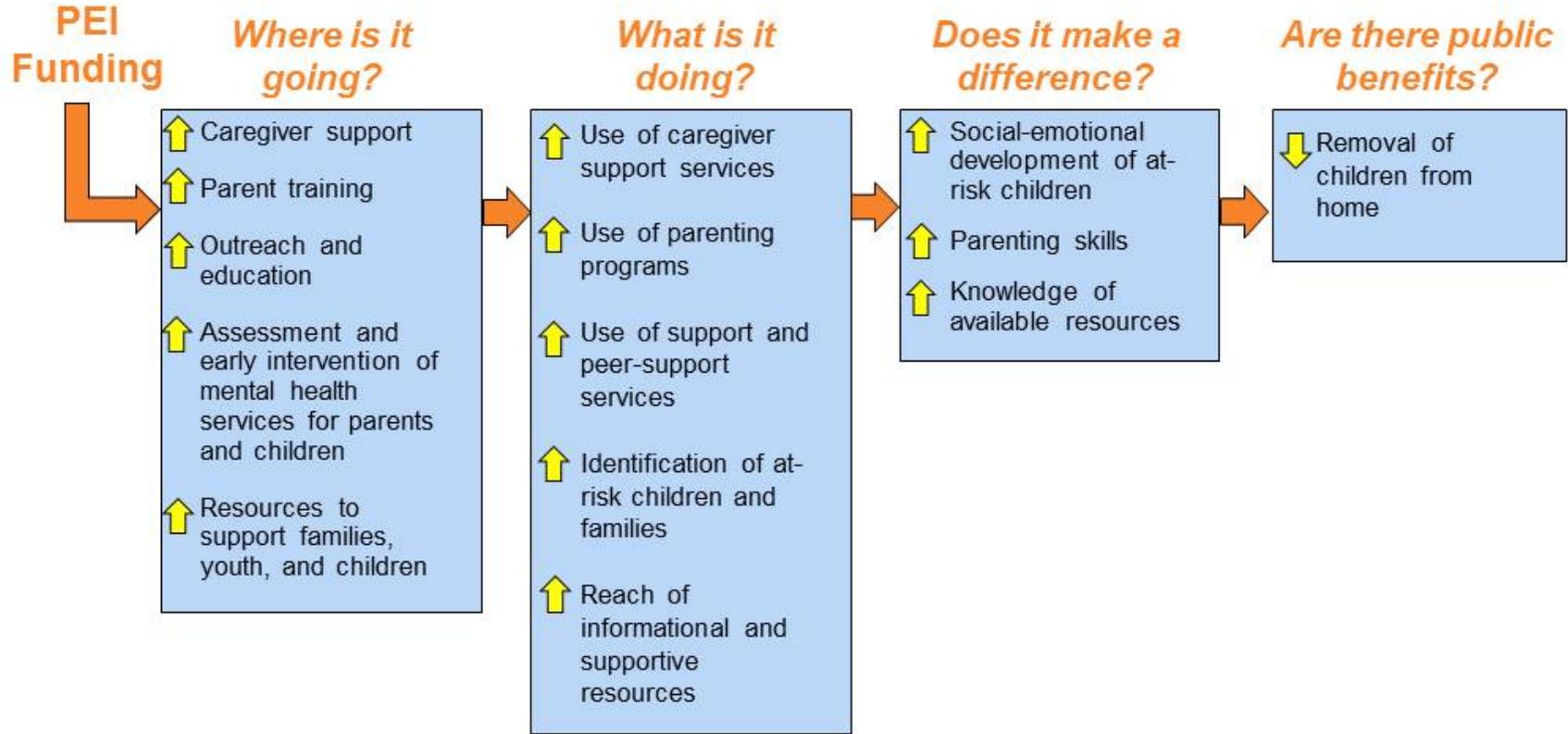
# Stigma and Discrimination Prevention Framework



# School Dropout Prevention Framework



# Out of Home Removal Prevention Framework



Analyze according to need, and need stratified by age, gender, language, social characteristic, location, and race and ethnicity

Analyze outcomes by age, gender, language, social characteristic, location, race and ethnicity, and time