Weiss Institute

Comprehensive Community Initiatives

The Impact on Population-Level Children, Youth, and Family Outcomes

A SYSTEMATIC REVIEW

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JANUARY 2018

Introduction

Pervasive academic, health, and social inequalities exist for children, youth, and families in cities and communities across the United States.[1] Changing the current situation begins with understanding that young people live, learn, and grow throughout all aspects of their lives. Thus, no one type of intervention—such as good schools, better teachers, or the availability of after-school and summer programs—is sufficient for providing the supports that encourage optimal development for a young person.[2] For families in poverty, or for those experiencing other kinds of adversity, a wide variety of supports and interventions are needed before and beyond what schools can provide. Indeed, recent analyses have shown that more than half of the variation in student outcomes is explained by neighborhood and family factors, not school factors.[3]

Comprehensive community initiatives (CCIs)—locally organized, multi-sector collaborations—have become an increasingly popular avenue for building the capacity of a particular place to coordinate public resources, mobilize previously untapped family, cultural, and community-based resources, and, ultimately, to design social interventions that lead to better population-level outcomes.[4] Models for such systemic interventions use several terms to describe themselves, such as **cradle-to-career initiatives, collective impact, and comprehensive community initiatives.** Despite the variation in terminology, all employ the philosophy that improved population-level outcomes for children and families can best be achieved by engaging multiple community systems, structures, and constituencies that coalesce around a common goal and work in concert to achieve that goal. A focus on outcomes at the population-level (i.e., for the community as a whole) is distinct from initiatives that seek to improve the lives of individuals involved in one particular organization's programs, such as schools or after-school programs.[5]

CCIs' lineage can be traced at least to the early 1800s,[6] and over time these kinds of efforts have grown in scope and in popularity. Local-level decision-makers, philanthropists, and policymakers are beginning to realize the promise of initiatives that focus on the comprehensive supports that all children and youth need to thrive and that work across institutional "silos" to provide those supports. CCIs have the potential to affect community-level change by aligning multiple contexts (e.g., school, community, work) with the needs and strengths of each young person to optimize the development of all young people.

CCIs are **locally organized, multi-sector collaborations** (e.g., education, business, community-based organizations), that build local capacity and **coordinate resources** towards a common goal of **improving population-level outcomes.** Because CCIs are locally owned and driven, the structure and goals of a CCI will inevitably vary depending on the community it is serving.

The evidence to support whether this potential is realized has not kept pace with the energy to implement CCIs. Over the last decade, both researchers and practitioners have made a concerted effort to document the "how" of CCIs—analyzing and recommending effective methods for optimizing the ways that decision-makers and organizations collaborate.[7] Yet, the linking of CCIs to population-level change has not been as expansive.[8] Given the increased popularity of CCIs, along with the significant investment of time as well as public and private resources, a **systematic review**[A] like this one of the existing evidence about impact is timely in several ways. It can provide the foundational knowledge about whether and how CCIs can impact

[A] A systematic review is a comprehensive review of the literature on a given topic that organizes existing empirical evidence in relation to a specific identified research question. In contrast to a typical literature search, systematic reviews endeavor to minimize bias in the search, retrieval, review, and interpretation of a given body of literature.

child, youth, and family outcomes. It can identify the promising elements that can lead to impact. And, taken together, the findings can provide communities with knowledge to strengthen their efforts[9] and enable them to respond to requests for philanthropic and federal funding.[10] Child and youth-focused CCIs use a theory of action (often implicit) that if a locally organized, multi-sector collaboration first comes together to define a common goal for all of its children and youth, then the CCI can build local capacity and coordinate resources to provide the necessary supports to all children and youth in order to achieve that goal. The result is population-level impacts for the community's children and youth.

WHAT IS A SYSTEMATIC REVIEW?

A systematic review is a comprehensive review of the literature on a given topic that organizes existing empirical evidence in relation to a specific identified research question. In contrast to a typical literature review, systematic reviews minimize bias in the search, retrieval, review, and interpretation of a given body of literature.

This report offers a systematic review of available evidence about the outcomes CCIs offer for children, youth, and families. Starting with a broad search that encompassed more than 1900 articles, and narrowing to just 25 relevant articles studying five initiatives, the authors conclude that CCIs show promise for impact on specific risk and protective factors, including how connected young people are to their neighborhoods, whether young people initiate or continue substance use, and the incidence of delinquency and violent behaviors.

In addition, the authors analyze the structures and processes that appear to drive change. The report concludes by offering directions for further research that will aid policymakers, practitioners, and philanthropists interested in realizing the promise that CCIs offer for their constituents.

Reviewing the State of the Evidence

This review fills an important gap in the literature by specifying what is currently known about the impact CCIs have on children and families, what the strength of that evidence is, and the common aspects across CCIs that have shown impact.

Previous reviews have primarily focused on two groups of outcomes:

- those related to **how the collaboration functions** (e.g., coalition functioning, governance structures, trust and communication among stakeholders) and
- those related to how the collaboration **strengthens the capacity of a community** (e.g., increased financial, structural, social, or material community resources).[11]

The present review contributes to the literature through a focus on **a third group of outcomes**—population-level child, youth, and family outcomes (e.g., reduced risk behaviors among teens, improved graduation rates).

Research to date has been inconclusive about the impact of CCIs on population-level youth outcomes. Some reviews do not distinguish among collaboration level, capacity building, and population-level impact and outcomes, while other recent reviews have focused on describing CCIs currently in operation.[12] Another problem with assessing impact is that systematic change, the goal of CCIs, takes time—with some experts suggesting it can take up to 10 years to build a full model and see population-level impact.[13]

This report goes beyond previous research efforts by conducting a systematic review of the impact of CCIs on population-level child, youth, and family outcomes. No other review to date has utilized a systematic review methodology.

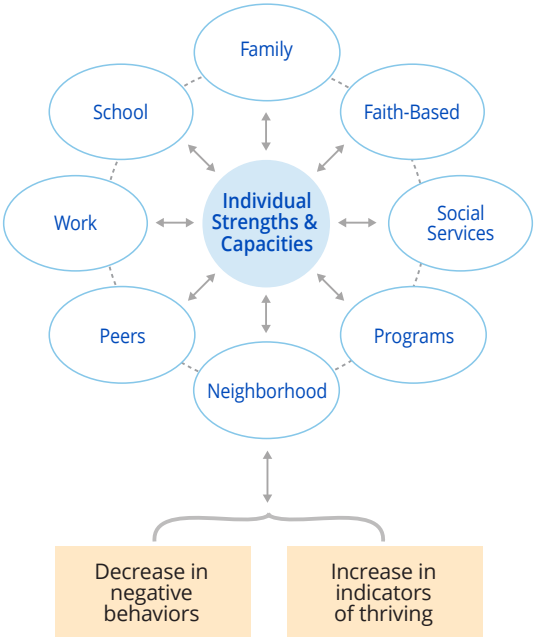
Theoretical Framework: Youth Systems

The youth systems framework places youth at the center of any inquiry instead of focusing on any one context. Drawing from ecological systems theories[14] and theories of Positive Youth Development (PYD),[15] a youth system:

- Recognizes and encourages the inherent agency of youth and their families.
- Incorporates the multiple contexts where youth reside and provides support across these contexts and over time.
- Includes both informal developmental contexts (e.g., neighborhood culture) and formal institutions (e.g., social services).

When the assets in this ecology align with the needs and strengths of a young person, then the youth system becomes a **supportive youth system**, and adaptive developmental outcomes are more likely.[16,17] Unfortunately, too many young people growing up in low-income and disenfranchised communities do not have supportive youth systems.[18]

FIGURE 1. Positive Youth Development From a Supportive Youth System Perspective[22]



If a young person's development is defined by the dynamic relationship between the individual and her multi-layered ecology, then it logically follows that no single context will sufficiently supply the supports that she needs. Instead, supports are needed across contexts. CCIs are positioned to foster supportive youth systems.[19] Thus, CCIs show great promise for creating the conditions for all young people in a community to reach their full potential through altering organizational, relational, political, and other community-level structures.[20] CCIs align the available environmental supports with the needs of individual young people within the community, and build additional supports where needed in order to achieve positive outcomes.[21]

Interest in CCIs has accelerated as researchers and practitioners have recognized that one system alone cannot spur the level of change that is needed to improve social outcomes for all children, youth, and families in a community.

Brief History of Comprehensive Community Initiatives

CCIs can be traced back to early organized efforts to reduce the impact of poverty on children and families in the late 1800s.[23] These efforts were largely funded privately and tailored to respond to specific neighborhood needs.[24] For example, settlement houses were founded in response to the large influx of European immigrants arriving in the United States and living in conditions of extreme poverty. These settlement houses, such as the Hull House in Chicago, started by providing enrichment opportunities, and evolved to provide comprehensive social services (e.g., child care, education, public baths, recreational programs) depending on the particular needs of the community within which the settlement house was located.[25] Settlement houses declined in popularity after World War I, coinciding with an increase in government-

funded efforts to address poverty through a series of reforms that provided federal aid and health services for the elderly, dependent children, and other vulnerable groups (e.g., New Deal policies).[26]

The legacy of place-based supports continued in the 1960s through President Johnson's Model Cities program, which included communities in the planning to carry out coordinated efforts to improve the physical and economic well-being of neighborhoods and the individuals in them. Many of these efforts focused on reducing delinquent behaviors instead of optimizing positive developmental outcomes.[27] Although the efforts were meant to be coordinated within a community, they did not resemble the cross-sector collaborations that are used as a tactic in most modern CCIs.

Throughout the 1980s and 1990s, interest and investment on the national, state, county, and city levels led to a convergence among social change efforts, research, and lessons learned from earlier segmented service efforts.[28] This convergence led to the earliest examples of large-scale, cross-sector collaborations to coordinate health, education, employment, and housing resources for youth and communities.[29] Generously funded by private foundations such as the Annie E. Casey Foundation, Ford Foundation, Hewlett Foundation, and the John S. and James L. Knight Foundation, these initiatives aimed to address the complex, interrelated issues a community might face with complex and interrelated solutions.[30] This influx of funding also included support for research on effective coalition functioning, decision-making, and coalition grantee support.[31]

In addition to private investment, the Substance Use and Mental Health Services Administration (SAMHSA) within the United States Department of Health and Human Services, funded community collaborations throughout the 1990s focused on reducing the initiation and abuse of drugs. This effort was a reaction by the federal government to the crack cocaine epidemic of the 1980s and 1990s. Three rounds of grant programs were implemented during the 1990s, with funds given to 500 community collaborations to an effort to combat drug use and abuse. CCIs recognized the importance of sustainability, and therefore prioritized capacity building and supporting sustainable processes, leveraging existing programs and other resources rather than introducing new ones.[32] By filling in gaps where possible, connecting resources, and building infrastructure that brought disparate pieces together, CCIs aimed to build on the strengths of communities to maximize effectiveness and sustainability.[33] Moreover, CCIs aimed to impact health, education, economic, and community engagement outcomes at the individual, family, neighborhood, and city level. Measuring such change was more elusive.[34]

After the recovery efforts following the financial crisis of 2008, new funding streams were designated for community development. Recent federal efforts include the creation of Promise Neighborhoods and Choice Neighborhoods in 2010 under the Obama Administration and the White House Council for Community Solutions, which led to the creation of the Aspen Forum for Community Solutions.[35] The Promise Neighborhoods Initiatives, inspired by the Harlem Children's Zone,[36] was created by the United States Department of Education[37] to encourage neighborhoods to support youth through the first two decades of life by creating a continuum of family, community, and academic supports. Many communities continued to pursue locally-driven efforts consistent with the strategies adopted by Promise Neighborhood grantees despite not receiving federal resources to do so.[38] Choice Neighborhood initiatives seek to improve the physical and economic infrastructure of neighborhoods while also providing direct services to youth and families.[39] The Aspen Forum for Community Solutions has funded 21 CCIs focused on "opportunity youth" with its Opportunity Youth Incentive Fund.

Current Landscape of Practice and Research

Although there was interest in the 1980s and 1990s in implementing CCIs, the interest has arguably increased significantly over the past 15 years. Interest has accelerated as researchers and practitioners have recognized that one system alone (education or healthcare, for example) cannot spur the level of change that is needed to improve social outcomes for *all* children and youth in a community. One impetus was the introduction of stronger federal mandates for education accountability. With the No Child Left Behind Act of 2001 holding schools, districts, and states accountable for continual growth in educational outcomes, there was a growing recognition that schools alone could not reach the proficiency levels required, nor could they close the achievement gaps that were now more apparent thanks to stronger, more robust data systems at the state and local levels. The availability of this data led to a greater understanding of the challenges and opportunities in a community, allowing interventions to be tailored to the unique needs of a particular place and the people who live there.

Increased interest and investment after 2011 in CCIs can also arguably be attributed to the consulting firms FSG and the Bridgespan Group and their respective reports about "collective impact" and "needle moving collaboratives."[40] These reports highlighted a selection of CCIs that were purported to have caused population-level impacts. These easily digestible models, including FSG's introduction of the compelling term of collective impact, encouraged a national dialogue around CCIs.[41]

In addition to the federal efforts mentioned above, other non-governmental CCIs currently include America's Promise Alliance's GradNation Communities, Communities that Care (CTC), StriveTogether, Say Yes to Education, Purpose Built Communities, and the Ready by 21 communities, among others.[42] These national networks are complemented by numerous non-affiliated efforts throughout the country.

In an attempt to understand the scope of CCIs, Jeffrey Henig and his colleagues at Teachers College recently conducted the first nationwide scan of "collective impact" initiatives.[43] Based on their inclusion criteria (e.g., place-based, multi-sector, collaborative leadership, focus on educational outcomes), they identified 182 CCIs across the country. Their report placed an emphasis on CCIs affiliated with a national network like those listed above, and/or those located in or serving the 100 most populated cities in the country. More than half of the identified CCIs were not affiliated with a national network and most of the information regarding their initiatives resides solely on individual websites.[44] However, their report helped to delineate the various types of cross-sector collaborations across the country, importantly distinguishing school-based, community-based, and city-based efforts.

A report from Teachers College identified and categorized 182 CCIs, helping to delineate the different types of cross-sector collaborations across the country.

Rigorous, systematic research and evaluation have not kept pace with the expansion of CCIs.[45] There is a growing research base on collaboration functioning and systemic changes ranging from how well collaborative members work together to changes in public policies. Although these are important outcomes, and could even be the focus of a CCI (e.g., to change one or more public policies), understanding how CCIs impact population-level child, youth, and family outcomes has proven more elusive.[46]

Since a neighborhood, a city, or a county is the unit of change, understanding the impact of a given CCI could be considered an "N of 1" problem; meaning the sample size is one unit.[47] As many CCIs are unaffiliated, vary in how they do their work, and what they are working towards, apples-to-apples comparisons across communities are difficult to make. As a result, much of the generated

knowledge on CCIs comes from internally generated reports and evaluations that are typically thin on methodological rigor.[48] Case studies are also a popular means of describing the efforts and population-level outcomes of particular CCIs, but without a comparison group or ability to control for other ecological factors, researchers are not able to know with any validity whether the CCI *caused* the impacts or whether other factors in or outside of the community caused the change. As noted in the previous section, this systematic review takes steps toward illuminating what evidence does exist that can guide policymakers, practitioners, and funders toward deepening impact in their own communities.

Method

A systematic review is a comprehensive examination of the literature on a given topic with the aim to organize existing empirical evidence in relation to a specific identified research question.[49] In contrast to a typical literature review, systematic reviews minimize bias in the search, retrieval, review, and interpretation of a given body of literature.[50] According to the **Cochrane Collaboration**, one of the foremost authorities on research synthesis methodologies, a systematic review can be characterized by:[51]

- A clearly explicated set of study objectives, including pre-defined criteria for determining the eligibility of studies to be included in the review.
- A clear, explicit, and reproducible methodology.
- A systematic search strategy that seeks to identify the full scope of studies that would meet the predefined eligibility criteria.
- An assessment of the quality and validity of findings from included studies.
- A systematic description, synthesis, and presentation of findings and characteristics of the included studies.

This study is a systematic review focused on two questions:

1. Have CCIs impacted population-level outcomes for children, youth, and/or families?
2. If CCIs have impacted population-level outcomes, what are the promising elements among effective CCIs that other CCIs could use in their efforts?

The effort includes articles from 1990 to the present day. A full description of systematic review process can be found in the Appendix.

Criteria for considering studies for review

The authors of this report sought to describe the universe of studies for which the focus and design supported causal inference of the impact of CCIs on child, youth, and family outcomes at the population level. That is, **what convincing evidence exists that CCIs are a way of working that ultimately benefits the people in a particular community**? When considering studies for a systematic review, the **PICOS** framework adopted by the Cochrane Collaboration has been widely used as a helpful tool to describe study characteristics.[52] The framework suggests that Population, Intervention, Comparison and Outcomes, as well as Study Design, are critical characteristics that can be used to organize and compare publications.[53] Below is a description of how the authors applied those characteristics to this systematic review. In order to answer the second question, the authors did not evaluate studies based on a prior definition of critical structures and processes. Those emerged in a later analysis.

POPULATION

This review sought to identify studies reporting on outcomes related to children, youth, and families residing in communities in which a CCI was implemented.[54] To include CCIs that focused on postsecondary and college outcomes (e.g., cradle to career initiatives), and consistent with lifespan developmental theory, the population of interest included all young people ranging from birth to 26 years of age and their families. The upper-bound age was chosen as a point at which on-time college completion and sustainable employment would be expected or hoped to occur. The authors

included CCIs regardless of geographic unit (e.g., neighborhood, city, county).

INTERVENTION

Comprehensive community initiatives represent community-wide, systems-level interventions that are run by a local, organized group of institutions and individuals that coalesce their interests and resources around a common agenda and toward a common goal.[55] In this way, CCIs build and/or strengthen the community's human, institutional, financial, and social capital in order to resolve the identified issue or issues in that community.[56] For this review, the authors included studies that operationalized this definition of CCIs as an intervention to improve outcomes for children, youth, and families.

COMPARISON

The authors did not specify a comparison group, as the research designs of studies evaluating CCIs are so varied that limiting the search to a single type of comparison group would overly restrict the results.

OUTCOMES

The authors considered a broad range of outcomes for children, youth, and families at the individual and/or community level. To capture the potential impact of a wide range of possible intervention foci, particular outcomes of interest were not specified within the search.

STUDY DESIGN

For the purposes of discussing impact, studies were included that employed either experimental (RCT) or quasi-experimental designs with matched comparison groups. Studies that did not adequately meet study design criteria were excluded. The inclusion of varied methodological designs that extend beyond the parameters of randomized controlled trials (RCTs) is consistent with systematic review practices within the broader social sciences.[57]

SUMMARY OF HAND-SEARCHED SOURCES

The review includes hand-searched "grey literature"—research that is produced outside of traditional academic publication and distribution channels[58]—from the following sources:

- The Aspen Forum for Community Solutions
- Center for Substance Abuse Prevention (Community Coalitions Program)
- Chapin Hall at the University of Chicago
- Child Trends
- Collective Impact Forum
- Communities That Care
- The Federal Reserve Bank of Boston
- FSG
- Harlem Children's Zone
- The John W. Gardner Center for Youth and Their Families at Stanford University
- Living Cities
- Making Connections
- Neighborhood and Family Initiative
- Neighborhood Improvement Initiative
- New Futures
- The Prevention Research Center at Pennsylvania State University
- Project ASSIST
- PROmoting School-community-university
- Partnerships to Enhance Resilience (PROSPER)
- Promise Neighborhoods Institute at PolicyLink
- The Work Group for Community Health and Development at the University of Kansas
- Say Yes to Education
- The Social Development Research Group at the University of Washington
- Stanford Social Innovation Review
- StriveTogether
- Urban Institute
- The White House Council for Community Solutions

Using the criteria and the framework described above, the authors identified studies of CCIs that were:

- Reported primarily employing an empirical methodology, thus excluding articles that were non-empirical research.
- Published between 1990 and 2017, in order to limit the review to CCIs that are likely to be similar in function and structure to contemporary efforts.
- Conducted on communities within the United States, given the importance of context for CCIs.

After the initial screening, full-text versions of articles were reviewed by one reviewer. Studies were included if they met the following criteria:

- Investigated a specific CCI that is collaborative across sectors (e.g., no single-agency initiatives, even with a university partner providing research assistance);
- Focused on promoting positive outcomes for children and/or youth, not just adults;
- Maintained a focus on population-level outcomes, not just children or youth involved in a particular program;
- Intended to establish a causal relationship between CCI interventions and population-level children, youth, and/or family outcomes either through stated objectives or supported causal inference through the evaluation design (e.g., experimental or quasi-experimental).

Classifying studies by design and quality of evidence

The authors sought to identify those studies that endeavored to make claims about the impact of a CCI on children, youth, and family outcomes. It is important to reiterate, however, that studies may vary widely in the extent to which they are actually designed or intended to isolate the effects of a CCI on youth outcomes. Each of the retained articles in the final pool of impact studies provides evidence of population-level child, youth, and/or family outcomes that can be attributed to the activities of CCIs.

Multiple frameworks have evolved across scientific disciplines to provide standards for evaluating evidence produced by research publications. These include frameworks in the fields of education (IES), developmental science (Child Trends), and prevention and public health sciences (Blueprints). While each framework is slightly different, they share commonalities across their standards of evidence. The authors synthesize across these frameworks and use two tiers to categorize the validity of study methods to assess causal relationships.

- **TIER 1** includes studies that employed community-level, randomized controlled trials (RCTs) and reported population-level outcomes. Because each community is randomly assigned to an "intervention" or "non-intervention" group and various additional factors are adjusted or

Randomized controlled trials (RCTs) are considered the most systematic research design for causal inference. RCTs randomly assign group(s) (individuals/communities/neighborhoods/schools) to either intervention or control groups. These groups are then compared to measure the impact of the intervention. Randomizing groups eliminates selection biases.

Quasi-experimental designs also strive to measure the impact of an intervention by comparing an intervention group and a control group. However, these designs to do not randomly assign participants to intervention and control groups. Instead, they match participants in the intervention group with participants who are similar on a variety of characteristics. Because quasi-experimental designs cannot fully account for selection bias, confidence in attributing causality is reduced. Quasi-experimental designs are often used when an RCT is not ethical, such as withholding a medication that has been proven to be effective for curing a disease, or when random assignment is not feasible such as comparing states that have legalized marijuana to those that have not.[B]

[B] Campbell & Stanley, 1963

controlled for, researchers can be confident that any change in the outcome is caused by the intervention, not by any other factors.

- **TIER 2** studies employed quasi-experimental designs in which a variety of comparison groups were included and population-level outcomes were reported. Quasi-experimental designs do not randomly assign communities to groups, instead comparing an intervention group to another group that did not receive the intervention, but is matched to the intervention group on one or more factors that are thought to be implicated in the outcome (e.g., income). Even with carefully matched groups, there is a chance that an unmeasured factor could still be implicated in the observed impact.

Please see the Appendix for a full description of the method, including the search strategy, the procedure for study review and inclusion criteria, and classification of the included studies by both design and quality of available evidence.

Results

Starting with a broad search that encompassed more than 1,900 articles, and narrowing to just 25 relevant articles that encompass six studies of five distinct CCIs, the authors conclude that **CCIs show promise for impact on specific risk and protective factors,** including:

- Strengthening protective factors and reducing risk factors in multiple contexts (e.g. peer, family, community).
- Delaying initiation and reducing substance use across an array of substances and points in time.
- Reducing the likelihood of and delaying engagement in violent and/or delinquent behaviors.

These three clusters of outcomes reflect the **public health and prevention science focus** of the CCIs that were reviewed.

Search Results and Inclusion/Exclusion Decisions

The initial search yielded 1,947 articles in total (**see Figure 2**). Following an initial stage of screening by title and abstract, 261 studies were identified as suitable for the full-text review. As a result, 25 articles were identified as studies investigating the impact of CCIs on children, youth, and/or families at the population level.

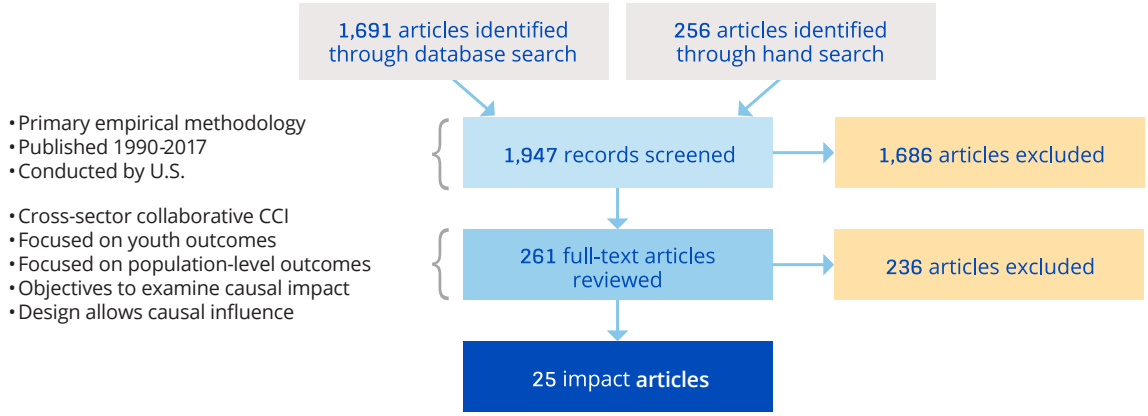
Each of the 25 publications identified for inclusion examined the impact of a particular CCI on population-level child, youth, and family outcomes. The 25 publications represented six studies evaluating five distinct CCIs. The CCIs represented are:

- Communities that Care,
- PROSPER,
- Kentucky Incentives for Prevention (KIP) Project,
- New Directions, and
- the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention (SAMHSA-CSAP) Community Partnership Program.

In the following section, the authors describe the CCIs within each tier of evidence and their corresponding evaluation studies and publications. An overview is available in the table at the end of each section (which references the listing of articles in the Appendix). The narrative gives information about each CCI, the related study design and data collection, findings, and conclusions.

See **Table 1** for an overview of initiatives included in the review—listing each CCI along with related articles, outcomes, and findings of short-term and long-term impact.

FIGURE 2. Articles included and excluded by review stage



PREVIEWING THE REST OF THE REPORT

The following sections of the report provide a comprehensive overview of the results of the systematic review, and include a discussion of the structures and processes that support successful CCI implementation. The authors reviewed the search results according to the decision-making process described in the method section to arrive at the final list of articles. Data and insights extracted from these articles are presented in three sections:

First, the authors present an overview of each of the initiatives, organized by tier, and details of their respective findings.

Following the overview is a synthesis of the outcomes across initiatives and reviewed by domain (i.e. risk and protective factors, substance use, delinquent and violent behaviors).

Finally, the authors discuss the findings from the thematic analysis of CCI structures and processes, which identified six underlying structures and processes that serve to support the efficacy of each of these initiatives:

- Collaborative governance structure
- Comprehensive planning
- Resources and sustainability
- Evidence-based prevention programming
- Monitoring implementation
- A culture of inquiry

A more comprehensive discussion accompanies each of these structures and processes, situates them within the larger literature, and contextualizes them within the identified initiatives. Finally, the report concludes by discussing the implications of these findings and offers directions for further research.

TABLE 1. Overview of CCIs Included in the Systematic Review

TIER 1

	SHORT-TERM IMPACT	LONG-TERM IMPACT
1. Communities that Care (CTC)—Community Youth Development Study (CYDS) Substance Use, Delinquency, Violence, Risk and Protective Factors COMMUNITIES: 24 IMPACT PUBLICATIONS: 12		
ARTICLE 1 Hawkins et al. (2008)	**Risk Factors & Delinquency** • Target Risk Factors (e.g., favorable attitudes toward substance use, low commitment to school) • Delinquency initiation	
ARTICLE 2 Hawkins et al. (2009)	**Substance Use Outcomes** • Cigarette use initiation • Alcohol use initiation • Smokeless tobacco use initiation • Current alcohol use • Current smokeless tobacco use • Current binge drinking **Delinquency Outcomes** • Delinquency initiation • Past-year delinquency	
ARTICLE 3 Oesterle, Hawkins, Fagan, Abbott, & Catalano (2010)	**Substance Use Outcomes** • Current smokeless tobacco use (M) • Current alcohol use (M) • Current Binge drinking (M) **Delinquency** • Past year delinquent behavior	
ARTICLE 4 Hawkins et al. (2012)	**Risk and Protective Factors** • Target Risk Factors **Substance Use Outcomes** • Cigarette use initiation • Current cigarette use • Alcohol use initiation • Delinquency • Delinquency initiation • Past year delinquent behaviors **Violence** • Past-year violent behaviors	
ARTICLE 5 Brown et al. (2013)	**Substance Use and Delinquency** • Composite problem behaviors	
ARTICLE 6 Hawkins, Oesterle, Brown, Abbott, & Catalano (2014)		**Substance Use Outcomes** • Cigarette use initiation • Alcohol use initiation • Any drug use initiation **Delinquency** • Delinquency initiation **Violence** • Violence initiation **Effect in unexpected direction** • Past 30-day ecstasy use

(M) indicates effect was only statistically significant for males. (F) indicates effect was only statistically significant for females.

	SHORT-TERM IMPACT	LONG-TERM IMPACT
ARTICLE 7 Oesterle, Hawkins, Fagan, Abbott, & Catalano (2014)	**Delinquency** • Past year delinquent behaviors (M)	
ARTICLE 8 Van Horn, Fagan, Hawkins & Oesterle (2014)	**Substance Use Outcomes** • Current alcohol use	
ARTICLE 9 Kim, Gloppen, Rhew, Oesterle, & Hawkins (2015)	**Substance Use Outcomes** • Current alcohol use	
ARTICLE 10 Kim, Oesterle, Hawkins, & Shapiro (2015)	**Risk and Protective Factors** • Individual protective factors (M; youth with low-to medium baseline risk) • Peer protective factors (F)	
ARTICLE 11 Oesterle et al. (2015)		**Substance Use Outcomes** • Cigarette use abstinence (M) • Delinquency Outcome • Delinquency abstinence **Effects in unexpected direction** • Past 30-day ecstasy use
ARTICLE 12 Rhew et al. (2016)		• No effects in cross sectional samples on the prevalence of substance use and antisocial behavior • Pseudo cohort showed slower increase in lifetime smokeless tobacco from 6th to 10th grade compared to control communities • Exploratory analyses revealed that high prevention program saturation communities experienced slower increases in problem behaviors compared to control communities
2. PROSPER Substance Use, Family Protective Factors, Conduct Problem Behaviors, Prosocial Peer Influence COMMUNITIES: 28 IMPACT PUBLICATIONS: 8		
ARTICLE 13 Spoth et al. (2007)	**Substance Use** • 30 day use: alcohol, cigarettes, marijuana, methamphetamines, ecstasy, inhalants • Past year use: alcohol, cigarettes, marijuana, methamphetamines, ecstasy, inhalants • Lifetime use: alcohol, cigarettes, marijuana, methamphetamines, ecstasy, inhalants • Index of gateway substance use • Index of illicit substance use	
ARTICLE 14 Redmond et al. (2009)	**Family Risk and Protective Factors** • General child management • Parent child affective quality • Parent child activities • Family environment • Substance refusal intentions • Substance use plans • Substance use expectancies • Attitude towards substance use • Perceived substance use norms • Problem solving • Assertiveness • Association with antisocial peers	**Family Risk and Protective Factors** • General child management • Substance refusal intentions • Substance use expectancies • Perceived substance use norms • Problem solving • Assertiveness • Association with antisocial peers

	SHORT-TERM IMPACT	LONG-TERM IMPACT
ARTICLE 15 Spoth et al. (2011)		**Substance Use** • Initiation: alcohol, cigarettes, drunkenness, marijuana, inhalant, methamphetamine, ecstasy • Past month: alcohol, cigarettes • Past year: drunkenness, marijuana, inhalant, methamphetamine • Lifetime: gateway substance use, illicit substance use
ARTICLE 16 Osgood et al. (2013)	**Prosocial and antisocial peer networks and influence** • Social network centrality • Antisocial orientation	
ARTICLE 17 Spoth, Redmond, et al. (2013)		**Substance Use** (point in time and growth over time) • Lifetime illicit substance use • 30 day: drunkenness, cigarettes, marijuana, driving after drinking, inhalants, methamphetamine • Frequency of use: drunkenness, driving after drinking, marijuana
ARTICLE 18 Spoth, Trudeau, et al. (2013)		**Substance Use** • Prescription drug misuse overall • Prescription opioid misuse
ARTICLE 19 Spoth et al. (2015)		**Problem Behaviors** • Conduct problem behaviors (composite score) • Conduct problem behaviors (composite score) by risk status (in regards to substance use index)
ARTICLE 20 Spoth et al. (2017)		**Substance Use** • Lifetime: marijuana, cocaine, ecstasy, methamphetamine, LSD, narcotics (non Rx), amphetamine (non Rx), illicit substance use index, prescription drug misuse index • 30 day: cigarettes, drunkenness, marijuana, narcotics • Frequency: cigarettes, drinking, drunkenness, drinking and driving, marijuana, narcotics (non Rx) • Lifetime drug related problems • Lifetime alcohol related problems **Risky Behavior** • Health-risking sexual behavior index • Lifetime STI • Antisocial/delinquent behaviors

TIER 2

	SHORT-TERM IMPACT	LONG-TERM IMPACT
3. Kentucky Incentives for Prevention Project (KIP) Substance Use, Risk and Protective Factors COMMUNITIES: 19 IMPACT PUBLICATIONS: 1		
ARTICLE 21 Collins, Johnson, & Becker (2007)	**Proximal Risk Factors** • School days skipped • Neighborhood adults' favorable attitudes toward drug use • Perceived low risk of being caught for drugs • Perceived availability of drugs • Friends' drug use **Substance Use Outcomes** • Past 30 day cigarette use • Past 30 day Alcohol use • Past 30 day Binge drinking **Effects in unexpected direction** • Family Conflict • School Commitment • Past 30 day inhalant use	
4. New Directions Substance Use and Attitudes COMMUNITIES: 23 IMPACT PUBLICATIONS: 1		
ARTICLE 22 Flewelling et al. (2005)	**Substance Use Outcomes** • Past 30 day cigarette use • Lifetime cigarette use • Past 30 day marijuana • Lifetime marijuana use **Effects in unexpected direction** • Lifetime inhalant • Lifetime other drugs	

1. CTC–PA Statewide Rollout Substance Use, Delinquency, Violence, Risk and Protective Factors COMMUNITIES: 120 IMPACT PUBLICATIONS: 2		
ARTICLE 23 Feinberg, Greenberg, Osgood, Sartorius, & Bontempo (2007)	**Risk Factors Individual** • Favorable attitudes toward antisocial behavior • Favorable attitudes toward Alcohol, Tobacco, and Other Drug use • Low perceived risks of drug use • Early initiation of drug use and antisocial behavior • Sensation seeking • Rebelliousness • School • Low school commitment • Poor academic performance **Peer** • Friends' delinquent behavior • Friends' use of drugs • Peer rewards for antisocial behavior • Family • Family supervision • Family discipline • Family history of antisocial behavior • Parental attitudes favorable to Alcohol, Tobacco, and Other Drug use **Substance Use & Delinquency Outcomes** • 30 day alcohol use • 30 day cigarette use • 2 week binge drinking prevalence • 12 month prevalence drunk/high at school • Drug involvement • Delinquent behavior	
ARTICLE 24 Feinberg, Jones, Greenberg, Osgood, & Bontempo (2010)	**Risk and Protective Factors** • Community cohesion • Community drug-firearms • School prosocial • Family cohesion • Family risk • Antisocial attitudes/behavior • Antisocial peer **Academic Performance & Antisocial Behavior** • Past year grades • Delinquency	
5. SAMHSA-CSAP Community Partnership Program Substance Use Prevalence COMMUNITIES: 251 IMPACT PUBLICATIONS: 1		
ARTICLE 25 Yin, Kaftarian, Yu, & Jansen (1997)	**Substance Use Outcomes** • Past 30 day illicit drug use • Past year illicit drug use • Past 30 day alcohol use • Past year alcohol drug use **Effects in unexpected direction** • Past 30 day illicit drug use (10th grade)	
TOTAL: COMMUNITIES: 465 IMPACT PUBLICATIONS: 25		

TIER 1

The first tier includes studies that employed community-randomized, controlled trials and reported population-level outcomes.

Two of the final six studies met **Tier 1** criteria: the Community Youth Development Study (CYDS) of Communities that Care and the evaluation of the PROSPER model. These studies employed community-randomized, controlled trial designs and reported population-level outcomes for youth.

Communities that Care: Community Youth Development Study (CYDS)

24 communities, 12 articles reviewing outcomes related to substance use, delinquency, violence, risk and protective factors

ABOUT THE CCI

Communities that Care (CTC) is an evidence-based comprehensive community initiative prevention system designed to reduce risk factors, increase protective factors, and reduce youth problem behaviors, including substance abuse, delinquency, and violence.[59] CTC operates by activating key community leaders who control resources (e.g., mayors, police chiefs, school superintendents, faith and business leaders) and creating a cross sector community coalition of community stakeholders that will carry out CTC.[C] Broad objectives include improving coalition functioning among the stakeholders, encouraging community norms to be less tolerant of youth engagement in substance use, delinquent behaviors, and violence, and increasing effective implementation and delivery of evidence-based prevention policies, programs, and practices.[60] Community coalition coordinators are hired full-time to assist the voluntary coalition in organizing and accomplishing its work. The underlying theory of change is that the coalition will use evidence-based practices, programs, and policies to bolster protective factors and reduce risk factors, ultimately reducing adolescent problem behaviors.[61]

CTC educates community members about youth development, risk factors, and protective factors.[62] Each community conducts surveys of local 6th, 8th, 10th and 12th grade students to collect information about the prevalence of risk and protective factors in the community.[63] Community members review the survey data to identify the most prevalent risk factors and problem behaviors and the least prevalent protective factors and prioritize two to five for improvement. The coalition is trained to then select and implement the evidence-based practices and programs that will address their prevention priorities. Family, school, after school, and community programs are selected from the CTC list of evidence based programs that also fit community defined priorities and fit with community values.

STUDY DESIGN AND DATA COLLECTION

The CYDS is a 24-community randomized controlled trial (RCT) testing the efficacy of Communities That Care (CTC). The first five years included intervention support to communities randomized to the CTC condition. A total of twelve articles evaluating the impact of CTC based on the CYDS were included in the final collection.

Data from a prior study, the Diffusion Project, were used to identify communities that would be ideal candidates to participate in the CYDS because of their openness to prevention initiatives as well as their need. Ultimately, 24 communities from seven states were selected. Prior to randomization, to improve comparability between the

[C] Note that CTC uses the term "coalition." Coalitions are simply groups of people coming together to act toward a common purpose; this definition does not reflect how well people are working together. Previous researchers have proposed levels of coalition functioning, such as networking, coordinating, cooperating, and collaborating (e.g., Himmelman, 2001). Networking is the lowest level of functioning with people exchanging ideas and information, but not acting together. Coordinating refers to the exchange of information and the changing of programs, but not the sharing or coordinating of resources. Cooperating refers to information sharing, changing programs, and sharing resources for mutual benefit. Finally, the highest level of functioning is collaborating, with all of the aspects of cooperating, but also includes enhancing each other's efforts for mutual benefit; as well as taking on mutual risk and sharing the rewards.

treatment and control conditions, communities were matched in pairs within state based on a variety of demographic indicators, such as population size, poverty, crime rate, and diversity. One community from each pair was then randomly assigned by coin toss to receive the intervention.[64]

Phase One of the CTC initiative included financial support and technical assistance to communities in the intervention condition, beginning in 2003 when youth were in 5th grade. Seventy-six percent of youth in the 24 communities consented to participate in the trial in grades five or six and comprise the CYDS longitudinal panel. Data have been collected from 90% or more of the panel at each of eight waves: grades five, six, seven, eight, nine, 10, 12, and age 19. Phase Two of the initiative, where funding and technical assistance were removed to evaluate community capacity for sustaining CTC activities and sustained effects on youth outcomes, began in 2008.[65] On average, 89% of the sample identified as White/Caucasian and 38% were eligible for free or reduced price lunch.[66]

FINDINGS

The series of papers addressing adolescent outcomes from grades seven through age 19 show significant impacts of CTC on risk and protection, and the incidence and prevalence of substance use and delinquency. The earliest impact publication, which examined outcomes 1.5 years after baseline when panel youth were in grade seven, showed that mean levels of targeted risk factors were significantly lower in CTC compared to control communities.[67] Another study showed that growth in mean levels of risk factors was slower for youth in CTC communities from fifth through 10th grade.[68] There were, however, no significant differences in mean levels of targeted risk factors at grade 12. Examinations of protection showed significantly higher levels of overall protective factors in CTC communities compared to control communities in 8th grade, along with significantly higher levels of protection in the school, and peer/individual domains, but not in the family domain.[69] However, in a follow up examination, the effects on protective factors were not sustained through 10th grade except for males in the individual domain and women in the peer domain.[70]

In an early examination of the impacts of CTC on the incidence of youth delinquency and substance use, one article reported that significantly fewer students in CTC communities, relative to control communities, initiated delinquent behavior between grades five and seven.[71] Yet, no significant differences were observed between youth from CTC and control communities on substance use initiation by 7th grade. However, a study of CTC impacts through 8th grade showed that the incidences of alcohol, tobacco/smokeless tobacco use, and delinquency initiation were all significantly lower among students from CTC communities compared to controls.[72] The lifetime incidence of alcohol use, tobacco use, and delinquency continued to be significantly lower in the panel from CTC communities relative to controls in grade 10. In 12th grade, three years after study-provided resources were discontinued, youth in CTC communities were more likely than youth in control communities to have abstained from most drug use, drinking alcohol, smoking cigarettes, and delinquent behaviors and were less likely to ever have committed a violent act.[73] A study of the panel at age 19, one year after the end of high school, reported that lifetime abstinence from substance abuse continued to be significantly higher among panel members from CTC communities.[74] Additionally, males, but not females, showed greater lifetime abstinence from cigarette smoking.

CTC effects on the prevalence of substance use and delinquency were first observed in 8th grade. One study of panel students in grade eight showed that the prevalences of past 30-day use of alcohol and smokeless tobacco, past-two-week binge drinking, and the number of delinquent behaviors committed in the past year were also significantly lower among CTC students. A second study reported that effects on the prevalence of substance use were stronger for boys than girls.[75] In a study of CTC effects at grade 10, the prevalences of past-30-day cigarette use and past-year delinquent and violent behavior were significantly lower in panel youth from CTC compared to control communities.[76] A follow-up study reported that the effect of CTC on the prevalence of past-year delinquent behavior was marginally stronger for boys.[77] No significant effects of CTC on the prevalence of substance use, delinquency, or violence were found at 12th

grade.[78] Further, the same article reported the unexpected finding that youth in CTC communities were twice as likely as youth in control communities to have used ecstasy in the past month. Examining the data when youth were 19, researchers continued to find no evidence of CTC effects on the prevalence of substance use and delinquency except for a similar unexpected effect of CTC students reporting higher use of ecstasy in the past month than youth in control communities.[79]

Two cross-sectional examinations revealed somewhat different findings from the panel study. One cross-sectional examination of 8th and 10th graders found significant impact on alcohol use for 10th graders and no effect on delinquency.[80] Another study using cross sectional data also reported no effects of CTC on prevalence of substance use or delinquency for 6th, 8th and 10th graders.[81] This study noted that the difference in findings may reflect reductions in the ability to detect effects related to cohort effects and also sample accretion and attrition.

CONCLUSION

Overall, there is ample evidence, using longitudinal data, that CTC is effective for preventing or delaying initiation of substance use or engaging in delinquent behaviors across grades. In terms of reducing these problem behaviors once youth engage in them, CTC appears to have strong effects in middle school that slowly diminish late in high school and beyond. Further, there is evidence that CTC can impact risk and protective factors in middle school, though those effects might diminish in high school. Importantly, there is some evidence for differential effects of CTC among males and females as effects on the prevalence of substance use and delinquency in grade eight were stronger among males, delinquency prevalence was marginally stronger among males in grade 10, and effects on the initiation of tobacco use in males, but not females, were sustained through age 19.

TABLE 2. Summary of CTC Articles

	SHORT-TERM IMPACT	LONG-TERM IMPACT
1. Communities that Care (CTC)—Community Youth Development Study (CYDS)		
ARTICLE 1 Hawkins et al. (2008)	**Risk Factors & Delinquency** • Target Risk Factors (e.g., favorable attitudes toward substance use, low commitment to school) • Delinquency initiation	
ARTICLE 2 Hawkins et al. (2009)	**Substance Use Outcomes** • Cigarette use initiation • Alcohol use initiation • Smokeless tobacco use initiation • Current alcohol use • Current smokeless tobacco use • Current binge drinking **Delinquency Outcomes** • Delinquency initiation • Past-year delinquency	
ARTICLE 3 Oesterle, Hawkins, Fagan, Abbott, & Catalano (2010)	**Substance Use Outcomes** • Current smokeless tobacco use (M) • Current alcohol use (M) • Current Binge drinking (M) **Delinquency** • Past year delinquent behavior	

(M) indicates effect was only statistically significant for males. (F) indicates effect was only statistically significant for females.

	SHORT-TERM IMPACT	LONG-TERM IMPACT
ARTICLE 4 Hawkins et al. (2012)	**Risk and Protective Factors** • Target Risk Factors **Substance Use Outcomes** • Cigarette use initiation • Current cigarette use • Alcohol use initiation • Delinquency • Delinquency initiation • Past year delinquent behaviors **Violence** • Past-year violent behaviors	
ARTICLE 5 Brown et al. (2013)	**Substance Use and Delinquency** • Composite problem behaviors	
ARTICLE 6 Hawkins, Oesterle, Brown, Abbott, & Catalano (2014)		**Substance Use Outcomes** • Cigarette use initiation • Alcohol use initiation • Any drug use initiation **Delinquency** • Delinquency initiation **Violence** • Violence initiation **Effect in unexpected direction** • Past 30-day ecstasy use
ARTICLE 7 Oesterle, Hawkins, Fagan, Abbott, & Catalano (2014)	**Delinquency** • Past year delinquent behaviors (M)	
ARTICLE 8 Van Horn, Fagan, Hawkins & Oesterle (2014)	**Substance Use Outcomes** • Current alcohol use	
ARTICLE 9 Kim, Gloppen, Rhew, Oesterle, & Hawkins (2015)	**Substance Use Outcomes** • Current alcohol use	
ARTICLE 10 Kim, Oesterle, Hawkins, & Shapiro (2015)	**Risk and Protective Factors** • Individual protective factors (M; youth with low-to medium baseline risk) • Peer protective factors (F)	
ARTICLE 11 Oesterle et al. (2015)		**Substance Use Outcomes** • Cigarette use abstinence (M) • Delinquency Outcome • Delinquency abstinence **Effects in unexpected direction** • Past 30-day ecstasy use
ARTICLE 12 Rhew et al. (2016)		• No effects in cross sectional samples on the prevalence of substance use and antisocial behavior • Pseudo cohort showed slower increase in lifetime smokeless tobacco from 6th to 10th grade compared to control communities • Exploratory analyses revealed that high prevention program saturation communities experienced slower increases in problem behaviors compared to control communities

EVALUATION OF THE PROSPER MODEL

28 communities, eight articles studying outcomes related to substance use, family protective factors, conduct problem behaviors, prosocial peer influence

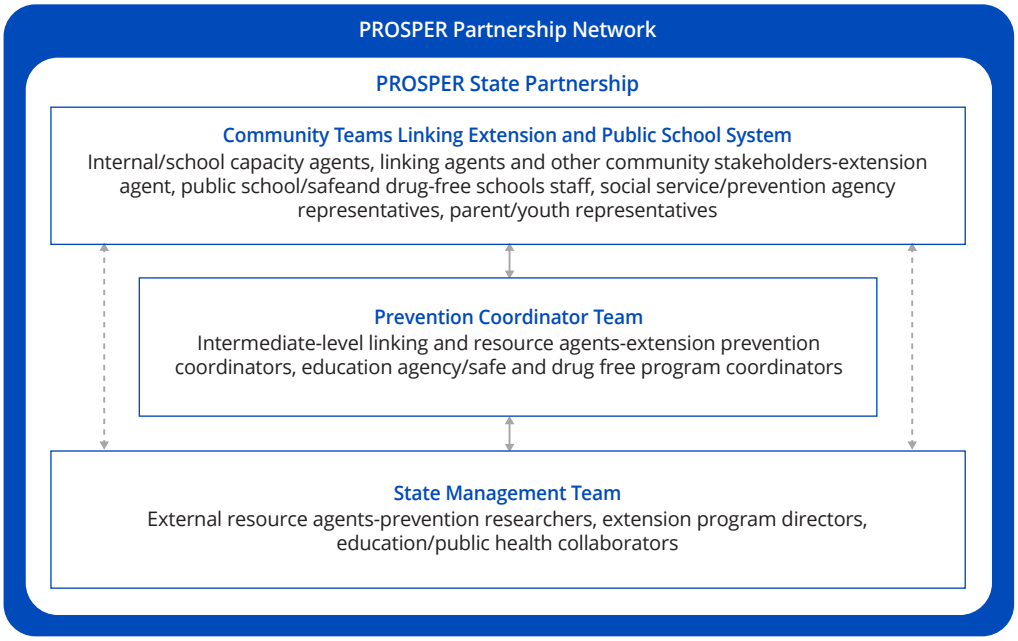
ABOUT THE CCI

PROSPER (*PRO*moting School-community-university *P*artnerships to *E*nhance *R*esilience) is a partnership model designed by researchers at Iowa State and Penn State Universities to increase the capacity, knowledge, and sustainability of implementing evidence-based intervention programs across an entire community to positively impact a range of child, youth, and family outcomes.[82]

The PROSPER model entails three levels of partnership, extending both laterally across a community and vertically from the local to the state level to increase collaboration, align policy, research, and practice, evaluate program effectiveness, and support sustainability.[83] The overall objective of the PROSPER model is rooted in theories of prevention science and aims to use a school-community-university partnership system in order to deliver more effective programs preventing a range of problem behaviors and build community capacity to address a diverse set of outcomes with important public health implications. Though similar to other coalition based community-wide interventions such as Communities that Care that support evidence-based programming (EBP) for positive youth outcomes, PROSPER distinguishes itself through the explicit emphasis on educational infrastructure and program delivery.[84]

Teams operate on three levels—school/community, intermediate-level coordination, and state. The school/local community strategic teams included a university affiliated convener, school personnel, district or state level educational personnel, and community service providers. The intermediate (linking) teams typically include program coordinators and prevention coordinators who serve to link the state-level teams (prevention scientists, university based "extension specialists," and state-level education professionals) with the local teams. Local school/community teams convened to select available evidence-based programs from a menu of options that they felt would be best suited to the needs of their communities and then relied on the resources of the linking and state level teams for funding and implementation support.[D] Community teams received extensive training and technical assistance oriented toward the generation of funding to sustain teams' efforts as they weaned themselves from grant funding.

FIGURE 3. PROSPER Partnership Structure



[D] For a full discussion of PROSPER partnership model see Spoth et al., 2004.

STUDY DESIGN AND DATA COLLECTION

The PROSPER model was born out of a need in prevention science for empirically tested methods and structures for facilitating effective and long-term implementation of evidence based family and school prevention programs across entire communities. Implementation and data collection began in 2002 with 28 Iowa and Pennsylvania school districts and their surrounding communities that were included in the evaluation. School districts were randomized to implement the PROSPER model, with 14 assigned to implement PROSPER and 14 serving as controls. The communities were rural or semi-rural, population sizes were between 7,000 and 45,000 residents, and school districts had between 1,300 and 5,200 students. Within the sample, 85% of the sample identified as White, approximately 50% identified as female, and 31% were eligible for free or reduced price lunch.[86]

Communities implementing the PROSPER model were given a menu of EBPs from which to select based on the particular needs of the communities, as determined by the partnerships. Programs included SFP 10-14 (*Strengthening Families Program), Life Skills Training* (LST), *Project ALERT*, and *All Stars*. Programs were selected because of the evidence supporting their efficacy at reducing youth substance use, problem behavior, and strengthening protective factors. Other programs were options for the family intervention component but all communities chose to implement the *SFP 10-14*. Baseline measures were determined through survey administration in the fall of 6th grade in 2002 (cohort one), and 2003 (cohort two). Follow-up assessments for the two cohorts were conducted annually from the spring of 6th grade until one year post high school. Additional follow up assessments with young adults are underway. Completion rate for follow up surveys was high; on average over 85% of eligible students participated in follow up assessments.[87]

FINDINGS

Eight articles evaluating PROSPER met the inclusion criteria for evaluating population-level impacts on child, youth, and family outcomes (See Table 3). These articles reported impact on several outcome domains for young people living in PROSPER communities, most notably on substance use, protective factors, and peer influence.

Specifically, youth in PROSPER communities have lower rates of illicit substance use (methamphetamine, cocaine, LSD, ecstasy/MDMA, inhalants) from 10th grade and this effect continues to a year post high school.[88] Notably, there is a risk moderation effect where the effect of the PROSPER intervention is strongest for young people at greater risk for substance use.[89] Similar findings exist for other substances. Youth in PROSPER communities report lower rates of prescription drug misuse, prescription opioid misuse, have fewer drug related problems, have lower rates of marijuana usage, and have fewer overall drug related problems by a year post high school than youth in control communities.[90] However, by a year post high school, rates of marijuana use are no longer significantly different.[91] Further, youth in PROSPER communities report lower rates of cigarette initiation as well as current use starting in 7th grade and continuing on through 12th grade.[92] They additionally find lower rates of alcohol initiation, drunkenness, and driving after drinking,[93] likely a result of ceiling effects in some cases (e.g., regarding lifetime use of gateway substances) but many of those effects were no longer present by a year post high school.[94]

PROSPER also has an effect on behavior and supporting family and community assets. Adolescents in PROSPER communities demonstrated fewer conduct problem behaviors throughout high school,[95] as well as significant effects, both individually and community-wide, on a range of family protective factors.[96] Some of these protective factors include parent-child affective quality in middle school, parent-child activities and substance use expectancies. The general trend across these family protective factors is that while the majority show significant differences compared to control communities, effects tend to be stronger earlier in middle school and become less significant by the end of middle school. This is consistent with adolescent development research that suggests that young people have stronger individual identities and gain more from relationships with teachers and peers as students age.[97]

However, PROSPER also found, based on a social network analysis of friendship networks, prosocial peers had stronger influence on social networks while antisocial peers had less influence in PROSPER communities versus controls. This suggests that although family protective factors may become less significant as young people enter high school, they are choosing and developing more prosocial tendencies with their peer groups.

CONCLUSION

Overall, the findings from PROSPER suggest that it is an effective intervention for reducing a range of substance use outcomes in the types of communities in which it was tested, supporting family protective factors, and strengthening the centrality of prosocial behavior within peer groups. Furthermore, these effects tend to stay significant throughout high school, suggesting that PROSPER has the ability to impact a host of outcomes for young people across entire communities.

TABLE 3. Summary of PROSPER Articles

	SHORT-TERM IMPACT	LONG-TERM IMPACT
2. PROSPER Substance Use, Family Protective Factors, Conduct Problem Behaviors, Prosocial Peer Influence COMMUNITIES: 28 IMPACT PUBLICATIONS: 8		
ARTICLE 13 Spoth et al. (2007)	**Substance Use** • 30 day use–alcohol • Past year use–drunkenness, marijuana, inhalants • Lifetime use–alcohol, cigarettes, marijuana, methamphetamines, ecstasy, inhalants • Index of gateway substance use • Index of illicit substance use	
ARTICLE 14 Redmond et al. (2009)	**Family Risk and Protective Factors** • General child management • Parent child affective quality • Parent child activities • Family environment • Substance use plans • Substance use expectancies • Attitude towards substance use • Perceived substance use norms • Problem solving • Assertiveness • Association with antisocial peers	**Family Risk and Protective Factors** • General child management • Parent child affective quality • Parent child activities • Family environment • Substance use expectancies • Perceived substance use norms • Problem solving • Assertiveness • Association with antisocial peers
ARTICLE 15 Spoth et al. (2011)		**Substance Use** • Initiation–alcohol, cigarettes, drunkenness, marijuana, inhalant, methamphetamine, ecstasy • Past month–alcohol, cigarettes • Past year–drunkenness, marijuana, inhalant, methamphetamine • Lifetime–gateway substance use, illicit substance use
ARTICLE 16 Osgood et al. (2013)	**Prosocial and antisocial peer networks and influence** • Social network centrality • Antisocial orientation	**Prosocial and antisocial peer networks and influence** • Social network centrality • Antisocial orientation

	SHORT-TERM IMPACT	LONG-TERM IMPACT
ARTICLE 17 Spoth, Redmond, et al. (2013)		**Substance Use** (point in time) • Lifetime illicit substance use • 30 day–cigarettes, marijuana, driving after drinking, inhalants, methamphetamine • Frequency of use– driving after drinking, marijuana
ARTICLE 18 Spoth, Trudeau, et al. (2013)		**Substance Use** • Prescription drug misuse overall • Prescription opioid misuse
ARTICLE 19 Spoth et al. (2015)		**Problem Behaviors** • Conduct problem behaviors (composite score) • Conduct problem behaviors (composite score) by risk status (in regards to substance use index)
ARTICLE 20 Spoth et al. (2017)		**Substance Use** • Lifetime–marijuana, cocaine, ecstasy, methamphetamine, LSD, narcotics (non Rx), illicit substance use index, prescription drug misuse index • Frequency–cigarettes, marijuana • Lifetime drug related problems **Risky Behavior** • Health-risking sexual behavior index • Lifetime STI • Antisocial/delinquent behaviors

TIER 2

The second tier of studies employed quasi-experimental designs in which a variety of comparison groups were included and population-level outcomes were reported.

Studies in this tier focused on four CCIs: The Kentucky Incentives for Prevention Project (KIP), New Directions, the Pennsylvania statewide roll-out of Communities That Care, and the SAMHSA-CSAP Community Partnership Program study.

Kentucky Incentives for Prevention (KIP)

19 communities, one article studying outcomes related to substance use, risk and protective factors

ABOUT THE CCI

The Kentucky Incentives for Prevention (KIP) Project is a community-based substance use prevention initiative that was funded in 1997 by the United States Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Substance Abuse Prevention (CSAP) State Incentive Grant in Kentucky. The grant program was part of a push to fund substance abuse prevention across the country. Grantees were required to use the funds to plan, implement, and evaluate activities geared toward substance use prevention and treatment, with the goal of promoting the overall well-being of the target communities.[98] The SAMHSA-CSAP grant was distributed among 20 coalitions in three major geographic areas of Kentucky to support communities with "coalition development, comprehensive planning, implementation of science-based prevention interventions, and participation in training/technical guidance."[99] Through this support, KIP communities sought to strengthen prevention systems within local communities with the aim of reducing alcohol, tobacco, and drug use among 12-17 year olds.

STUDY DESIGN AND DATA COLLECTION

The data collection and evaluation of KIP entailed a pre-post matched control-group design using repeated cross-sectional data collected from 8th and 10th grade students in 1999 and 2002 to compare KIP communities with controls. Ultimately, 19 KIP communities, including 110 KIP schools, were matched according to school size and geography (e.g., percent of students with urban residence) and compared to 65 schools in control communities. In 8th-grade, 86% of the students identified as White, 50% were female, and 57% lived in an urban area.[100]

The evaluation included a number of items from the Social Development Research Group CTC Student Survey,[101] which were adapted to measure "proximal outcomes," including risk (e.g., attitudes toward drug use, family conflict, friend's drug use) and protective factors (e.g., family attachment, commitment to school). Additionally, the following outcomes were included: past 30-day prevalence of smokeless tobacco, cigarette, alcohol, marijuana, inhalant use, and binge drinking.

FINDINGS

With regard to "proximal" risk factors, results suggested that the KIP communities saw reductions in school days skipped, neighborhood adults' favorable attitudes toward drug use, perceived low risk of being caught for drug use, and perceived availability of drugs at 8th grade. Further, at 10th grade, KIP communities saw reductions in friends' drug use and perceived availability of drugs. However, family conflict and school commitment changed in unexpected directions, favoring control communities. Regarding behavioral substance use outcomes, results indicated no significant differences between 8th graders in KIP communities compared to control communities on any of the six "distal" substance use outcomes. Notably, a single significant difference was found indicating increased prevalence of inhalant use in KIP communities.

Results at 10th grade showed significant sustained reductions (three years post baseline) in past 30-day prevalence of cigarette use, alcohol use, and binge drinking. Furthermore, the results indicated that two of the suggested risk factors, friends' drug use and perceived availability of drugs, explained this relationship between the intervention and reductions in prevalence. Interestingly, the number of science-based prevention interventions implemented by the coalitions did not impact the effects of the CCIs on substance use prevalence outcomes.

CONCLUSION

These results from a single article suggest that KIP has the potential to reduce prevalence of cigarette use, alcohol use, and binge drinking among adolescents. However, more research needs to be conducted in order to understand what factors contributed to the unexpected findings around inhalant use in 8th grade and family conflict and school commitment in 10th grade.

TABLE 4. Summary of KIP

	SHORT-TERM IMPACT	LONG-TERM IMPACT
3. Kentucky Incentives for Prevention Project (KIP) Substance Use, Risk and Protective Factors COMMUNITIES: 19 IMPACT PUBLICATIONS: 1		
ARTICLE 21 Collins, Johnson, & Becker (2007)	**Proximal Risk Factors** • School days skipped • Neighborhood adults' favorable attitudes toward drug use • Perceived low risk of being caught for drugs • Perceived availability of drugs • Friends' drug use **Substance Use Outcomes** • Past 30 day cigarette use • Past 30 day Alcohol use • Past 30 day Binge drinking **Effects in unexpected direction** • Family Conflict • School Commitment • Past 30 day inhalant use	

New Directions

23 communities, one article studying outcomes related to substance use and attitudes

ABOUT THE CCI

New Directions (ND), like KIP, was the product of a 1997 State Incentive Grant provided to Vermont by the SAMHSA-CSAP. ND communities were selected through a competitive grant allocation program. Eligible communities were required to have existing community coalitions, defined as multi-agency coalitions serving one or more of Vermont's school districts. In total, 23 communities were selected to participate and populations within these communities ranged from 4,000 to 60,000 residents. ND aimed to prevent adolescent substance use by fostering community mobilization that would increase protective factors and reduce risk factors. Coalitions were trained to implement a core set of prevention programs delineated by the ND project, as well as select additional activities from a menu of programs identified as empirically promising by CSAP.

STUDY DESIGN AND DATA COLLECTION

New Directions (ND) was a non-randomized, quasi-experimental community trial focused on implementing evidence-based prevention strategies to reduce community-level adolescent substance use prevalence in Vermont.[102] In an effort to measure population-level changes in substance use prevalence, the evaluation of ND relied on outcome data collected through the Youth Risk Behavior Survey (YRBS) from 1997 to 2001. The YRBS is a national school-based survey designed by the Center for Disease Control (CDC) that has been administered by many states and school districts. The Vermont Department of Health and Department of Education has administered the YRBS biennially since 1985 to students from grades 8 through 12 in participating schools statewide. The survey measures behavioral outcomes including past 30-day and lifetime use of alcohol, tobacco, and other drugs. Additionally, a number of items from the Social Development Research Group CTC Student Survey[103] were adapted to measure attitudinal outcomes, including disapproval of substance use, perceived risk of substance use behaviors, and availability of substances. Of the 24,932 students included in the analyses, 90% identified as White, 50% identified as female, and about 60% reported their mother's education level as beyond high school.[104] Prior to baseline data collection, intervention and control communities showed comparable demographic distributions and trends in substance use prevalence, thereby lending support to the attribution of these effects to the work of the CCI.

FINDINGS

A single article based on the evaluation of ND was included in the final collection of impact studies.[105] The researchers conducted a repeated cross-sectional quasi-experimental analysis to assess the impact of ND on substance use and attitudes.

Outcome data from schools within ND communities was compared to non-participating communities within the state for all students in grades eight through 12, in addition to testing specific differences at grade eight, controlling for age and gender. Results of the analyses indicated that ND communities demonstrated significant reductions in substance use prevalence, as measured by percentage changes in use after adjustment for changes in control communities. Specifically, results indicated significant reductions, in favor of ND communities, from 1999 to 2001 in past 30-day and lifetime marijuana use, and past 30-day and lifetime cigarette use for all youth grades eight to 12. Analyses indicated no differences by grade level, suggesting that effects were generally comparable across grades.

Notably, from 1997 to 1999, significant differences in lifetime inhalant use and lifetime use of other drugs (e.g., cocaine, steroids, heroin, methamphetamines, hallucinogens) were found in favor of control communities, however, the authors emphasize that intervention implementation was not fully underway until 1999 and comparison between the second and third waves of data indicate that this difference no longer existed after ND was fully implemented. No significant differences were found on attitudinal measures (e.g., disapproval, perceived risk, availability).

CONCLUSION

Ultimately, results suggest that New Directions can be an effective initiative for reducing substance use among students in grades eight to 12. However, these findings come from a single study with no data on long-term effects. Given the early findings that differences in inhalant and drug use were in favor of control communities, more research should be conducted to better understand the impact ND has on child, youth, and family outcomes.

TABLE 5. Summary of ND Articles

	SHORT-TERM IMPACT	LONG-TERM IMPACT
4. New Directions Substance Use and Attitudes COMMUNITIES: 23 IMPACT PUBLICATIONS: 1		
ARTICLE 22 Flewelling et al. (2005)	**Substance Use Outcomes** • Past 30 day cigarette use • Lifetime cigarette use • Past 30 day marijuana • Lifetime marijuana use **Effects in unexpected direction** • Lifetime inhalant • Lifetime other drugs	

Communities That Care: Pennsylvania Statewide Roll-Out

120 communities, two articles studying outcomes related to substance use, delinquency, violence, risk and protective factors

ABOUT THE CCI

The statewide roll-out of Communities That Care (CTC) began in the 1990s as part of an effort to better understand the impact of CTC at scale, under non-experimental, "real world conditions."[106] This initiative focused on coordinating the roll-out of CTC into over 120 communities in Pennsylvania and maintains the same core model, theory of change, and outcome targets as the broader CTC approach.

STUDY DESIGN AND DATA COLLECTION

The evaluation of the Pennsylvania roll-out entailed data collected across three waves (2001, 2003, 2005) using the Pennsylvania Youth Survey (PAYS). The PAYS primarily consisted of the CTC Youth Survey, which was developed by the Seattle Social Development Research Group[107] and assesses youth self-reported risk (e.g., antisocial attitudes) and protective factors (e.g., community cohesion), substance use (e.g., alcohol, tobacco, other drugs), and delinquency. In contrast to the CYDS, the large scale RCT to evaluate CTC in seven states, the Pennsylvania statewide roll-out employed a quasi-experimental study design consisting of a stratified random sample of school grade-cohorts across Pennsylvania communities. This sampling procedure was conducted across all three waves (2001, 2003, 2005). However, in the latter two waves, additional schools beyond those included in the randomized sampling procedure were eligible to voluntarily participate in the survey.

Two papers have been published analyzing the full sample of participants (e.g., randomized and volunteers) to examine differences between CTC communities and controls on domains of risk and protective factors, substance use, and delinquency.[108] Because communities implementing CTC in Pennsylvania self-selected to do so, Feinberg and colleagues used hierarchical modeling to measure not just differences in outcomes between CTC and non-CTC communities, but also within-community differences. In both the 2007 and the 2010 study, the authors sought to examine the data in two ways: comparing all youth in CTC communities to all youth in non-CTC communities, as well

as looking at differences between youth that specifically came from grade-cohorts (by virtue of their age) that were likely to have been exposed to evidence-based programming. Importantly, the 2007 study included waves one and two (2001, 2003), whereas the 2010 study included all three waves.

FINDINGS

In the 2007 study, results comparing all youth from CTC communities to all youth from non-CTC communities in the first wave showed significant differences indicating lower rates of school and family risk factors (e.g., poor academic performance, low school commitment and poor family discipline, delinquent behavior, respectively) among 8th graders in CTC communities.

Results from the second wave showed significant differences between CTC communities and non-CTC communities suggesting reduction of risk factors at the individual level (e.g., favorable attitudes toward substance use and antisocial behavior, sensation seeking), related to school, peers (e.g., friends delinquency, use of drugs, and reward for antisocial behavior), and family, as well as on substance use outcomes (e.g., 30-day alcohol and cigarette use, two week binge drinking, delinquent behavior, and drug involvement) among 6th, 8th, 10th, and 12th grade with particularly strong findings for 6th and 12th graders (see Table 10 for specific findings).

Comparison of grade cohorts expected to be impacted by evidence-based programming yielded significant results across risk factors (e.g., individual, school, peer, family) and substance use and delinquency outcomes, with particularly strong results among 6th graders in CTC communities.

In the 2010 study, the authors found no differences between CTC communities and control communities on risk/protective factors, academic grades, and substance use. The authors did, however, find a significant difference between all youth in CTC communities compared to all youth in non-CTC communities, such that youth in CTC communities showed lower likelihood of increasing delinquency over time. With respect to examining data only for youth in grade cohorts that had been directly exposed to evidence-based programming, they found significant differences in growth for all risk and protective factors, as well as for last year grades and delinquency, in directions favoring the CTC model; but no differences in substance use behaviors.

CONCLUSION

Although pooled comparisons yielded somewhat mixed results, analyses examining grade-cohorts of youth expected to have been exposed to evidence-based programming showed more reliable results on risk/protective factors, substance use, and delinquency domains in favor of CTC communities, suggesting that results are likely better realized when using evidence-based programming.

TABLE 6. Summary of CTC PA Articles

	SHORT-TERM IMPACT	LONG-TERM IMPACT
1. CTC–PA Statewide Rollout Substance Use, Delinquency, Violence, Risk and Protective Factors COMMUNITIES: 120 IMPACT PUBLICATIONS: 2		
ARTICLE 23 Feinberg, Greenberg, Osgood, Sartorius, & Bontempo (2007)	**Risk Factors Individual** • Favorable attitudes toward antisocial behavior • Favorable attitudes toward Alcohol, Tobacco, and Other Drug use • Low perceived risks of drug use • Early initiation of drug use and antisocial behavior • Sensation seeking • Rebelliousness • School • Low school commitment • Poor academic performance **Peer** • Friends' delinquent behavior • Friends' use of drugs • Peer rewards for antisocial behavior • Family • Family supervision • Family discipline • Family history of antisocial behavior • Parental attitudes favorable to Alcohol, Tobacco, and Other Drug use **Substance Use & Delinquency Outcomes** • 30 day alcohol use • 30 day cigarette use • 2 week binge drinking prevalence • 12 month prevalence drunk/high at school • Drug involvement • Delinquent behavior	
ARTICLE 24 Feinberg, Jones, Greenberg, Osgood, & Bontempo (2010)	**Risk and Protective Factors** • Community cohesion • Community drug-firearms • School prosocial • Family cohesion • Family risk • Antisocial attitudes/behavior • Antisocial peer **Academic Performance & Antisocial Behavior** • Past year grades • Delinquency	

SAMHSA-CSAP Community Partnership Program

251 communities, one article studying outcomes related to substance use prevalence

ABOUT THE CCI

The Community Partnership Program (CPP) was an initiative started in the early 1990s by the Center for Substance Abuse Prevention (CSAP), within the United States Substance Abuse and Mental Health Services Administration (SAMHSA) and the U.S. Department of Health and Human Services. As a part of this community-level initiative, CSAP provided partnership grants to 251 communities to enhance and increase efforts to prevent alcohol and illicit drug use among youth and adults. While CSAP provided some guidance around core components (e.g., using surveys to evaluate change), each community was encouraged to design and implement their own unique intervention. Details on each community's programs, level of training, and technical assistance are not readily available.[109]

STUDY DESIGN AND DATA COLLECTION

CSAP initiated a cross-site evaluation of the CPP, which included a stratified random sample of 24 CPP communities from the larger pool of grantees. Additionally, 24 comparison communities were matched with the CPP communities based on income, geography, age, gender, ethnicity, size and density of the population. This community-matched cross-site evaluation gathered cross-sectional survey data at two time points from more than 80,000 youth (8th and 10th grade) and adults across all 48 communities on substance abuse prevalence outcomes (e.g., past year or past month alcohol and illicit drug use). The first wave of data collection was "roughly mid-way through the partnership grants" and the second was "near or just after their ending" of the grant cycle.[110] No defined time frame was reported for the length of time between baseline and outcome measurement. The search identified a single published article evaluating data from this study.

One article reported findings from a quasi-experimental outcome analysis of the 24 CPP programs and their matched counterparts.[111] The article presented two analytic approaches to examine differences between CCP and control communities on substance abuse prevalence outcomes for 8th and 10th graders as well as adults. The first was a **pooled analysis**[E] of all 24 CPP communities compared to all 24 control communities, to compare the "average" CPP community to the "average" control community, based on the assumption that each community implemented their CCI according to the same common CPP model. The second analysis was an examination of differences between the specific pairs of matched communities.

RESULTS

The pooled analyses indicated no significant population-level differences between CPP and control communities on youth (8th and 10th grade) substance use prevalence outcomes. However, the analysis of individual partnerships produced multiple significant findings related to 8th and 10th grade students' use of illicit drugs and alcohol over the past year and past 30-days.

Of the 24 pairs of matched communities, five pairs of communities showed significant differences on the four substance use prevalence outcomes, all of which were in the expected direction, favoring CPP communities. One community pair showed significant differences on both illicit drug and alcohol use (past year and 30-day) for 10th grade students but not 8th graders. Another community showed significant differences for past 30-day illicit drug use and past year and 30-day alcohol use for 10th graders, as well as past year alcohol use for 8th graders. A third pair of communities demonstrated significant differences in past year and 30-day alcohol use for 10th grade students but

[E] The authors pooled the data for all 24 treatment communities and, separately, the 24 control communities to conduct analyses—rather than looking at individual matched pairs.

no significant differences for illicit drug use outcomes or for 8th graders on either outcome domain. A fourth pair of communities saw significant differences in past year and 30-day illicit drug use, as well as past year alcohol use for 10th graders and no significant differences for 8th graders. By contrast, the fifth community found significant differences in past year and 30-day alcohol use, as well as past year illicit drug use for 10th graders, but no significant differences for 8th graders.

CONCLUSION

In summary, pooled analyses including all 24 CPP communities compared to all 24 control communities showed no significant benefits for CPP communities on past year and 30- day drug and alcohol use among 8th and 10th graders. When pairs were analyzed separately, it appears as though only five of the 24 total community pairs demonstrated significant differences on key substance use outcomes. Within these pairs, trends suggest that CPP communities demonstrated slightly more significant impact on alcohol related outcomes than drug use outcomes, with relatively equal success across past year and past 30-day durations in both substance use domains. Notably, most of the significant differences were demonstrated among 10th grade students, with only a single significant difference (past year alcohol use) found among 8th graders. Given that only five of the 24 community pairs demonstrated significant differences, further evaluation should be conducted to understand what factors drove differences in those communities. For example, those five communities might have had higher-quality implementation of programs relative to the other communities, or the control communities might have had increases in substance use that drove the significant differences.

TABLE 7. Summary of CSAP

	SHORT-TERM IMPACT	LONG-TERM IMPACT
5. SAMHSA-CSAP Community Partnership Program Substance Use Prevalence COMMUNITIES: 251 IMPACT PUBLICATIONS: 1		
ARTICLE 25 Yin, Kaftarian, Yu, & Jansen (1997)	**Substance Use Outcomes** • Past 30 day illicit drug use • Past year illicit drug use • Past 30 day alcohol use • Past year alcohol drug use **Effects in unexpected direction** • Past 30 day illicit drug use (10th grade)	

Synthesis and Discussion

Synthesis of the findings across all studies reveals three major areas where CCIs have demonstrated impact on population-level child, youth, and family outcomes. See Table 10 for a full, nuanced, listing of the null, negative, and statistically significant findings across time. Broadly, CCIs have been found to:

- Strengthen protective factors and reduce risk factors in multiple contexts (e.g. peer, family, community).
- Delay initiation and reduce substance use across an array of substances and points in time.
- Reduce likelihood of and delay engaging in violent and/or delinquent behaviors.

These three clusters of outcomes reflect the **public health and prevention science focus** of the CCIs that were reviewed. Therefore, it is unsurprising that few reported on education outcomes, as education was not their focus.

The absence of education oriented CCIs from this review does not suggest that community-wide collaborative efforts to impact education for youth are nonexistent or ineffective. In fact, several initiatives, including **Promise Neighborhoods, Collective Impact, and Say Yes to Education** maintain a strong commitment to improving educational outcomes for youth. This underscores a critical need to design rigorous evaluations that can offer high-quality data to guide the field of education, in similar ways as the CCIs in this review have done for public health and prevention science.

Risk and Protective Factors

The studies examined a variety of risk and protective factors that fall into five major categories: individual, peer, family, community, and school. Impacts observed in each category are further described below.

The numbers in parentheses refer to a particular CCI. The list below indicates the CCI name and the corresponding number used in Tables 2-7 and referenced in the discussion below.

1	Communities that Care (CTC)
2	The PROSPER Partnership Model
3	Kentucky Incentives for Prevention Project (KIP)
4	New Directions
5	SAMHSA-CSAP–Community Partnership Program

INDIVIDUAL

Several studies observed impacts on individual risk factors such as favorable attitudes towards drug use, low commitment to school, and antisocial behaviors (1, 3). However, these findings were not consistent across ages or grades; for example significant reductions in some risk factors were found in 7th and 10th grade, but no significant difference in 8th grade. Individual protective factors, including social skills, commitment to school, and attachment skills were found to be significantly higher in CCI communities across ages and grades (1). The effects on individual protective factors, though consistent, are solely derived from CTC articles. Given the mixed effects found on individual risk factors, further research on both risk and protective factors in the individual domain need to be conducted.

PEER

Peer risk factors, such as antisocial influence or friends' drug use, were observed to be consistently significantly lower in CCI communities than control communities from 6th through 12th grade (1, 2, 3). Peer protective factors, such as having prosocial peers, were found to be higher in CCI communities in 8th and 10th grade (1). These findings from multiple CCIs suggest that CCIs can be effective at reducing peer risk factors and have the potential to impact peer protective factors. However, the effects on peer protective factors were solely driven by CTC articles.

FAMILY

There were at least 13 different protective factors examined for families such as attitudes towards substance use, parent management skills, assertiveness, and association with antisocial peers (see **Table 10**). All of the family protective factors, with the exception of substance refusal efficacy, were found to be significantly higher for youth in CCI communities in 6th or 7th grade (1, 2). Six of the protective factors remained significant through 8th and 9th grade (2). Family risk factors, such as family attitudes towards substance use, were found to be significantly lower in CCI communities in 6th through 12th grade (1). These findings provide promising evidence that family risk and protective factors can be impacted by CCIs, particularly in middle school.

COMMUNITY

Community protective factors, such as feeling connected to one's neighborhood and incentives and rewards for prosocial behaviors, were found to be significantly higher for youth in CCI communities than youth in control communities across ages and grades (1, 3). Community risk factors, such as community disorganization or neighborhood adults' favorable attitudes toward drug use, were found to be significantly lower in CCI communities in 6th through 12th grade (1, 3). Taken together, this promising evidence suggests that community protective and risk factors can be impacted by CCIs across time.

SCHOOL

School protective factors, such as opportunities for prosocial engagement and rewards for prosocial behavior, were largely found to be significantly higher in CCI communities than control communities in 6th, 8th, 10th, and 12th grade (1, 3). One study examined school risk factors such as academic failure and school days skipped. Only the number of school days skipped was found to be significantly lower for youth in CCI communities in 8th grade but not in 10th (3). Given that the CCIs included in this review were primarily focused in the public health area, it is unsurprising that few examinations reported education outcomes. Further research on school risk and protective factors should be conducted.

Substance Use

General trends across all included studies suggest that CCIs have a significant impact on reducing the prevalence, rates, and intensities of using several different types of substances (1, 2), with differential impacts based on type of substance, as well as time. For example, while studies consistently show impact at delaying initiation of "harder" substances such as inhalants, methamphetamine, and ecstasy (2), as well as past year usage rates for inhalants (2), methamphetamine (2), and "other drugs" (1, 5), by a year post high school, lifetime use of certain substances (methamphetamine) is no longer significantly different than in control communities (2). This post high school null finding is consistent among many substance abuse outcomes.

A similar trend can be seen for gateway substances (e.g., cigarette, marijuana, and alcohol use). CCI communities show consistent impact at reducing frequency of marijuana use (2), as well as past year marijuana use (2), though past year marijuana use was not different in CCI vs. control communities one year after high school. While current cigarette use, past year marijuana use, frequency of drunkenness, and frequency of driving after drinking was significantly lower both at point in time and in rates of growth in CCI communities throughout high school (2), by one year after high school there are no significant differences (2).

Results also demonstrate slower initiation of alcohol use, binge drinking, and drunkenness in CCI communities by 10th grade (1, 2) as well as 12th grade (1, 2, 3), and a lesser amount of current alcohol use in 10th grade (1, 5). By 12th grade, current alcohol use was not significantly different in CCI vs. control communities (1, 5), however, frequency of drunkenness was lower in CCI communities (2) for both 11th and 12th grade, yet does not remain significant a year post high school (2). The same finding holds true for cigarette usage. Some CCIs, for example, have few differences

in rates of current cigarette use in CCI vs. control communities (1) whereas other CCIs demonstrate lower rates of current cigarette use in intervention communities in 8th (2), 10th (1, 3), and 12th grade (4) as well as over time (2), however, those results also do not remain significant by a year post high school (2). Overall, results demonstrate that CCIs have the ability to reduce multiple forms and intensities of substance use both at points in time as well as to slow usage rates longitudinally.

The consistent null finding during late and post high school may be explained by two hypotheses. First, it is plausible that this is an effect of typical developmental substance use patterns; youth that are most at risk to initiate "hard" substance use are likely to have done so by late adolescence and conversely, few individuals are likely to initiate novel substance use after late adolescence if they have not done so already. Further, these findings may be a result of diminishing returns from initiatives that were unable to be sustained. An additional notable caveat regarding null effects on substance use outcomes in late childhood and early adolescence (e.g., 8th grade) is that rates of use during this developmental stage may be lower and therefore moving the needle and demonstrating significant statistical differences may be more difficult during the younger years.

Delinquent and Violent Behaviors

General trends across studies suggest that CCIs have a statistically significant impact on delinquent (e.g., selling drugs, stealing cars) and violent behaviors (e.g., attacking someone with intent to harm). However, like substance use, studies have differentiated and examined impact on these behaviors in terms of initiation, past year use, and lifetime behaviors. CCIs have demonstrated significant impact on delaying young people from initiating delinquent and violent behaviors through 12th grade (1). The effect persists for initiating violent behavior through one year post high school (1). However, the effects on abstaining from delinquent and violent behavior for youth once they have begun engaging in these behaviors are mixed.

Many of the studies found a significant impact on abstaining from delinquent behaviors during the past year between 6th and 12th grade (1). However, this effect is no longer significant by one year post high school (1, 2). For violent behaviors, significant impacts were only found during 10th grade (1) and were no longer evident in 12th grade or one year post high school (1). Across development, by age 19, young people in CCI communities were found to engage in significantly fewer delinquent activities than young people in control communities (1).

Taken together these findings, largely driven by examinations of CTC, suggest that CCIs can be promising for the prevention of initiating delinquent behaviors and violent behaviors. Further, these findings suggest that CCIs encourage greater abstinence from delinquent behaviors consistently through 12th grade for those who have initiated them, relative to control communities. The findings for abstinence from violent behaviors are mixed. However, one year post high school, there are no significant differences between youth in CCI communities vs. control communities when examining engagement in delinquent and violent behaviors. More research is necessary to understand why the impacts on delinquent and violent behaviors dissipate after high school.

Getting to Impact: Promising Practices for Driving Change

This review has presented promising evidence that CCIs can positively impact population-level child, youth, and family outcomes, particularly in the public health domain. However, it is important to understand *how* these CCIs achieved impact so that the impacts may be replicated in additional communities. The nature of CCIs is that they are place-based—modified for particular communities, under certain conditions, to support a given community's unique assets and needs.[112] It is therefore difficult to distill the common elements that seem to be the crucial levers for achieving impact.

A recent systematic review of CCIs focused on health disparities found that most mechanisms are poorly defined or inconsistently implemented across CCIs, impeding the ability to compile a definitive list.[113] Therefore, in order to provide insight into which mechanisms might be related to impact, the authors of this report conducted an additional thematic analysis of common mechanisms employed across the CCIs that are included in this systematic review.

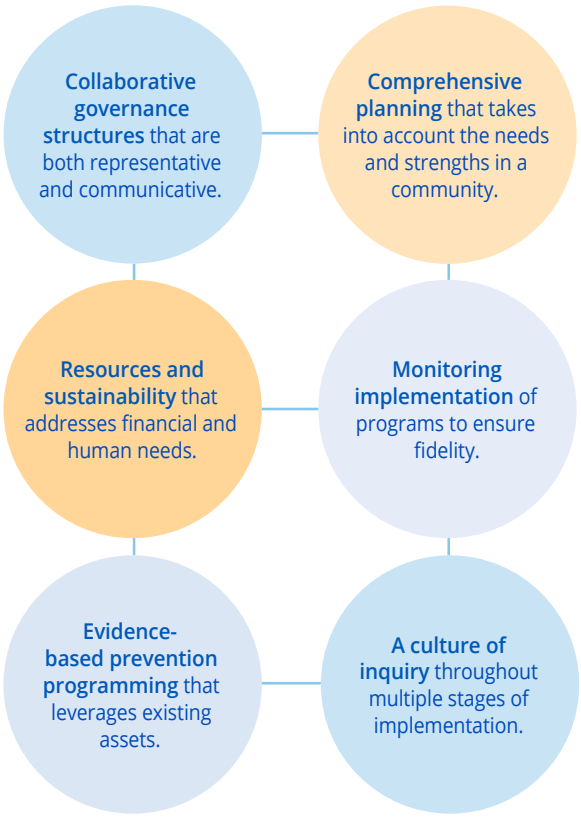
In order to conduct the thematic analysis, the authors used a modified grounded theory approach to inductively identify the structures and processes each of the reviewed initiatives employed in their respective models.[114] The authors then engaged in an iterative process of grouping the structures and processes that emerged from the review of the initiatives into broad themes that best fit the initiatives. As there has been a robust history of scholarship on CCIs, the authors then reviewed previous literature and utilized a more deductive approach to better understand whether and how the observed structures and process from the initiatives in this review aligned with previous research. Combining inductive and deductive approaches to generate themes has been utilized as a method to increase the validity and accuracy of interpretation.[115] Ultimately, six structures and processes emerged from the initiatives in this review, and are consistent with previous scholarship on CCI implementation.

The authors included in this analysis:

- articles that were included in the impact review,
- structures and/or processes reported by the initiative themselves as essential for replication, and
- additional articles that identified the processes and mechanisms of the CCIs.

While implementation of these mechanisms varies by CCI, the greatest insight can be gained from a review of the CTC and PROSPER studies. Therefore, the examples below are heavily drawn from studies about these two initiatives. Ultimately, the authors found the CCIs to have the following mechanisms:

- Collaborative governance structure
- Comprehensive planning
- Resources and sustainability
- Evidence-based prevention programming
- Monitoring implementation
- A culture of inquiry



It is important to note that this list is not necessarily exhaustive. Further, there is little empirical evidence that isolates the contributions of specific processes to changes in population-level outcomes; with exceptions noted below. These structures and processes commonly co-occur across CCIs reviewed in this analysis (see **Table 8** for a summary). Each CCI employed a somewhat individualized expression of the included elements. However, considered broadly, these structures and processes can be understood as a theory of action for CCIs as a community-wide strategy for improving system-wide outcomes.

[F] Collaborative governance can be understood on multiple levels and each CCI will employ a governance structure that is appropriate for its context. For a full discussion of the literature on shared governance see Ansell & Gash, 2007.

Collaborative Governance Structure

One of the fundamental components of CCIs is that roles and responsibilities for decision making are coordinated across participating agencies and individuals; that is, collaborative governance. Indeed, studies examining PROSPER and CTC have found that several aspects of collaborative functioning, such as members' attitudes, teamwork skills, and ability to manage turnover are related to the success and sustainability of CCIs.[116] Importantly, for CCIs to function optimally, members of the CCI should be representative of the community, have trust in each other, and be able to communicate openly and honestly.[F] By having specific roles and strong connections among members, each member's expertise can be leveraged, the team can more effectively address areas of need, and members can hold each other accountable to fulfill his or her intended role.

PROSPER offers one example. Recognizing the gap between state-level funding and support and ongoing community-wide needs, this CCI emphasized the importance of bringing together all the various members of a community in order to identify areas of greatest need, choose a corresponding intervention, and coordinate efficient delivery of that program (a form of lateral collaboration). Liaisons were engaged to link front line providers and community members with policymakers at the district and state level (a form of vertical collaboration). These "linking agents" were a crucial element for facilitating an effective collaborative governance process.

One of the benefits of a collaborative governance structure is that it facilitates a diverse range of perspectives involved in decision making. These include not only systems leaders such as mayors, superintendents, and business leaders, among others, but also community members and front line service providers. For example, CTC invites key stakeholders in the community across sectors to participate in selecting members to serve on the community board, which handles the planning and drives the broader initiative. The community board also recruits additional community members to serve on workgroups to ensure that programs selected are aligned with the needs of each sector. Drawing broad conclusions about the governance structures of KIP, ND, and CSAP grantees is more difficult as those CCIs did not have a specific governance framework to follow, so the infrastructure may have varied widely between coalitions.

Comprehensive Planning

Comprehensive planning is an important component of CCIs that takes into account the needs and strengths in a community and the needs and strengths of young people in order to formulate plans to improve outcomes for children, youth, and families. Often, planning involves creating a Theory of Change (TOC). Establishing a clear TOC can help collaborations create a roadmap for achieving understandable and achievable short-term and long-term goals.[117] Intentionally developing a TOC among collaborative governance members can encourage a shared vision and goals, as well as buy-in on the programmatic strategies and tactics to achieve those goals. Once established, a CCI can increase buy-in among staff, funders, partner organizations, and the broader public through trainings or informational materials with staff, funders, partner organizations. Further, a TOC can guide the implementation of programs hypothesized to produce impact as well as the methods by which the programs and the CCI at large will be evaluated.

For example, adoption of science-based approaches to prevention is listed as a key process for change in CTC, PROSPER, as well as the KIP model.[118] An empirical examination of CTC's[119] prevention system found that a community's level of adoption of science-based approaches to prevention is a key process for improving children, youth, and family outcomes. The CCIs in this review presented clear theories of change that guided their decisions regarding programming, implementation, and evaluation.

CCIs typically come together around a problem that needs to be addressed in a community, such as low graduation rates or high levels of youth

substance use. However, there are a variety of ways to define the problems, needs, and assets of a given community.

CTC, PROSPER, and CSAP grant funded initiatives collected quantitative and qualitative data on a variety of youth and family processes and outcomes prior to implementing any programming. Gathering representative data allows CCIs to better identify population-level problems and capture population-level impacts. Further, these initiatives made concerted efforts to train local providers in data collection, interpretation, and use in an effort to empower communities to use evidence in decision making. The CCIs used the data to identify the greatest problems and barriers to wellness in each community as well as assets and protective factors already in place.

Resources and Sustainability

Once the mapping of community assets and needs is complete and a clear theory of change is established, communities need reliable resources. Resources cannot be fleeting. Instead, a CCI should build towards sustainability by seeding local capacity, and addressing financial and human resource needs.[120]

Funding is a crucial aspect of CCIs that influences, and is influenced by, the stakeholders included in the coalition. Conducting a financial analysis is an initial critical component when aligning systems and re-deploying resources. Often, one of the key supports for communities engaged in this type of work is funding and capacity building via the provision of financial or human resources.

The initiatives described in this report provide different examples of how an infusion of resources can support CCI implementation. PROSPER and CTC, for example, provide communities with much needed financial and/or human resource capital. They then create a plan to build local capacity and gradually phase out external funding. PROSPER, for example, provides personnel in the form of "linking agents" between state level teams, higher education partners and direct service providers. Initially they are funded through the university's extension program, but the community takes on this linking function as it builds their internal knowledge and skills. Alternatively, KIP, ND, and SAMHSA-CSAP utilize grant funding so that existing CCIs can enhance their work through additional technical assistance, planning support, and implementing evidence-based prevention programs.

Although there is still much more to learn, the articles reviewed in this report demonstrate that external funding and additional human resources are an important support for communities utilizing a CCI approach to improving outcomes for young people and their families.

Evidence-Based Programming

Once the needs and assets of a community are assessed, a clear theory of change is developed, and the resources to support implementation have been secured, CCIs select programs to address those needs while leveraging existing assets. Selecting evidence-based programs (EBPs) is crucial to ensuring that the programs and services meant to support youth and families have data showing that the programs can be effective in achieving those ends.

All of the initiatives reviewed in this report provide varying levels of guidance for selecting EBPs. Ultimately, communities choose EBPs that best fit their needs. However, communities occasionally require assistance to identify appropriate programs. Both CTC and PROSPER provide a menu of EBPs from which communities choose.[G] For example, each of the programs offered through the PROSPER model have been evaluated systematically and are listed as model programs by both Blueprints (a database of programs that meet restrictive criteria for being considered effective) as well as SAMHSA.[121] For CSAP grant funded programs, as well as both CTC and PROSPER, using EBPs increased the selection and implementation of

[G] All EBPs utilized by the initiatives discussed in this review meet the criteria for model programs put forward by Blueprints, or by SAMHSA's National Registry for Evidence-Based Prevention Programming. For a more full discussion and list of all qualifying programs see www.nrepp.samhsa.gov/AllPrograms.aspx and www.blueprintsprograms.com/criteria.

high-quality programs within the communities, and thereby strengthened the CCIs' abilities to improve population-level outcomes for children, youth, and families.

Monitoring Implementation

A robust governance structure and a well-planned initiative whose development is based on data do not guarantee success. Another important mechanism is continual monitoring of the CCI implementation. Implementation fidelity, or the degree to which an intervention is implemented as originally intended, affects the impact and sustainability of any intervention.[122] Therefore, CTC and PROSPER provide written protocols, technical assistance, and booster sessions in an effort to standardize fidelity of implementation across communities. Follow up examinations of CTC and PROSPER have attributed the CCIs' high-quality implementation to ongoing technical assistance and manualized protocols.[123]

To ensure high-fidelity implementation, CCIs can systematically monitor the implementation of their strategies and tactics. The CTC and PROSPER models include monitoring and built-in data sharing agreements to create a culture of continual improvement. For example, CTC trains providers and hires independent trained observers to monitor implementation quality of all selected programs to ensure fidelity of implementation.[124] These observers subsequently monitor the implementation of the CTC process as well as the implementation of the evidence-based programs chosen by the CTC collaborative governance.[125] CSAP funded initiatives such as KIP and ND receive ongoing planning and technical assistance to assist with coalition building and program implementation.

A Culture of Inquiry

CCIs are driven by the understanding that population-level outcomes require systems-level intervention.[126] In order to determine whether their actions are moving in the hoped for direction and subsequently impacting their intended outcomes, CCIs need to be able to evaluate their effectiveness so that they can assess their progress, identify areas for growth, and ensure that programming is relevant and sustainable.

Beyond using data to inform the definition of a problem and the selection of programs, CCIs require data for formative evaluation purposes to understand the ongoing design and performance of their activities and modify efforts accordingly. Formative evaluation can help to build local ownership over the CCI, and increase likelihood of sustainability.[127] For example, CTC and PROSPER found evidence that community member attitudes toward science-based approaches and adoption of these approaches were related to the strength of impact and persistence of a coalition.[128] Community needs and asset mapping along with data sharing agreements can be a way to build community capacity by lifting up local knowledge and coming together around shared goals. When evaluation is embedded into the CCI community, it can be a critical tool to assess collaborative functioning, initial community needs, fidelity of implementation, and other ongoing changes in activities and outcomes for community members.

Follow up measures are also important. Summative evaluations are useful to examine the impact of the broader CCI model on outcomes of interest as defined in earlier planning stages. Thus, KIP, PROSPER and CTC employ survey use intended to support baseline and follow-up measurement of the impact of the intervention across different outcomes and domains of interest.

While there is less evidence for the sustained impact of KIP, ND, and SAMHSA–CSAP, the studies that exist shed light on the impact that CCIs can have in even a short period of time. Such summative evaluations are critical to inform future modification to CCI models or implementation approaches to improve theory, research, and practice.

The structures and processes identified by the authors, through the grounded theory thematic analysis described above, are consistent with previous frameworks of community coalitions, strengthening the evidence that these elements are important for successful implementation of CCIs.[129]

TABLE 8. Summary of Structures and Processes for Each Initiative

	TIER 1		TIER 2		
MODEL COMPONENT	CTC	PROSPER	KIP	NEW DIRECTIONS	CSAP
Collaborative Governance Structure	x	x	x	x	x
Cross-sector collaborative governance	x	x	x	x	x
Community liaisons		x		x	
Local providers tasked with CCI and evaluation implementation with additional guidance	x	x	x	x	x
Comprehensive Planning	x	x	x	x	x
Identify theory of change	x	x	x	x	x
Local providers trained in theory (e.g., developmental, prevention, public health sciences)	x	x		x	
Community needs assessment conducted and/or baseline (pre-implementation) data collection	x	x	x	x	
Local providers trained in data use	x				
Resources and Sustainability	x	x	x	x	x
Evidence-Based Programming	x	x	x	x	
Menu of evidence-based programs with implementation guidance	x	x	x	x	
Percent (10%) of funding allocated for direct preventive programming (not required to be EBPs)					x
Monitoring Implementation	x	x	x	x	
Manualized protocols	x	x			
Technical assistance & booster sessions	x	x	x	x	
Implementation assessment	x	x	x	x	
A Culture of Inquiry	x	x	x	x	x
Representative post-implementation survey administered	x	x	x	x	x

In Conclusion

CCIs have gained prominence in recent years as a way to focus the efforts of entities across all sectors on one or more goals to strategically provide the appropriate supports that will enable the young people to achieve the CCI's goals. With substantial amounts of federal and private philanthropic dollars invested in CCIs and hundreds of communities implementing some form of CCIs, knowing the efficacy of these initiatives would be helpful for funders to make informed decisions about how to spend their funds and for communities to determine the best approaches for supporting all of their young people. Thus, this systematic review sought to answer two questions:

1. Have CCIs impacted population-level children, youth, and/or family outcomes, and
2. If CCIs have impacted population-level outcomes, what are the promising elements for an effective CCI?

This section discusses the findings across the evaluations, opportunities for future research and evaluation, and how the current findings can be interpreted considering where the CCIs have been evaluated geographically, focused on which outcomes, and with which populations of young people.

Although small in number, the evaluations that met the inclusion criteria used methods that can validly show a causal link between CCIs and an assortment of population-level outcomes. The findings indicate that CCIs, whether using Tier 1 or Tier 2 methodologies, showed **significant and substantive impacts on population-level outcomes for children, youth, and families**. More specifically, the CCIs impacted risk and protective factors, as well as substance use and, in some cases, delinquency and educational outcomes—outcomes that were consistent with the prevention science and public health frameworks used in the CCIs.

Notably, no studies were found to use methodologies that could validly assess causality that focused on educational outcomes (although CTC did assess rates of school dropout). With the proliferation of education-focused CCIs, such as Promise Neighborhoods, Purpose Built Communities, Say Yes to Education, and Strive (among many others), the implementation of more systematic evaluation strategies is necessary to assess both the processes that unfold in the implementation of CCIs and the impacts that CCIs could have.

Given that child- and youth-focused CCIs inherently attempt to impact the entire developmental system that surrounds each young person in a community, considering the impacts of CCIs within developmental systems theories can provide decision-makers with a blueprint for considering whether a given CCI implemented successfully elsewhere will be subsequently successful in their communities. Since systems theories describe the infinite variation in the relation between person and context,[130] it logically holds that there will be variation in how likely a CCI successful in one location will be successful in additional locations.

Accounting for probable forms of variation can increase the likelihood that success can be seen in a different site.[131] When considering CCIs, decision-makers should consider the population demographics, community dynamics, and severity of social problems found in the communities evaluated as part of the studies included in this review. Decision-makers should also consider the primary outcomes that a CCI is intended to produce.

For example, when evaluating the "best fit" of a CCI for a given community's outcomes, one should consider the following:

- **The domain, or topic area, of the CCI.** As described across the collection of CCIs reviewed in this report, different CCIs focus their attention on impacting different domains of outcomes, including health related outcomes, substance use, violence and delinquency, and educational

achievement, among others. For a community interested in promoting high school completion or postsecondary enrollment, the body of literature investigating the effects of CCIs like CTC, PROSPER, KIP, New Directions, or CSAP might be less directly relevant, although the processes used in the CCIs may be transferable.

- **The scope, or range, of domains.** For example, although models like CTC or CSAP share a focus on substance use behaviors among adolescents, CTC also focuses on related outcome domains, such as risk and protective factors, violence, and delinquency.
- **The fit between the CCI's purpose and the community's needs.** A community seeking to address a community-wide opioid crisis and a community interested in reducing binge drinking or tobacco initiation are interested in distinct outcomes within the broader domain of *substance use.* As such, although several CCIs (e.g., CTC, PROSPER, KIP, New Directions, CSAP) generally share a common focus on reducing substance use, the tactics used within each community could vary based on the specific substance.

When considering demographic characteristics of communities, it is critical to identify the age ranges and school grades for which these studies indicate significant changes, how long the effects were sustained, and the congruence between the demographics of a given community and those of the communities included in the impact articles.

- As reviewed in this report, results across initiatives have indicated different findings for participants of various age or grade levels. Further, the CYDS and PROSPER evaluations are the only studies identified in this review that offer data at longer than one year follow-up. Findings should therefore be interpreted as being short- or long-term (**See Table 1**).
- In addition to age and grade, other population and community characteristics can inform the way in which evidence is interpreted. For example, while the selection of CTC communities showed some effort to obtain geographic diversity, the states from which the communities were drawn reflect a larger proportion of Western (Colorado, Utah, Oregon, and Washington) and Midwestern states (Illinois, Kansas) with only one state (Maine) from the Northeast and none from the South represented. Within these states, CTC was implemented in small-to-moderate sized towns with 1,500 to 50,000 residents.[132]
- Similar geographic and demographic limitations exist for PROSPER, which was implemented in rural or semi-rural communities in Iowa and Pennsylvania ranging from 7,000 to 45,000 residents and school districts serving between 1,300 and 5,200 students. Further, communities like those included in the CYDS are drawn from a narrow pool, given that they were identified by state agencies as communities that were interested in, but not currently implementing, evidence-based prevention services.[133]
- Given that CTC, PROSPER, KIP, and New Directions reported being conducted in communities that are more than 85% White, inferences should not be made about how the initiatives included in this review would function in more diverse communities. Racial, ethnic, and cultural differences can impact collaborative functioning, governance structure, and the relevance of the surveys and programs administered to community members.[134]

Therefore, the CYDS and PROSPER results should be interpreted as demonstrating effectiveness on impacting risk and protective factors, violence, delinquency, and substance use with youth in middle and early high school who live in small communities, primarily within the American Midwest and West. These communities contained pre-existing infrastructure and systems to support a basic degree of independent governmental, educational, and law enforcement capacity. They also demonstrated an interest in evidence-based prevention services.

Given the limitations discussed in these examples, extrapolating findings to predict the effectiveness of CTC or PROSPER initiatives in other American cities with different characteristics than the cities included in these studies should be done with caution.

Importantly, that is not to say that the CTC, PROSPER, or other models could or would not conceivably demonstrate similar successes at scale, as demonstrated in the CTC statewide quasi-experimental study in Pennsylvania, nor is it to imply that these initiatives and their corresponding studies have not made enormous contributions to the impact literature. Rather, it is a reminder for decision-makers to remain prudent in drawing conclusions and making predictions about future success for their own communities.

The findings from this systematic review provide cautious optimism that CCIs can impact population-level child and youth outcomes, particularly for CCIs focused on risky behaviors. Considering the relative dearth of impact studies on CCIs, funders should invest in additional research and evaluation of CCIs, including studies on the types of evaluation methodologies. In addition, more rigorous, empirical studies that examine the structures and processes that lead to impact are needed so that communities are able to consult an evidence-based "playbook" for implementation ideas. The positive news from this review is that impacting positive, systemic, and substantive change for children and youth is possible, has been done, and gives hope that communities throughout the country can implement similar efforts to resolve the educational and health disparities in the United States.

APPENDIX

Method

A systematic review is a comprehensive review of the literature on a given topic with the aim to organize existing empirical evidence in relation to a specific identified research question. In contrast to a typical literature review, systematic reviews minimize bias in the search, retrieval, review, and interpretation of a given body of literature. According to the Cochrane Collaboration, one of the foremost authorities on research synthesis methodologies, a systematic review can be characterized by the following criteria:

- a clearly explicated set of study objectives, including pre-defined criteria for determining the eligibility of studies to be included in the review
- a clear, explicit, and reproducible methodology
- a systematic search strategy that seeks to identify the full scope of studies that would meet the predefined eligibility criteria
- an assessment of the quality and validity of findings from included studies
- a systematic description, synthesis, and presentation of findings and characteristics of the included studies

The present study is a systematic review focused on two questions:

1. Have CCIs impacted population-level outcomes for children, youth, and/or families.
2. If CCIs have impact population-level outcomes, what are the promising elements among effective CCIs that other CCIs could use in their efforts.

The effort includes articles from 1990 to the present day.

Criteria for Considering Studies for Review

The authors of this report sought to describe the universe of studies for which the focus and design supported causal inference of the impact of CCIs on child, youth, and family outcomes at the population level. That is, what convincing evidence exists that CCIs are a way of working that ultimately benefits the people in a particular community? When considering studies for a systematic review, the **PICOS** framework adopted by the Cochrane Collaboration has been widely used as a helpful tool to describe study characteristics.[135] The framework suggests that Population, Intervention, Comparison and Outcomes, as well as Study Design, are critical characteristics that can be used to organize and compare publications.[136] Below is a description of how the authors applied those characteristics to this systematic review. The authors did not include studies based on the structures and processes of the CCI (e.g., collaborative structure, use of a particular theory of change, having a culture of inquiry). In order to answer the second question, the authors did not evaluate studies based on a prior definition of critical structures and processes. Those emerged in a later analysis.

POPULATION

This review sought to identify studies reporting on outcomes related to children, youth, and families residing in communities in which a CCI was implemented.[137] To include CCIs that focused on post-secondary and college outcomes (e.g., cradle to career initiatives), and consistent with lifespan developmental theory, the population of interest included all young people ranging from birth to 26 years of age and their families. The upper-bound age was chosen as a point at which on-time college completion and sustainable employment would be expected or hoped to occur. The authors included CCIs regardless of geographic unit (e.g., neighborhood, city, county).

INTERVENTION

Comprehensive community initiatives represent community-wide, systems-level interventions that are run by a local, organized group of institutions and individuals that coalesce their interests and resources around a common agenda and toward a common goal.[138] In this way, CCIs build and/or strengthen the community's human, institutional, financial, and social capital in order to resolve the identified issue or issues in that community.[139] For this review, the authors included studies that operationalized this definition of CCIs as an intervention to improve outcomes for children, youth, and families.

COMPARISON

The authors did not specify a comparison group, as the research designs of studies evaluating CCIs are so varied that limiting the search to a single type of comparison group would overly restrict the results.

OUTCOMES

The authors considered a broad range of outcomes for children, youth, and families at the individual and/or community level. To capture the potential impact of a wide range of possible intervention foci, particular outcomes of interest were not specified within the search.

STUDY DESIGN

For the purposes of discussing impact, studies were included that employed either experimental (RCT) or quasi-experimental designs with matched comparison groups. Studies that that did not adequately meet study design criteria were excluded. The inclusion of varied methodological designs that extend beyond the parameters of randomized controlled trials (RCTs) is consistent with systematic review practices within the broader social sciences.[140]

Randomized controlled trials (RCTs) are considered the most rigorous research design. They are intended to allow causal inference of the impact of an intervention on a given outcome or set of outcomes. Consistent with their name, RCTs compare one or more control groups against an intervention group in an attempt to isolate and measure the impact of the intervention of interest. Further, RCTs randomly assign participants or groups (communities/neighborhoods/schools) to intervention and control groups to eliminate any possible selection biases that could result from allowing researchers or participants themselves to determine group assignment.

Quasi-experimental designs also strive to measure the impact of an intervention by comparing an intervention group and a control group; however, they utilize matched comparison groups rather than randomly assigning participants to either receive or not receive the intervention. Quasi-experimental designs are often used when an RCT is not ethical, such as withholding a medication that has been proven to be effective for curing a disease or when random assignment is not feasible such as comparing states that have legalized marijuana to those that have not.

Search Strategy

The initial search for studies constituted two primary strategies, which included searching electronic databases, as well as conducting targeted hand searches of relevant sources. When conducting a literature search for a systematic review, the search strategy can be characterized by the degree of **sensitivity** and **specificity** (alternatively referred to as recall and precision). Sensitivity refers to the proportion of studies recalled by the search from all possible relevant studies and thereby describes how fruitful and exhaustive the strategy was in scope and volume. Specificity, by contrast, describes the precision of the strategy and aims to identify the proportion of retrieved studies that were ultimately relevant.

Search strategies may seek to optimize sensitivity and specificity in an effort to efficiently identify all possible relevant studies, while recalling few irrelevant studies. However, increases along one of these dimensions often lead to consequent decreases in the other. Striking a balance is critical. Within the social sciences in particular, optimizing precision among

search terms for interventions can be difficult, as the quality and structure of abstracts, keyword indexing, and information on design and methodology may be less clearly reported relative to other scholarly disciplines. Such searches may therefore result in strategies that are more sensitive than specific. In the present study, the authors sought to strike a balance between these two parameters by searching widely across related disciplines using electronic databases and doing a "deep dive" of non-traditional sources that were highly likely to contain relevant studies.

In light of the wide variety of terms that have been used to define CCIs across the studies and across time, the authors sought to build search terms by including keywords descriptive of relevant CCIs' underlying practices (e.g., "community collaboration" or "community coalition") as well as popular modern coined terms thought to be descriptive of CCIs (e.g., "Collective Impact"). Using the PICOS framework as a guide to support generation of the search query, the authors specified two of the four elements of the PICOS model: the Populations (adolescent development; youth development; youth; children) and the Interventions (coalition formation; community collaboration; community coalition). Notably, a single Outcome term (education) was included in the search query. However, given the wide variation in comparison groups, outcomes, and study designs, these elements of the PICOS framework were not specified in the search query. Several iterations of this protocol, including search terms and data sources, were tested and revised in consultation with both academic faculty and a research librarian.

Ultimately, the following search query, including Boolean operators were included in electronic database searches: "[(SU.EXACT("Social Movements") OR SU.EXACT("Community Psychology") OR SU.EXACT("Community Development") OR SU.EXACT("Coalition Formation") OR SU.EXACT("Collective Impact") OR "community Collaboration" OR "community coalition*") AND (SU.EXACT("Adolescent Development") OR "youth development" OR youth OR children) AND education]."

For the first step, the authors began by searching electronic databases using the ProQuest database, a meta-aggregator of databases, which includes ERIC, PAIS International, PsycARTICLES, PsycBOOKS,PsycINFO, PsycTESTS, Social Services Abstracts Sociological Abstracts, and Dissertation Abstracts; all of which are databases known to aggregate high-quality social science publications. In the second iteration of the search, PubMed was included to capture studies of CCIs that are more closely aligned with public health or health related outcomes. In an effort to mitigate publication bias, this search strategy included a wide range of publication types, including scholarly journals, reports, books, conference papers and proceedings, and dissertations and theses.

While Boolean searches within databases provide are a commonly recommended method for retrieving articles for a search pool in a systematic review, the results of those searches alone are not considered a sufficiently exhaustive search of the literature. These database searches are therefore often supplemented with manual or "hand searches" guided by citations and expert knowledge. Thus, as a second step in the present study, the authors conducted a thorough hand search for publications, reports, and grey literature produced by key organizations, researchers, or popular initiatives that have demonstrated interest in, and commitment to, the CCI landscape but whose work may not have been indexed within traditional academic databases.

In this case, based on the research team's understanding of the landscape of research in peer-reviewed journals and "grey literature" publications, as well as specific, prominent CCIs and researchers, the ProQuest database was manually searched for studies and grey literature articles were pulled from the publications of the following initiatives and organizations that have been involved in CCIs or have published literature on CCIs:

- The Aspen Forum for Community Solutions
- Center for Substance Abuse Prevention (Community Coalitions Program)
- Chapin Hall at the University of Chicago
- Child Trends
- Collective Impact Forum

- Communities That Care
- The Federal Reserve Bank of Boston
- FSG
- Harlem Children's Zone
- The John W. Gardner Center for Youth and Their Families at Stanford University
- Living Cities
- Making Connections
- Neighborhood and Family Initiative
- Neighborhood Improvement Initiative
- New Futures
- The Prevention Research Center at Pennsylvania State University
- Project ASSIST
- PROmoting School-community-university Partnerships to Enhance Resilience (PROSPER)
- Promise Neighborhoods Institute at PolicyLink
- The Work Group for Community Health and Development at the University of Kansas
- Say Yes to Education
- The Social Development Research Group at the University of Washington
- Stanford Social Innovation Review
- StriveTogether
- Urban Institute
- The White House Council for Community Solutions

Procedure for Study Review and Inclusion Criteria

Following the initial search, reviewers screened articles by title and abstract to identify the relevance of each study. Studies were included if they met three criteria:

1. Reported primarily employing an empirical methodology, thus excluding articles that were non-empirical research,
2. Published between 1990 and 2017 in order to limit the review to CCIs that are likely to be similar in function and structure to contemporary efforts, and
3. Conducted on communities within the United States, given the importance of context for CCIs.

Studies were excluded or included only under conditions of agreement among the reviewers. If there was disagreement among reviewers, the full-text of the article was examined by the full team until consensus was reached. In the event of remaining uncertainty, the study was included for the next stage of review in an effort to remain conservative in initial exclusionary decisions.

After the initial screening, full-text versions of articles were reviewed by one reviewer. Studies were included if they met the following criteria:

1. Investigated a specific CCI that is collaborative across sectors (e.g., no single-agency initiatives, even with a university partner providing research assistance);
2. Focused on promoting positive outcomes for children and/or youth, not just adults;
3. Maintained a focus on population-level outcomes, not just children or youth involved in a particular program; and
4. Intended to establish a causal relationship between CCI interventions and population-level child, youth, and/or families outcomes either through stated objectives or supported causal inference through the evaluation design (e.g., experimental or quasi-experimental).

Each individual reviewer's inclusion and exclusion decision was documented and audited by the second reviewer. Studies were excluded or included only under conditions of consensus agreement. If there was disagreement between the reviewers, the full team was consulted.

The final two criteria reflect that the authors sought to identify only articles that specifically investigated impact. As such, the authors examined each study's objectives, research questions, and design to ensure only articles that intended to establish causal relationships between CCI interventions and population-level outcomes for youth and/or families (i.e., impact studies) were included. Articles representing other types of research (e.g., studies intended to explore non-causal relationships between factors, studies of process outcomes, or purely descriptive studies) were excluded. For example, an article whose study objective was, "To examine the impact of CCI on youth outcomes," would be included, whereas an article whose study objective was, "To explore the problems of CCIs," would not be included.

The full-text of each study in the final pool of impact articles was then re-examined. Relevant study characteristics were extracted by one reviewer, with a second reviewer documenting and auditing each individual reviewer's coding process. The following information was coded for each study: Name of CCI, location, temporal duration of initiative, study objective, CCI objective, geographic size and type (e.g., urban, rural), population-level statistics (e.g., size, demographics), sample information (e.g., size, demographics), intervention type, comparison/control type, outcome focus, study design and statistical methods employed, effect size, and whether the study included qualitative data (e.g., interviews).

Classifying Studies by Design and Quality of Evidence

Each of the retained articles in the final pool of impact studies provides evidence of population-level child, youth, and/or family outcomes that can be attributed to the activities of CCIs. In other words, the authors sought to identify those studies that endeavored to make claims about "the impact of CCIs on youth outcomes". It is important to reiterate, however, that studies may vary widely in the extent to which they are actually designed or intended to isolate the effects of CCIs on youth outcomes.

Multiple frameworks have evolved across scientific disciplines to provide standards for evaluating evidence produced by research publications. These include frameworks in the fields of education (IES), developmental science (Child Trends), and prevention and public health sciences (Blueprints). While each framework is slightly different, they share commonalities across their standards of evidence. The authors synthesize across these frameworks and use two tiers to categorize the validity of study methods to assess causal relations:

- **Tier 1** includes studies that employed community-level, randomized, controlled trials and reported population-level outcomes. Because each community is randomly assigned to an "intervention" or "non-intervention" group and various additional factors are adjusted or controlled for, researchers can be confident that any change in the outcome is caused by the intervention, not by any other factors.
- **Tier 2** includes studies that employed quasi-experimental designs in which a variety of comparison groups were included and population-level outcomes were reported. Quasi-experimental designs do not randomly assign communities to groups, instead comparing an intervention group to another group that did not receive the intervention, but is matched to the intervention group on one or more factors that are thought to be implicated in the outcome (e.g., income). Even with carefully matched groups, there is a chance that an unmeasured factor could still be implicated in the observed impact.

In the discussion of results, the authors refer to these tiers as **Tier 1** and **Tier 2**.

Evaluating the quality of evidence provided by a given study is important for framing the nature by which one can interpret results and the extent to which those results can be used to predict generalizable effects in new communities or populations. The reader should also note that the authors did not include studies that purported to assess impact, but that did not meet the research design quality outlined in these two tiers.

TABLE 9. Full list of Articles and Numerical Representations

ARTICLE	CITATION	CCI
1	Hawkins, J. D., Brown, E. C., Oesterle, S., Arthur, M. A., Abbott, R. D., & Catalano, R. F. (2008). Early effects of communities that care on targeted risk and initiation of delinquent behavior and substance use. *Journal of Adolescent Health, 43*(1), 15-22.	CTC
2	Hawkins, J. D., Oesterle, S., Brown, E. C., Arthur, M. W., Abbott, R. D., Fagan, A. A., & Catalano, R. F. (2009). Results of a type 2 translational research trial to prevent adolescent drug use and delinquency: A test of Communities That Care. *Archives of Pediatrics & Adolescent Medicine, 163*(9), 789-798.	CTC
3	Oesterle, S., Hawkins, J. D., Fagan, A. A., Abbott, R. D., & Catalano, R. F. (2010). Testing the universality of the effects of the communities that care preventive system for preventing adolescent drug use and delinquency. *Prevention Science, 11*(4), 411-423.	CTC
4	Hawkins, J. D., Oesterle, S., Brown, E. C., Monahan, K. C., Abbott, R. D., Arthur, M. W., & Catalano, R. F. (2012). Sustained decreases in risk exposure and youth problem behaviors after installation of the communities that care preventive system in a randomized trial. *Archives of Pediatrics & Adolescent Medicine, 166*(2), 141-148.	CTC
5	Brown, E. C., Hawkins, J. D., Rhew, I. C., Shapiro, V. B., Abbott., R. D., Oesterle, S., Arthur, M. W., Briney, J. S., & Catalano, R. F. (2014). Prevention system mediation of the communities that care effects on youth outcomes. *Prevention Science, 15*(5). 623-632.	CTC
6	Hawkins, J. D., Oesterle, S., Brown, E. C., Abbott, R. D., & Catalano, R. F. (2014). Youth problem behaviors 8 years after implementing the communities that care prevention system: a community-randomized trial. *JAMA pediatrics, 168*(2), 122-129.	CTC
7	Oesterle, S., Hawkins, J. D., Fagan, A. A., Abbott, R. D., & Catalano, R. F. (2014). Variation in the sustained effects of the Communities That Care prevention system on adolescent smoking, delinquency, and violence. *Prevention Science, 15*(2), 138-145.	CTC
8	Van Horn, M. L., Fagan, A. A., Hawkins J. D., & Oesterle, S. (2014). Effects of the communities that care system on cross-sectional profiles of adolescent substance use and delinquency. *American Journal of Preventive Medicine, 47*(2), 188-197.	CTC
9	Kim, B. K. E., Gloppen, K. M., Rhew, I. C., Oesterle, S., & Hawkins, J. D. (2015). Effects of the Communities That Care prevention system on youth reports of protective factors. *Prevention Science, 16*(5), 652-662.	CTC
10	Kim, B. K. E., Oesterle, S., Hawkins, J. D., & Shapiro, V. B. (2015). Assessing sustained effects of communities that care on youth protective factors. *Journal of the Society for Social Work and Research, 6*(4), 2334-2315.	CTC
11	Oesterle, S., Hawkins, J. D., Kuklinski, M. R., Fagan, A. A., Fleming, C., Rhew, I. C., ... & Catalano, R. F. (2015). Effects of Communities That Care on Males' and Females' Drug Use and Delinquency 9 Years After Baseline in a Community-Randomized Trial. *American Journal of Community Psychology, 56*(3-4), 217-228.	CTC
12	Rhew, I. C., Hawkins, J. D., Murray, D. M., Fagan, A. A., Oesterle, S., Abbott, R. D., & Catalano, R. F. (2016). Evaluation of community-level effects of Communities that Care on adolescent drug use and delinquency using a repeated cross-sectional design. *Prevention Science, 17*(2), 177-187.	CTC
13	Spoth et al. (2007); Spoth, R., Redmond, C., Shin, C., Greenberg, M., Clair, S., & Feinberg, M. (2007). Substance-use outcomes at 18 months past baseline: The PROSPER community–university partnership trial. *American Journal of Preventive Medicine, 32*(5), 395-402.	PROSPER
14	Redmond et al. (2009);Redmond, C., Spoth, R. L., Shin, C., Schainker, L. M., Greenberg, M. T., & Feinberg, M. (2009). Long-term protective factor outcomes of evidence-based interventions implemented by community teams through a community–university partnership. *The Journal of Primary Prevention, 30*(5), 513-530.	PROSPER
15	Spoth et al. (2011); Spoth, R., Redmond, C., Clair, S., Shin, C., Greenberg, M., & Feinberg, M. (2011). Preventing substance misuse through community–university partnerships: Randomized controlled trial outcomes 4½ years past baseline. *American journal of preventive medicine, 40*(4), 440-447.	PROSPER

ARTICLE	CITATION	CCI
16	Osgood, D. W., Feinberg, M. E., Gest, S. D., Moody, J., Ragan, D. T., Spoth, R., ... & Redmond, C. (2013). Effects of PROSPER on the influence potential of prosocial versus antisocial youth in adolescent friendship networks. *Journal of Adolescent Health, 53*(2), 174-179.	PROSPER
17	Spoth, R., Redmond, C., Shin, C., Greenberg, M., Feinberg, M., & Schainker, L. (2013). PROSPER community–university partnership delivery system effects on substance misuse through 6 ½ years past baseline from a cluster randomized controlled intervention trial. *Preventive Medicine, 56*(3), 190-196.	PROSPER
18	Spoth, R., Trudeau, L., Shin, C., Ralston, E., Redmond, C., Greenberg, M., & Feinberg, M. (2013). Longitudinal effects of universal preventive intervention on prescription drug misuse: three randomized controlled trials with late adolescents and young adults. *American Journal of Public Health, 103*(4), 665-672.	PROSPER
19	Spoth, R. L., Trudeau, L. S., Redmond, C., Shin, C., Greenberg, M. T., Feinberg, M. E., & Hyun, G. H. (2015). PROSPER partnership delivery system: Effects on adolescent conduct problem behavior outcomes through 6.5 years past baseline. *Journal of Adolescence, 45,* 44-55.	PROSPER
20	Spoth, R., Redmond, C., Shin, C., Greenberg, M. T., Feinberg, M. E., & Trudeau, L. (2017). PROSPER delivery of universal preventive interventions with young adolescents: long-term effects on emerging adult substance misuse and associated risk behaviors. *Psychological Medicine,* 1-14.	PROSPER
21	Collins, D., Johnson, K., & Becker, B. J. (2007). A meta-analysis of direct and mediating effects of community coalitions that implemented science-based substance abuse preventive interventions. *Substance Use & Misuse, 42,* 985-1007.	Kentucky Incentives for Prevention (KIP) Project
22	Flewelling, R. L., Austin, D., Hale, K., LaPlante, M., Liebig, M., Piasecki, L., and Uerz, L. (2005). Implementing research-based substance abuse prevention in communities: Effects of a coalition-based preventive initiative in Vermont. *Journal of Community Psychology, 33*(3), 333-353.	New Directions
23	Feinberg, M. E., Greenberg, M. T., Osgood, D. W., Sartorius, J., & Bontempo, D. (2007). Effects of the Communities That Care model in Pennsylvania on youth risk and problem behaviors. *Prevention Science, 8*(4), 261-270.	CTC (PA)
24	Feinberg, M. E., Jones, D., Greenberg, M. T., Osgood, D. W., & Bontempo, D. (2010). Effects of the Communities That Care model in Pennsylvania on change in adolescent risk and problem behaviors. *Prevention Science, 11*(2), 163–171.	CTC (PA)
25	Yin, R. K., Kaftarian, S. J., Yu, P., & Jansen, M. A. (1997). Outcomes from CSAP's community partnership program: Findings from the national cross-site evaluation. *Evaluation and Program Planning, 20*(3), 345-355.	CSAP Community Partnership Program

5TH BASELINE CTC	FALL 6TH BASE-LINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Global substance abuse										
									= (11) **(11M)	
Substance use: Lifetime illicit substance use (includes cocaine, meth, ecstasy, LSD, non-Rx narcotics, non-Rx amphetamines)										
						***(15)^	***(17)^	***(17)	***(20)	
Current illicit drug use (past month)										
				**(2)		**(25)				**(25)
Illicit drug use (past year)										
						**(25)				**(25)
Gateway drug use										
						***(15)		**(6)		
Initiation of substance use										
			=(1)	=(8) **(2)		=(8)		**(6)		
Substance use: Prescription drug misuse overall										
								**(18)	**(20)	
Substance use: Prescription opioid misuse										
								**(18)		
Drug related problems										
									**(20)	
Alcohol related problems										
									=(20)	
Frequency of use: non-Rx narcotics										
									=(20)	
Initiation of cigarette use										
			*(13)	**(2)		**(4) **(15)^		**(6)		
Current cigarette use										
	=(12) =(24) **(23)		=(13)	=(3) =(12) =(24) =(21)+		**(4) =(7) =(12) =(24) **(21)+ *(15)^	*(17)^	=(6) =(24) **(22) *(17)^	**(11M) = (20)	

5TH BASELINE CTC	FALL 6TH BASE-LINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Lifetime cigarette use										
	=(12)			=(12)		=(12)		**(22)		
Initiation of smokeless tobacco										
				**(2)		=(4)				
Current smokeless tobacco use										
	=(12)			*(3M) =(12) =(21)+		=(4) =(12) =(21)+		=(6)		
Lifetime smokeless tobacco										
	=(12)			=(12)		**(12)^				
Initiation of alcohol use										
				**(2)		**(4) **(15)^		**(6)		
Current alcohol use (past month)										
	=(12) =(24) **(23)		*(13)	=(3) *(3M) =(8) =(12) =(24) =(21)+		=(4) *(8) =(12) =(24) **(21)+ **(15)^ **(25)		=(6) =(24) =(22) **(23)		**(25)
Alcohol use (past year)										
				**(25)		**(25)				
Lifetime alcohol										
	=(12)		*(13)	=(12)		=(12)		=(22)		
Binge drinking										
	=(12) **(23)			=(3) *(3M) =(12) =(21)+		=(12) **(21)+		=(6) =(22) ***(23)		
Substance use: Drunkenness initiation										
			*(13)			**(15)^				
Past month drunkenness										
							=(17)	=(17)	=(20)	

5TH BASELINE CTC	FALL 6TH BASE-LINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Past year drunkenness										
			*(13)			*(15)^				
Past year drunk/high at school										
	***(23)									
Frequency of drunkenness										
							**(17)^	=(17)^	=(20)	
Past year driving after drinking										
							*(17)	=(17)		
Frequency of driving after drinking										
							**(17)	* (17)^		
Initiation of marijuana use										
			***(13)			=(4) ***(15)^		=(6)		
Current marijuana										
	=(12) =(24)			*(3M) =(12) =(24) =(21)+		=(4) =(12) =(21)+ =(24)		=(6) =(24) **(22)		
Frequency of use: Marijuana										
							**(17)^	**(17)^	**(20)	
Past year marijuana use										
			***(13)			**(15)^	*(17)	*(17)^	=(20)	
Lifetime marijuana										
	=(12)			=(12)		=(12)		**(22)		
Initiation of “other drugs” use (e.g. inhalant, MDMA, Ecstasy)										
						=(4)				
Initiation of inhalants										
			**(13)			***(15)^				
Initiation of methamphetamine										
			**(13)			***(15)^				

5TH BASELINE CTC	FALL 6TH BASE-LINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Past year methamphetmine										
						***(15)^	**(17)^	*(17)^	*(20)	
Initiation of ecstasy										
			**(13)			***(15)^				
"Other Drugs" (e.g. inhalants, MDMA, Ecstasy)										
						=(4)		**-(6) -(22)		
Current inhalant use										
				-(21)+		=(21)+				
Past year inhalant use										
			***(13)			***(15)^	=(17)	*(17)^		
Lifetime inhalant use										
								-(22)		
Perceived risks of drug use										
								***(23)		
Delinquency initiation										
	** (23)		*(1) **(23)	=(8) **(2)		**(4) =(8) **(23)		**(6) **(23)		
Lifetime delinquency										
									**(11)	
Overall risk behaviors										
				=(19) **(2)	**(19)	**(19)	**(19)	**(19)		
Sensation seeking										
	***(23)									
Attitudes towards antisocial behavior										
	***(23)									
Past year delinquent behaviors										
	**(24)			*(3) **(24)		**(4) =(7) *(7M) **(24)		=(6) *(24)	=(11) =(20)	

5TH BASELINE CTC	FALL 6TH BASE-LINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Violence initiation										
								**(6)	*(11)	
Violent behaviors										
						**(4) =(7)		=(6)	=(11)	
Antisocial behavior										
	**(12) **(24)			=(12) **(24)		*(12)^ **(24)		**(24)	=(20)	
Composite problem behavior factor (made of 3 drug items and delinquent behaviors)										
				***(5)						
Target risk factors (e.g. favorable attitudes towards substance use, low commitment to school)										
			*(1)	=(3) =(21)+		**(4) =(21)				
Poor academic performance										
						***(23)		**(23)		
Global protective factors										
				**(9)		=(10)				
Peer/individual protective factors										
				**(9)		*(10)^				
Family protective factors										
	**(24)			=(9) **(24) =(21)+		**(24) =(21)+		**(24)		
Family protective factors: General child management										
	***(23)		***(14)^ ***(23)	**(14)^	**(14)^					
Family protective factors: Parent-child affective quality										
			(14)^ *(23)	***(14)^ ***(23)	**(14)^					
Family protective factors: Parent-child activities										
			***(14)^	***(14)^	**(14)^					
Family protective factors: Family environment										
			***(14)^	***(14)^	**(14)^					

5TH BASELINE CTC	FALL 6TH BASELINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Family protective factors: Substance refusal intentions										
			=(14)	=(14)	=(14)					
Family protective factors: Substance refusal efficacy										
			=(14)	=(14)	=(14)					
Family protective factors: Substance use plans										
			**(14)^	=(14)	=(14)					
Family protective factors: Substance use expectancies										
			***(14)^	**(14)^	**(14)^					
Family protective factors: Attitude toward substance use										
			***(14)^ ***(23)	=(14)						
Family protective factors: Perceived substance use norms										
			**(14)^	**(14)^	**(14)^					
Family protective factors: Problem solving										
			***(14)^	***(14)^	***(14)^					
Family protective factors: Assertiveness										
			***(14)^	**(14)^	**(14)^					
Family protective factors: Association with antisocial peers										
			***(14)^	**(14)^	**(14)^					
School protective factors										
	**(24)			**(9) **(24) =(21)+		**(24) **(21)+		**(24)		
Community protective factors										
**(9)	**(24)			**(9) **(24)		**(24)		**(24)		
Community risk factors										
	**(24)			**(24)		**(24)		**(24)		
Neighborhood adults attitudes favorable towards drug use										
				**(21)+		=(21)+				
Family risk factors										
	**(24)			**(24) =(21)+		**(24) **(21)+		**(24)		

5TH BASELINE CTC	FALL 6TH BASE-LINE PROSPER	SPRING 6TH	7TH	8TH	9TH	10TH	11TH	12TH	1 YEAR POST HIGH SCHOOL	ADULT
Peer risk factors										
	**(24)			**(24) =(21)+		**(24) **(21)+		**(24)		
Friends' delinquent behavior										
	***(23)			**(23)				***(23)		
Friends' use of drugs										
	**(23)									
Peer rewards for antisocial behavior										
	***(23)									
School risk factors: School days skipped										
				**(21)+		=(21)+				
Academic failure										
				=(21)+		=(21)+				
Grades last year										
	**(24)			**(24)		**(24)		*(24)		
Perceived low risk of being caught for drug use										
				**(21)+		=(21)+				
Perceived availability of drugs										
				**(21)+		**(21)+				
Perceived risk of drug use										
				=(21)+		=(21)+				
Health risking sexual behavior index										
									=(20)	
Lifetime STI										
									=(20)	
Reducing antisocial influence of friendship networks										
		**(16)	**(16)	**(16)	**(16)					

Note: Where (x) = study number that looked at the specific outcome; "*" = significant (<.10) effect in favor of treatment group; "**" = significant (<.05) effect in favor of treatment group; "***" = significant (<.01) effect in favor of treatment group; "=" = not significant. "-" significant effect in unexpected direction. Significant effects for gender specific outcomes are differentiated by "F" = Female or "M" male. (+) indicates study does not employ RCT design. (^) indicates multiple levels of significance were reported for the outcome (e.g. point in time versus rate of growth; individual versus community); see original articles for specific details.

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The Weiss Institute, a partnership between **Say Yes to Education** and the **Center for Promise**, the research center for **America's Promise Alliance**, will expand the capacity of communities to make it possible for all young people to earn a college degree or other postsecondary credential.

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Acknowledgements

The Center for Promise would like to express sincere gratitude to the evaluators of the CCIs included in this report for taking the time to review the research team's findings for accuracy; a special thanks to Margaret Kuklinski. The authors are also grateful to Dr. Richard Catalano, co-founder of the Social Development Research Group and the Bartley Dobb Professor at the University of Washington, and Dr. Jorge Ruiz de Velasco, Associate Director of the John W. Gardner Center at Stanford University for taking the time to review this report and providing valuable insight and feedback. In addition, special thanks to Marissa Cole, Michelle Hynes, Miriam Rollock, and the rest of the Center for Promise team for their contributions to this report.

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SUGGESTED CITATION

Flanagan, S. K., Varga, S. M., Zaff, J.F., Margolius, M. and Lin, E. S. (2018). *The Impact of Comprehensive Community Initiatives on Population-Level Children, Youth, and Family Outcomes: A Systematic Review.* New York: Weiss Institute.

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