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Effects of County Strategies to Scale Evidence-Informed Social Services

By

Marla Jean Stuart

A dissertation submitted in partial satisfaction of the

requirement for the degree of

Doctor of Philosophy

in

Social Welfare

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Susan I. Stone, Chair

Professor Neil Gilbert

Professor Christopher K. Ansell

Fall 2017

Relative Effects of County Strategies to Scale Evidence-Informed Social Services

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Marla Jean Stuart

Abstract

Relative Effects of County Strategies to Scale Evidence-Informed Social Services

By

Marla Jean Stuart

Doctor of Philosophy in Social Welfare

University of California, Berkeley

Professor Susan I. Stone, Chair

A persistent and seemingly intractable problem is the systemic failure to successfully scale evidence-informed social services to a level that achieves population-level improvements in well-being. There is a growing call for governments to enter the scaling environment as primary coordinators, trainers, and funders. Prior scholarship has identified four strategies governments may employ to enact these roles: convene and support high-level leadership teams, assess organizational readiness, provide technical assistance, and align funding. But it is unclear whether use of any or all of these government scaling strategies is sufficient to achieve desired outcomes. Moreover, prior scholarship largely focused on state and federal government roles, largely ignoring how these factors might operate in local government environments. Yet counties may hold the greatest scaling leverage because they often have well-established relationships with service providers through shared clients, contracts, and advocacy. The current study, thus, aimed to provide much needed insight into the relationship between these strategies and scaling outcomes in a local governmental context. Drawing data from a single county with a stated goal of scaling evidence-informed practices across human service organizations, it used public government records and crowd-sourced and computational data-extraction methods to create measures of these four alternative strategies. It assessed the relative effects of these strategies on scaling progress using time-to-event analysis. It found that county governments are well positioned to implement scaling strategies and that the proportion of social service providers adopting evidence-informed services can increase, as can the proportion of county funding directed to these organizations. It also found some empirical support for a link between three of the strategies and scaled evidence-informed services—convening a leadership team, assessing readiness, and aligning funding. Moreover, it identified a new and potentially desirable county strategy—establishing a shared local measure of evidence-informed service. This study design is highly replicable and as such provides a general model to apply to other local environments to identify common county levers that effectively promote the scaling of evidence-informed social services.

Dedication



... who always have my back ...

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Chapter 1: Introduction and Overview of Dissertation

A persistent and seemingly intractable problem is the systemic failure to successfully scale evidence-informed social services to a level that achieves population-level improvements in well-being. There is a growing call for governments to enter the scaling environment as primary coordinators, trainers, and funders. For this study, a search for existing scholarship about the role of governments in the scaling of evidence informed services identified 14 articles published since 2000 (Bruns, et al., 2008; Bumbarger & Campbell, 2012; Chang, 2014; Domitrovich & Durlak, 2015; Fixsen, et al., 2013; Hanson et al, 2016; Hoagwood, et al., 2014; Horner, et al., 2013; Klingner, Boardman & McMaster, 2013; Metz & Albers, 2014; Ray, et al., 2012; Rocque, et al., 2014; Van Dyke & Naoom, 2016; Welsh & Greenwood, 2015). Five promote a federal role, six discuss state roles, and three refer generically to government roles. Eight are commentary and six are studies that examine the extent to which scaling has been achieved. A synthesis of these articles suggests six key scaling functions best suited for government leadership and management. Four are commonly mentioned – convene and support a leadership teams, assess organizational readiness, provide technical assistance, and align government funding. Two other roles are less often mentioned – provide clinical coordination and track success. The four most commonly suggested government functions are reviewed here.

To date, it is unclear whether use of any or all of these government scaling strategies are sufficient to achieve desired outcomes. Moreover, this prior scholarship focuses on state and federal government roles, largely ignoring how these factors might operate in local government environments. Yet counties may hold the greatest scaling leverage because they often have well-established relationships with service providers through shared clients, contracts, and advocacy. The current study thus aimed to provide much needed insight into the relationship between these four commonly suggested government strategies and scaling achievement in a local governmental context. Drawing data from a single county with a stated goal of scaling evidence-informed practices across social service organizations, it used public government records to create measures of these four alternative strategies, using crowd-sourced and computational data-extraction methods. It assessed the relative effects of these strategies on scaling indicators to date using time-to-event analysis. It found that county governments are well positioned to implement scaling strategies and that the proportion of social service providers adopting evidence-informed services can increase, as can the proportion of county funding directed to these organizations. It also found some empirical support for a link between three of the strategies and scaled evidence-informed services—convening a leadership team, assessing readiness, and aligning funding. Moreover, it identified a new and potentially desirable county strategy—establishing a shared local measure of evidence-informed service. This study design is highly replicable and as such provides a general model to apply to other local environments to identify common county levers that effectively promote the scaling of evidence-informed social services.

Problem

As early as the 1950s, social services providers understood that services delivered are not always effective in achieving desired outcomes. These concerns drove efforts to conduct programs of research designed to assess the efficacy of a wide range of social services interventions. Although these programs of research did identify robust sets of intervention effects generated across small, carefully controlled settings, expanding the reach of efficacious services to a scale that can affect population-level well-being has been largely elusive (Forman, 2015;

Rotheram-Borus, Swendeman, & Chorpita, 2012). In Oregon, a state well known for its decades-long efforts to scale evidence-informed juvenile justice services, only 10% of providers in settings that serve children and families were using an evidence-informed service with fidelity in 2016 (Dishion, Forgatch, Chamberlain, & Pelham, 2016). In Washington, another state with a long history of trying to scale evidence-informed services, only 30% of youth eligible for services in the juvenile justice system were served with a state-funded evidence-informed service in 2010 (Drake, 2010). An effort to scale a service to reduce teen pregnancy led by the Centers for Disease Control and Prevention involved training 545 providers in the service delivery requirements. After one year, less than one fifth (16%) of trained providers served youth using the service with fidelity (Ray, Wilson, Wandersman, Meyers, & Katz, 2012).

Scaling Strategies

Although the success of scaling efforts is multidetermined (Fixsen, Blase, Metz, & Van Dyke, 2013), scholars have asserted that scaled evidence-informed services will only be achieved if governments accept the role of “making it happen” (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). An emerging body of research has identified four functions necessary for scaling success and that are well suited for government management—convening and supporting a high-level leadership team, nudging organizational readiness, providing technical assistance, and aligning funding. Convening a leadership team is a potential government function that can support systemwide coordination. Nudging organizational readiness and providing technical assistance to organizations are both ways in which governments can support service providers directly. And aligning funding is a role that is internal to government operations.

Convening leadership teams. High-level, multisector leadership teams appear crucial to coordinating activities necessary to scale evidence-informed services throughout a jurisdiction. Such teams include elected officials, public agencies, service providers, universities and researchers, funders, and service users (Hoagwood et al., 2014; Metz & Albers, 2014). Ideally, these teams work together to identify community problems that need service interventions, identify evidence-informed services to address these problems, and solve systemic implementation problems (Chang, Gertel-Rosenberg, & Snyder, 2014; Fixsen et al., 2013). They ensure a flow of communication among stakeholders about important developments (Aldridge et al., 2016). They make collective decisions that affect their locations (Metz & Albers, 2014). They engage in frank discussions about concerns and problems (Forman, 2015). They negotiate sector roles (Supplee & Metz, 2015). Importantly, they consider and plan for the optimal configuration of evidence-informed services to mitigate their own unique needs and to fit with their own community culture (Aldridge, et al., 2016; Dishion, et al., 2016). And they make policy recommendations to elected bodies (Rocque, Welsh, Greenwood, & King, 2014). Taken together, such efforts are thought to potentiate scaling because they facilitate the spread of information, which contributes to behavioral change. They include all relevant stakeholders and thereby foster trusting relationships that promote buy-in (Bruns et al., 2008). They support social services providers, who are then more willing to take the risk of changing service models (Forman, 2015; Rocque et al., 2014). Teaming also aids the leveraging of systemic resources to support scaling (Chang et al., 2014). Governments are well suited to convene these coordinating teams because they already manage networks of organizations that collectively establish social policy, deliver social services, build community capacity, and solve social problems in ways that meet priorities expressed by the public (Koliba, Meek, & Zia, 2011). Governments also already

fund the majority of social services and thus, are highly involved with social services organizations (Smith, 2012).

Nudging organizational readiness. Successful scaling also relies on ready social service providers (Wang, Saldana, Brown, & Chamberlain, 2010). A ready organization has determined that it has the needed resources, capacity, and leadership buy-in for evidence-informed services. Organizations with demonstrated readiness to adopt a new evidence-informed service are more successful in their implementation. Specifically, when organizational leaders express an interest in, commitment to, and tangible support for evidence-informed services, staff members are more likely to deliver the service with fidelity (Forman, 2005). Scholars have suggested that governments can support readiness assessment by financing the use of standardized assessment processes or requiring organizations to submit a written attestation of their readiness as a condition of receiving funding or technical assistance (Klingner, Ahwee, Pilonieta, & Menendez, 2003; Ray et al., 2012).

Providing technical assistance. Technical assistance for social service providers is essential to building organizational readiness and mitigating implementation barriers. In fact, in research about strategies that promote successful implementation of evidence-informed services, the weight of empirical support points to the necessity of training and technical assistance (Meyers, Durlak, & Wandersman, 2012). Delivering evidence-informed services is difficult and serious organizational barriers exist. These include time, funding for the higher cost of these services, and recruiting and retaining a pool of skilled workers (Gray, et al, 2013). Therefore, technical assistance should include clinical training for direct-service practitioners and recommendations for how to provide administrative support for managers (Aldridge et al., 2016). Because evidence-informed services are almost always delivered with less than 80% fidelity to the model (Durlak & DuPre, 2008), an important and underdeveloped type of technical assistance involves understanding and implementing safe adaptations. Research suggests that sufficient technical assistance promotes effective delivery of new evidence-informed services because training and ongoing support changes practitioner and administrator attitudes, motivates service providers to make the effort required to change their service model, and increases the likelihood that delivered services will benefit clients (Klingner, Boardman, & McMaster, 2013; Metz & Albers, 2014). Providing technical assistance to social service providers is also already a recognized and long-standing government function (Salamon, 1987).

Align funding. Delivering evidence-informed services is expensive and service providers can only deliver the level of service for which they are reimbursed. If reimbursements rates do not cover the full costs of evidence-informed services, including administrative overhead, providers will not implement them (Domitrovitch & Durlak, 2015; Meyers et al., 2012). Lack of adequate funding is the primary cause of failed attempts to scale evidence-informed services (Van Dyke & Naom, 2016). Governments are uniquely situated to fund the scaling of evidence-informed services for two reasons: (a) they already fund and coordinate the delivery of a large share of social services and (b) they are also most likely to benefit from and be motivated by the expected long-term savings (Schoenwald & Hoagwood, 2001). Indeed, governments may be the only institution that spends across a broad range of social services and can adapt to current costs in one system and future savings in another. Many scholars have recommended that governments fund the full cost of evidence-informed services—including both direct clinical services and administrative overhead by directly paying for technical assistance, covering the cost of administrative support, and developing reimbursement structures that accommodate full implementation with fidelity (Bruns et al., 2008; Hanson, Self-Brown, Rostad, & Jackson, 2016).

Defining and Measuring Scaling

Scaling describes the process of spreading the reach of an intervention and sustaining its continued use with positive results for users (Forman, 2015). The goal is to spread evidence-informed services to the full population to achieve socially meaningful impact (Metz & Albers, 2014). Three measures of scaling success have been suggested, albeit with varying information about specific metric indicators. One suggested measure is that a critical mass of social services providers use an evidence-informed service with fidelity, with a threshold of 60% (Fixsen et al., 2009). A second indicator focuses on a critical but unspecified mass of funding. A third measure is that a critical mass of eligible service recipients receives an evidence-informed service. Although a specific threshold has not been established, it has been suggested that 30% of service recipients is too low (Drake, 2010). In line with the first and second suggestions, this study uses two indicators of scaling success: number and percentage of social service providers that have adopted evidence-informed services and proportion of county contract dollars awarded to these organizations.

Contribution of this Study

In addition to exploring the role of local governmental units in scaling efforts, scholars also have called for studies that (a) compare the relative effects of the four suggested government functions; (b) explore the concurrent scaling of evidence-informed services across the full spectrum of social services domains; and (c) focus on the potential role of counties as proponents of evidence-informed social services. Moreover, an unidentified gap is the failure to include county governments as possible supporters of scaled evidence-informed services. This study attempted to respond to each of these research gaps. Specifically, it had two aims and seven hypotheses related to the relationship between county-sponsored scaling strategies and organizational adoption of evidence-informed services.

1. Describe the system-level support strategies conducive to local government coordination in the scaling of evidence-informed services.
2. Examine the relative impact of these strategies on the organization-level adoption of evidence-informed services.

Convene and support a high-level leadership team:

- H₁ Organizations that attend more scaling leadership team meetings will more quickly adopt evidence-informed services.
- H₂ Organizations that attend other governance network meetings will more quickly adopt evidence-informed services.
- H₃ Organizations with greater exposure to the ideas of evidence-informed services will more quickly adopt evidence-informed services.
- H₄ Organizations that attend more unique committees related to more service domains will more quickly adopt evidence-informed services.

Nudge organizational readiness:

H₅ Organizations that are assessed to be internally ready for evidence-informed services will more quickly adopt evidence-informed services.

Provide technical assistance:

H₆ Organizations that participate in more technical assistance will more quickly adopt evidence-informed services.

Align funding:

H₇ Organizations with a prior contractual relationship with the county will more quickly adopt evidence-informed services.

Study Design

This exploratory study was set in a county in which the Board of Supervisors established a goal of expanding the use of evidence-informed services across all social services domains. It represents an ideal opportunity to study the relationship between government strategies and scaling success. Strong political support for scaling and an active governance network already existed. The board implemented four strategies that align with the four recommended government functions. It convened and hosted a high-level leadership team, initially and continually assessed organizational readiness for adoption, launched a technical assistance program, and aligned funding. Moreover, at the beginning, the board established an objective process to certify that organizations demonstrated capacity to deliver evidence-informed services. The list produced through this process serves as an excellent measure in this study of the number of organizations that have adopted evidence-informed services. Finally, documentation of county-sponsored scaling activities was contemporaneously recorded and is publicly available. This includes records of all county social services contracts, which provide a measure of social services spending awarded to organizations with the demonstrated capacity to deliver evidence-informed services. Finally, this county has been engaged in scaling activities for seven years, allowing for a sufficient period to observe key independent variables and outcomes of interest.

This study gathered public data from several sources: Board of Supervisors meeting agendas and minutes; minutes from 12 committees hosted by the board to provide advice on social services; reports and other documents published online by the county; and extracts from two county management systems. To extract the data from these sources, this study used crowd-sourced human coding, natural language processing, and manual coding. The primary analytic technique is time-to-event modeling, which was appropriate because the process under study was ongoing and therefore right censored. It is probable that outcomes were observed after the study ended, which needed to be accounted for in the estimation of the county intervention effects.

Findings

This study provided initial evidence that county governments are well positioned to develop and implement strategies that support the scaling of evidence-informed services. This county embedded discussions of evidence-informed service in its existing governance network and in so doing exposed 233 local organizations to the concept of scaling. These organizations

included a range of sectors, but 180 (77%) were social service providers that are the target of scaling goals. As an initial activity, the county assessed organizational readiness for adoption of evidence-informed services in 85 organizations and found that 35 (41%) reported or were confirmed to already be involved in evidence-informed services. The county then launched an initiative to encourage and recognize ongoing organizational capacity development, in which 80 organizations participated. In addition, this county provided technical assistance to support organizational capacity development. Although this technical assistance emerged near the end of the study period and seemed to be still ramping up, it had already assisted 192 organizations. Findings also suggest the importance of an additional government led strategy—establishing a shared local measurement of evidence-informed services.

During this study, the county increased the number of organizations adopting evidence-informed services to 70. It also increased the percent of county contracts awarded to organizations that have adopted evidence-informed services to 67%. The number of evidence-informed services delivered in the county from grew to 92. Finally, this study's findings suggest that factors associated with organizational decisions to adopt evidence-informed services include organizational readiness, attendance at different committees in the governance network, and a prior and large contracted relationship with the county.

Dissertation Structure

This dissertation proceeds as follows. Chapter 2 provides an extended review of background literature. Chapter 3 describes the case environment. Chapter 4 describes the data collection and analytic methods. Chapter 5 presents findings. Finally, Chapter 6 discusses the findings, study limitations, and implications for future research.

Chapter 2: Literature Review

As early as the 1950s, stakeholders in professions that provided social services were beginning to understand that simply delivering these services did not ensure their effectiveness. By the 1960s, research began to identify core principles of service effectiveness (Dishion et al., 2016). Since then, an explosion of intervention research has provided robust evidence about the efficacy of a wide range of social service interventions—at least in small carefully controlled settings. Today, a variety of clearinghouses list social services that have been empirically demonstrated to be effective. See Appendix B for a sample list of these clearinghouses. The Nurse-Family Partnership (NFP) intervention is a good example of an evidence-informed social service. Licensed and trained nurses regularly visit young, low-income, and first-time mothers starting during pregnancy and continuing through the child’s second birthday. It has been the subject of three long-term randomized controlled trials beginning in 1997, 1990, and 1994 (Olds, 2002). Evaluations of this intervention consistently yielded desirable effects, including an 82% increase in maternal employment, 68% increase in a father’s presence in the home, 39% reduction in child injuries, 48% reduction in child abuse and neglect, 59% reduction in child arrests by age 15, and 67% reduction in behavioral and intellectual problems by age six (Nurse Family Partnership, 2017). Achieving the full benefits of proven interventions such as NFP, however, is only possible if they are widely used. But expanding the reach of efficacious social services to a scale that can affect population-level well-being has been largely elusive (Forman, 2015; Kingston, Mihalic, & Sigel, 2016). For instance, NFP began scaling in 1996 and evidence suggests that it is not nearly scaled. To date, NFP has served approximately 260,000 first-time teen mothers in 42 states. However, during that period, 1.6 million eligible teens did not receive NFP services (Rotheram-Borus et al., 2012). Fixsen et al. (2013) succinctly summarized the scaling problem:

Past and current efforts to diffuse, translate, transport, disseminate, mandate, incentivize, and otherwise close the ‘science-to-service gap’ have not been successful in getting the growing list of evidence informed programs routinely into practice. The problem is that we know that the most effective programs are those informed by scientific evidence. But overall, they are not used in the field. A small percent of providers use EBP [evidence-informed practice]. A small percent of eligible users receives them. (p. 213)

A growing body of research suggests that only a small percent of providers use evidence-informed services and, when they do, it is rare that they do so with fidelity. This is often called the “science-to-service gap” (Rotheram-Borus et al., 2012). In Oregon, a state well known for its decades-long efforts to scale evidence-informed juvenile justice services, only 10% of providers in settings that serve children and families were using an evidence-informed service with fidelity (Dishion, 2016). Data also have demonstrated that less than half of persistent juvenile offenders had even sought (or been referred to) help by age 18, despite long histories of interactions with the juvenile justice system that could have referred them for services. Moreover, because so few practitioners are offering evidence-informed services and so few eligible youth are receiving services, Dishion (2016) projected that less than 5% of juvenile offenders are exposed to an evidence-informed family intervention. In Washington, another state with a long history of attempting to scale evidence-informed services, only 30% of youth eligible for services in the juvenile justice system were served by a state-funded evidence-informed service in 2010 (Drake, 2010). An effort to scale a service to reduce teen pregnancy led by the Centers for Disease

Control and Prevention involved training 545 providers in service delivery requirements. After one year, less than one fifth (16%) of trained providers served youth using the service with fidelity (Ray et al., 2012). In a meta-analysis that included 581 studies, Durlak and DuPre (2008) found a consistent failure to implement evidence-informed services with fidelity. On average, service providers varied in their delivery of 20% to 40% of the service components. A RAND study commissioned by the U.S. Department of Education examined scaled implementation of four school-based evidence-informed services that included 250 treatment and 250 control schools in Florida and Texas (Vernez, Karam, Mariano, & DeMartini, 2006). The findings are striking:

We found that none of the schools in our study had fully implemented all core components of the model they had adopted. We also found broad variations in the level of implementation across schools using the same model. (p. xviii)

Clearly, the science-to-service gap is multidetermined and multifaceted. Early discussions acknowledged differences between study and practice environments leading to limited success. These included differences in the needs of the intended service recipients, incongruence between achieving behavioral change in carefully controlled research settings and real-life settings, and a researcher prioritization of internal validity over external validity, which delayed understanding of the need for local adaptation (Green, 2001; Rotheram-Borus et al., 2012). Another early identified problem was that efforts to scale services were researcher-driven using time-limited funding (for an example, see Chamberlain et al., 2011). But, individual researchers don't have the capacity or reach to ensure and sustain wide-spread scaling. And, when funding expired, the delivery of the evidence-informed service waned and the perceived gap between researchers and practitioners was exacerbated (Klingner et al., 2012). Another suggestion is that scaling evidence-informed services requires the cooperation of so many diverse professionals that it becomes infeasible. Social services practitioners are expected to know about new scientific findings, understand how those findings might influence their practice, learn how to use new findings, and adapt their way of providing services to consistently use a new finding. To get a sense of how many people need to be influenced by emerging research, consider the number of professionals in the United States who deliver social services: more than 700,000 social workers, 41,000 marriage and family therapists, 470,000 preschool teachers, 290,700 school counselors, 1.5 million elementary school teachers, and 160,000 psychologists (U.S. Department of Labor, 2017). To add more complexity, these professionals work in varied settings (Aldridge et al., 2016). For example, an evaluation of a single evidence-informed service, Positive Parenting Program, documented differences in provider education and discipline and the service setting. Provider education ranged from high school degree to graduate degree. Provider disciplines included counselors, social workers, psychologists, educators, child care professionals, and nurses. Service settings included schools, community mental health centers, public social service offices, nonprofit organizations, and child care centers. Scholars have also begun to document the expense of involving virtually all social services providers. For instance, New York trained 400 clinicians in a single evidence-informed service and provided 1 year of follow-up support. The cost was more than \$600,000. In California, an effort to spread the use of a single evidence-informed family therapy service in 26 locations cost more than \$2.6 million (Bruns et al., 2008). Findings like these also indicate the lack of a systemic structure for product refinement, packaging, and efficient distribution (Bumbarger, 2015; Rotheram-Borus et

al., 2012). In other words, an efficient supply chain does not exist. A final identified impediment to scaling is the slow pace of social services research, which is incongruent with the rapid and ever-evolving pace of social problems. By the time innovations in social services delivery are ready for widespread application, they may no longer be relevant (Bumbarger, 2015).

Despite these substantial challenges, there are some promising examples that encourage continued efforts to scale evidence-informed services to a population level. Welsh and Greenwood (2015) reported that Jefferson Parish in Louisiana successfully increased the percentage of the juvenile treatment budget dedicated to evidence-informed services from 9% in 2007 to 95% in 2010, which was accompanied by an increase in the percentage of eligible youth referred for evidence-informed service from 7% to 95%. The state of Maine also increased the number of evidence-informed services available through the juvenile justice system, and this shift is associated with a reduction in juvenile recidivism (Rocque et al., 2014). Based on these promising results, increasingly scholars have attended to what levers can be activated to improve scaled implementation of evidence-informed services. For example, it is now well known that to achieve population benefits from widespread implementation of evidence-informed services, the services must be delivered with fidelity to the original model (Meyers et al., 2012). This includes adherence to the design with no or minimal and unimportant adaptation, correct dosage of service components, service delivery quality, and client participation levels. Services delivered with fidelity yield effects 2 to 12 times larger than those delivered without fidelity (Durlak & DuPre, 2008).

Although these aforementioned scaling efforts center on service delivery, they also reveal a science-to-policy gap (Bumbarger, 2015; Forman, 2015). Emerging evidence suggests that three-way partnerships among science, practice, and government may be necessary to achieve the desired population outcomes via implementation with fidelity of evidence-informed services (Chamberlain et al., 2010). Specifically, scholars have called for governments to activate their considerable resources to support scaling efforts. The interactive systems framework describes three necessary roles for successful scaling: research, service delivery, and support (Wandersman et al., 2008). Although this framework does not identify the sectors best suited for each system, they seem to match what is called for from the science, practice, and government communities. Acting as the synthesis and translation system, scientists produce, distill, and translate scientific knowledge for practice. Acting as the delivery system, service providers deliver services. And, acting as the support system, governments create environments conducive to evidence-informed service delivery (Bumbarger & Campbell, 2012).

Definitions

Before proceeding further, a few terms need to be defined: social services, evidence-informed services, and scaling.

Social services are activities in which professionals engage directly with individuals, families, and communities to solve social problems and improve well-being. Examples of social services include counseling, parenting classes, addictions treatment, job training, legal assistance, housing supports, financial counseling, afterschool services, conflict resolution, gang prevention, and group therapy. A few professions that deliver social services include social workers, marriage and family therapists, psychologists, school counselors, and community organizers. Social services are delivered across a wide range of domains and settings, including child and family welfare, education, health and mental health, homelessness, employment and retirement, education, criminal justice, and aging (Midgley & Livermore, 2008). Historically,

both the public government sector and the private voluntary sector have invested heavily in social services—sometimes ignoring each other, sometimes in conflict, and sometimes collaborating (Friedlander, 1955; Gilbert, 2002; Gilbert & Gilbert, 1989; Popple, 1993; Trattner, 1989).

Evidence-informed services are generally understood from two perspectives – as an intervention or as a process (Rubin & Babbie, 2017). In the intervention perspective, evidence-based services are “treatments or interventions that have been demonstrated, typically through randomized controlled trials, to be safe and effective when delivered with fidelity” (Hanson et al., 2016, p. 52). For a comprehensive review of the efficacy, effectiveness, and scale-up preparedness requirements to be considered an evidence-based practice, see Gottfredson and colleagues (2015). In the process perspective, evidence-based practice is “a process of clinical decision making that entails the integration of best research evidence with clinical expertise and patient values” (Gray, Joy, Plath, & Webb, 2013, p. 158). In the first perspective, different practitioners deliver a specific service, ideally in the same way. One goal of this approach is that eligible service users will receive the same level of high-quality and likely effective services, regardless of the individual provider. In the second perspective, practitioners draw from a collection of strategies that is well-supported by research and use their own judgement to combine them in unique ways to meet the unique needs of a specific service recipient (Gambrill, 2003; Sheldon, 2001; Thyer & Myers, 2011). In this view, eligible service users each receive a slightly or substantially different service. One goal of this approach is that service users receive exactly what they need based on their unique circumstances and the best available evidence. In the current study, the focus is the intervention perspective.

Scaling refers to the spreading of a evidence-informed social service beyond the research location(s), delivering it to a large number of eligible clients, and sustaining its continued use with continued positive results for users (Forman, 2015). With scaling, the goal is to spread a service that in a small research demonstration has achieved positive outcomes to many cohorts of similar populations to achieve socially meaningful impact (Metz & Albers, 2014). With sustaining, the goal is to successfully replicate a service over and over in different settings over time so that the aggregate outcomes significantly change population-level well-being (Welsh & Greenwood, 2015). Scaling and sustaining evidence-informed services are interdependent activities that are both required to achieve improvements in population well-being. Conceptualizing the scaling of evidence-informed social services as the diffusion of innovation is a common frame (Tabak, Khoong, Chambers, & Brownson, 2012). One definition of the diffusion of innovation proposed by Greenhalgh et al. (2004) and often invoked in this context is “a novel set of behaviors, routines, and ways of working” (p. 582) that are spread to improve the efficiency, cost effectiveness, user experience, and outcomes of social services. The only real difference between the Greenhalgh concept and the concept of scaling is that Greenhalgh and colleagues were referring specifically to the spread of new behaviors within organizations, whereas scaling of evidence-informed services refers to the spread of new behaviors across all organizations in a system of services..

Measuring scaling

Scaling is achieved when a) a critical mass of social services providers use an evidence-informed service with fidelity; b) a critical mass of funding for social services is dedicated to evidence-informed services; or c) a critical mass of eligible service recipients have access to and have received an evidence-informed service. Some specific thresholds have been suggested for

the first measure. Van Dyke and Naoom (2016) suggested that at the organizational level, scaling has been achieved when 50% of staff members delivering a given evidence-informed service are doing so with fidelity. Fixsen et al. (2013) set a higher standard of 60% of providers in a given setting delivering a service with fidelity and achieving the desired outcomes. Durlak and DuPre (2008) suggested that scaling is achieved when an evidence-informed service is delivered with 60% fidelity to the model. Related to the second measure, Welsh and Greenwood (2015) discussed scaling as the proportion of government funding dedicated to social services. But again, no threshold for success has been suggested. Regarding the third measure, several scholars defined scaling success as a percentage of social services users who are treated with an evidence-informed service (Dishion, 2016; Drake, 2010; Welsh & Greenwood, 2015). But a specific threshold has not been suggested.

Strategies to Scale Evidence-Informed Services and Achieve Population Outcomes

By one estimate, 90% of public-sector agencies have been reluctant to adopt evidence-informed services—at least for the services they internally deliver (Wang et al., 2010). However, Van Dyke and Naoom (2016) asserted that scaled evidence-informed services will only be achieved if governments accept the role of making it happen. The idea of making it happen is borrowed from Greenhalgh et al.'s 2004 systematic review of the diffusion of innovation in organizations as previously referenced. According to Greenhalgh et al. (2004), making it happen means that innovations are implemented in a “scientific, orderly, planned, regulated, programmed” (p. 593) and properly managed manner. Van Dyke and Naoom (2016) are not the only scholars who have applied this metaphor to the scaling of evidence-informed services. Fixsen and colleagues (2013) also argued that making it happen is uniquely the role of governments. Welsh and Greenwood (2015) used the concept to evaluate state activities to implement evidence-informed services for delinquent youth. They concluded that states that are making it happen with purposive state actions have higher rates of scaling. An emerging body of research has described four functions necessary for scaling success that should be employed by governments to make it happen—convening and supporting a high-level leadership team, nudging organizational readiness, providing technical assistance, and aligning funding. Convening a leadership team is a potential government function that involve systemwide coordination. Nudging organizational readiness and providing technical assistance to organizations are both ways in which governments can support individual service providers. Aligning funding is a role that is internal to government operations.

Convene and support a high-level leadership team. Scaling cannot be successful without the creation and maintenance of high-level, multisector leadership teams responsible for system-level management. Necessary team members include elected officials, public agencies, service providers representing the full range of social services, K-12 educators, universities and researchers, funders, and service users (Chamberlain et al., 2012; Forman, 2015; Hoagwood et al., 2014; Metz & Albers, 2014; Rocque et al., 2014; Welsh & Greenwood, 2015). Descriptions of these teams identify many important tasks. These teams work together to identify community problems that need service interventions, identify evidence-informed services to address these problems, and solve systemic implementation problems (Chang et al., 2014; Fixsen et al., 2013; Hanson et al., 2016; Horner et al., 2014; Van Dyke & Naoom, 2016). They ensure a flow of communication between stakeholders about important developments (Aldridge et al., 2016; Meyers et al., 2012). They make collective decisions that affect their locations (Metz & Albers, 2014; Shapiro et al., 2013). Importantly, they consider and plan for the optimal configuration of

evidence-informed services to mitigate their own unique needs and to fit with their own community culture (Aldridge, et al., 2016; Dishion, et al., 2016). In team meetings, members engage in frank discussions about concerns and problems (Forman, 2015). As they work together, participants continually discuss and negotiate sector roles (Supplee & Metz, 2015). These leadership teams also make policy recommendations to elected bodies (Rocque et al., 2014).

Prior scholarship has suggested several reasons these high-level leadership teams will contribute to successful scaling of evidence-informed services. First, and simply, more people learn about scaling—what it is, why it is important, and how it is beneficial. And, learning is linked to behavior change (Béland, 2009; Hall, 1993; Heikkila & Gerlak, 2016; Johnston, Matteson, & Finegood, 2014; Leifeld, 2013). In this case, the needed organizational behavioral change is adoption of evidence-informed services. And the needed system changes are any that create an environment more conducive to scaling. Second, when all relevant stakeholders are included, relationships are formed and deepen, trust grows, consensus is achieved, and buy-in ensues (Bruns et al., 2008; Meyers et al., 2012; Shapiro, et al., 2013). When the provider community is included, and its members' needs are acknowledged, they feel valued and empowered and are more willing to take the risk of changing their service models (Forman, 2015; Rocque et al., 2014). Third, when the powerful individuals included in these leadership teams begin working together to scale evidence-informed services, a natural feedback loop is created among service providers, policy makers, and researchers (Supplee & Metz, 2015). As these three critical sectors begin to develop a shared agenda, they begin to leverage their individual and shared resources to support scaling and use their collective authority to integrate scaling activities into existing systems and create new systems (Chang et al., 2014; Welsh & Greenwood, 2015). With these actions, they effectively reduce systemic barriers to scaling and strengthen scaling facilitators.

Governments are well suited to convene high-level teams to provide system coordination of scaling activities. They already manage networks of community-based providers, businesses, advocates, citizens, and government agencies. These existing governance networks collectively establish social policy, deliver social services, build community capacity, and solve social problems in ways that meet priorities expressed by the public (Jung & Valero, 2016; Koliba et al., 2011; Milward & Provan, 2006). Because governance networks are already committed to ensuring effective social services, they are a natural existing structure to host the scaling of evidence-informed services. These existing leadership teams become the tangible and visible infrastructure that signals a collective system priority for evidence-informed services (Meyers et al., 2012). In fact, states that have taken steps to scale evidence-informed services often embed this coordination function into their existing, long-standing, highly regarded, and powerful governance networks (Rocque et al., 2014; Welsh & Greenwood, 2015). This practice of embedding resembles the known phenomenon of compound collaboration in governance networks, introduced by Ansell (2015). Compounding has been described as a system of multiple interlocks in a system (Heemskerk, Daolio, & Tomassini, 2013)—an apt description of embedding scaling activities in an existing governance structure. Sørensen and Torfing (2009) suggested that intentionally compounding is a useful tool for government managers. Ansell (2015) found that effective compound collaborations are led by focal institutions that create forums for open communication and engagement of all participants—similar to the leadership team structure suggested for scaling of evidence-informed services.

Nudge organizational readiness. Ready provider organizations also constitute a critical ingredient for scaling (Wang et al., 2010). A ready organization has determined that it has the needed resources, capacity, and leadership buy-in for evidence-informed services and has identified one or more evidence-informed services that are a good fit for the needs of its clients (Hanson et al., 2016; Meyers et al., 2012; Supplee & Metz, 2015; Van Dyke & Naoom, 2016; Wang et al., 2010). Readiness is observed as an explicit decision by an organization's leadership to implement the new evidence-informed service (Meyers et al., 2012). Bruns and colleagues (2008) hypothesized that readiness to adopt a first evidence-informed service is different and more difficult to achieve than readiness for subsequent adoptions.

Organizations with demonstrated readiness to adopt a new evidence-informed service are more successful in their implementation. Specifically, when organizational leaders express an interest in and commitment to evidence-informed services, staff members are more likely to deliver the service with fidelity. Staff members are even more likely to implement the service as required if they believe it is required by their organization. Organizations that require that all staff members to participate in the delivery a new evidence-informed service are the most successful because by involving everyone, they build an internal mutual support network (Forman, 2005). But, it is not enough for an organization's leadership to verbally prioritize the new service; it must also provide tangible supports for the challenges the staff faces, such as lack of time to deliver all the required components and the burden of additional documentation. Concrete administrative support is a facilitator of implementation when it is provided and a barrier when it is not (Klingner et al., 2003). In fact, Meyers et al. (2012) found that lack of administrative support was evident in every failed case of scaled implementation.

Scholars have suggested that governments can support readiness assessment by financing the use of standardized assessment processes or requiring organizations to submit a written attestation of their readiness to implement a new evidence-informed service as a condition of receiving funding or technical assistance (Klingner et al., 2003; Ray et al., 2012).

Provide technical assistance to organizations. Delivering an evidence-informed service requires a rigorous and standardized approach to service delivery that usually requires substantial changes in an organization. Although a discussion of this process is beyond the scope of this review, it is useful to highlight the challenges that organizations face and which reflect the complexity and breadth of the endeavor. In 2013, Gray and colleagues published a review of 11 empirical studies that identified organizational barriers to evidence-informed social services implementation. They found 10 significant barriers: time, access to research evidence or an inability to find research relevant to the practice context, funding for the higher cost of evidence-informed services, recruiting and retaining a pool of workers with the advanced skills and knowledge often required by evidence-informed services, inadequate internal training capacity, collective understanding of the concept of evidence-informed services, an organizational culture that does not value evidence-informed services, negative or indifferent attitudes of employees, and the challenges of the rigorous clinical supervision required for evidence-informed services. The result of these barriers can be that the implementation of the evidence-informed service is inadequate to achieve the desired outcomes, which leads to a devaluing and discontinuation of the service (Forman, 2015). Technical assistance for service-providing organizations is essential to mitigating these scaling barriers. In fact, research about the strategies that promote successful implementation of evidence-informed services consistently has demonstrated the necessity of training and technical assistance (Meyers et al., 2012). This body of evidence about technical assistance has clarified what it should include and how it should be delivered.

The content of technical assistance should be both clinical and administrative. Clinical training for direct-service practitioners should include a general discussion of the conceptualization and benefits of evidence-informed service and problem solving in the context of evidence-informed service. It should also include very specific details about how a single service must be delivered. This service-specific training is designed to build the knowledge, skills, and abilities of the professionals who will use the service to serve clients (Aldridge et al., 2016). The recommended topics for administrative training include change management, decision support, continuous quality improvement, program evaluation, billing, staff acquisition, coaching and supervision, preservice and in-service training, staff performance assessment, workload management, how to identify and steward champions among the staff, selecting appropriate services, and monitoring implementation (Chang et al., 2014; Fagan, Arthur, Hanson, Briney, & Hawkins, 2011; Fixsen, 2009; Forman, 2015; Hoagwood et al., 2014; Meyers et al., 2012; Van Dyke & Naom, 2016).

The content and delivery of technical assistance should match the needs of the community of providers in a specific location. In fact, it should be locally available. In a federally funded service to scale evidence-informed services in schools, Horner and colleagues (2014) found that scaling required local capacity to provide technical assistance. Welsh and Greenwood (2015) also found that the most effective technical assistance is provided by local professionals. Technical assistance should include both classroom teaching and follow-up emails, phone calls, on-site observation, and one-on-one coaching and problem solving (Hoagwood et al., 2014; Klingner et al., 2013; Ray et al., 2012). It must be recurring, ongoing, and adaptive (Foreman, 2015; Meyers et al., 2012). The need for technical assistance is likely to increase and evolve over time as specific local challenges of implementing evidence-informed services emerge (Horner et al., 2014). Technical assistance needs to be available on demand. One growing approach to meet this need is the creation of local information resource centers that provide article summaries, assessment and evaluation instruments, and access to trainers (Hoagwood et al., 2014; Welsh & Greenwood, 2015). Established examples include the Center for Implementation-Dissemination of Evidence-Based Practices among States (2017), the Technical Assistance Center on Positive Behavioral Interventions & Supports (U.S. Department of Education, 2017), and the State Implementation and Scaling-Up of Evidence-Based Practices Center (Frank Porter Graham Child Development Institute, n.d.).

An important, yet to date underdeveloped, role in technical assistance is to support safe adaptations of implemented evidence-informed services. Partial fidelity is common in the scaling and sustaining of evidence-informed services because served clients and contexts inevitably vary across locations (Aldridge et al., 2016). In their meta-analysis of scaled implementations, Durlak and DuPre (2008) found very few implementations achieved fidelity to 80% of the service components. Almost none reached 100% fidelity. Yet implementation can be effective—meaning that expected outcomes can still be reached—at 60% fidelity. Such findings suggest that technical assistance normalizes the need for adaptation and help organizations and communities identify modifiable components that do not threaten outcomes (Chang et al., 2014). This should include reaching out to the program developers to document and test the effect of the adaptations.

The expected and demonstrated mechanism linking sufficient technical assistance and effective delivery is that training and ongoing support change practitioner and administrator attitudes toward evidence-informed services and build a sense of self-efficacy and competence (Forman, 2015; Metz & Albers, 2014). When professionals understand a service, are comfortable

in their ability to effectively deliver it as a practitioner or support it as an administrator, and believe that it will benefit their clients, then they change their behaviors to scale and sustain evidence-informed services (Klingner et al., 2013). Unfortunately, the level of technical assistance that is necessary to successfully support practitioners and administrators so that they can deliver the services necessary for successfully achieving promised improvements in population well-being is not well understood, although some have called for a new career path to meet the intensity of assistance needed (Domitrovitch & Durlak, 2015).

Like the established role of convening meetings in governance networks, providing technical assistance is already a recognized and long-standing government function. When he proposed his original cross-sector partnership theory of social services delivery, Salamon (1987) argued that a key government responsibility was to accommodate and strengthen nonprofit needs, such as by providing capacity-building support. One study about government-provided technical assistance in the social services found that when the local public entity does not provide enough support for collective goal implementation, achievement suffers (Wynter, Hardee, & Russell-Brown, 2003). Because providing technical assistance to the social services sector is already a part of government functions, it seems feasible for governments to coordinate the technical assistance necessary for reducing the barriers to scaling and sustaining evidence-informed services.

Align funding. In the short term, significant costs are associated with implementing evidence-informed services. If reimbursements rates do not cover the full costs of evidence-informed services, including administrative overhead, providers will not implement them (Domitrovitch & Durlak, 2015; Meyers et al., 2012). Lack of adequate funding is an important driver of failed attempts to scale evidence-informed services (Van Dyke & Naoom, 2016). Yet in the long run, evidence-informed services are cost effective. A large body of literature has documented the cost savings of evidence-informed services. For example, for every dollar spent, Nurse Family Partnership saves more than \$15 in reduced crime, substance abuse, teen pregnancy, teen suicide, child abuse and neglect, domestic violence, and unemployment (Drake, Aos & Miller, 2009; Karoly, Kilburn & Cannon, 2006). For every dollar spent, Perry Pre-School saves up to \$17 in reduced future child maltreatment, child accidents and injuries, unemployment crime, and substance abuse (Karoly, Kilburn & Cannon, 2006). The Strengthening Families Program saves more than \$7 due to reductions in future crime, substance abuse, child abuse, and domestic violence (Drake, 2010). Costs and benefits of evidence-informed services are not confined to a single domain in a single budget cycle. Investments in high-quality early childhood education, for example, return savings in reduced juvenile justice costs years later (Drake, 2010).

Governments are uniquely situated to fund the scaling of evidence-informed services for two reasons. First, they already fund and coordinate the delivery of a large share of social services. Local, state, and federal governments annually hold about 200,000 contracts with more than 30,000 human services organizations totaling more than \$81 billion dollars (Pettijohn & Boris, 2014). In California specifically, social services providers obtain sixty percent of their funding via contracts with governments, including local governments, perhaps as much as 60% (CalNonprofits, 2014). Second, because governments fund most social services, they are also most likely to benefit from and be motivated by the expected long-term savings (Drake, Aos & Miller, 2009; Khatri & Frieden, 2002, Rosenheck, Neale, Leaf, Milstein, & Frisman, 1995; Schoenwald & Hoagwood, 2001; Wensing, Wollersheim, & Grol, 2006). Indeed, governments may be the only institution that spends across a broad range of social services and thus, is well-positioned to adapt current costs in one system to future savings in another.

Many scholars have suggested that government agencies should use their contract relationships to encourage and support widespread implementation of evidence-informed services. Mostly, scholars have recommended that governments fund the full cost of evidence-informed services, including both the direct clinical service and the administrative overhead. This could include directly paying for technical assistance that grantees receive and the attendance time of grantee staff members (Bruns et al., 2008; Fagan et al., 2011; Metz & Albers, 2014; Ray et al., 2012; Rocque et al., 2014; Welsh & Greenwood, 2015). It could include covering the cost of administrative support by either approving direct pay for administrative staff members or increasing allowed overhead rates. Administrative requirements include training new staff members, fidelity monitoring, supervision and coaching, and communication with program developers (Bruns et al., 2008; Chang et al., 2014; Domitrovitch & Durlak, 2015; Forman, 2015; Meyers et al., 2012; Welsh & Greenwood, 2015). It might take the form of developing reimbursement structures that accommodate full implementation with fidelity (Bruns et al., 2008; Hanson et al., 2016), including Medicare and Medicaid reimbursement rates (Bruns et al., 2008). Or governments might select specific evidence-informed services for their community and specifically request these services in their requests for proposals (Welsh & Greenwood, 2015). Governments could provide bonuses for evidence-informed services (Bruns et al., 2008). In addition to specifically paying for evidence-informed services, governments could also decide to stop funding organizations that don't implement evidence-informed services or don't maintain fidelity—a problem that has been observed, for instance, with for-profit providers (Rocque et al., 2014).

In addition to payment mechanisms, scholars also have suggested other ways that governments can use their purchasing power to promote the scaled implementation of evidence-informed services. They can require fidelity monitoring in contracts (Rocque et al., 2014). They can require fiscal reporting that reflects the use of evidence-informed services (Hoagwood et al., 2014). Or they can help find creative solutions to contract problems—for instance when the contract is fee-for-service and there are not enough referrals (Rocque et al., 2014). They can pay for local evaluations of implementation and require funded organizations to participate (Rocque et al., 2014). They can require evidence-informed services through regulation (Forman, 2015). They can fund more research about successful scaled implementation (Domitrovitch & Durlak, 2015). And finally, to encourage service providers to invest in the infrastructure necessary to support the delivery of evidence-informed services, they can make a commitment to prioritizing evidence-informed services for funding (Klingner et al., 2013).

Contribution of this Study

As scholars are beginning to identify specific scaling functions for government, they have called for more research to “guide states in effectively moving science into practice on a larger scale” (Bumbarger & Campbell, 2012, p. 268). They have pointed to a need for studies that (a) compare the relative effects of the four suggested government functions; (b) explore the concurrent scaling of evidence-informed services across the full spectrum of social services domains; and (c) focus on the potential role of counties as proponents of evidence-informed social services.

Although several studies articulated useful government scaling functions, the relative effect of these different functions on the achievement of scaled evidence-informed services is poorly understood (Gray et al., 2012). Horner and colleagues (2014) concluded that “there are few examples of implementation at a scale and duration that allow even modest testing of the

variables that increase the likelihood of large-scale adoptions” (p. 206). Because the process of wide-scale implementation is thought to be nonlinear, cyclic, and iterative and because support functions are expected to interact, research is needed to untangle the intersecting combinations of government-sponsored activities that are or are not effective (Fixsen et al., 2013; Welsh & Greenwood, 2015). For instance, Ray and colleagues (2012) tested the effect of training and technical assistance on the scaling of a service to reduce teen pregnancy and found that only 16% of trained service providers used the model. As a follow-up, they identified a need to understand the right or better combinations of technical assistance that contribute to improved outcomes for service recipients. Fagan and colleagues (2011) reported on the adoption and fidelity implementation of evidence-informed services in a random controlled trial in which 12 communities received intensive researcher-sponsored technical assistance and 12 did not. They found the intervention communities eventually adopted more evidence-informed services, but they did not assess the effect of the different scaling functions on this outcome. In another example, Horner and colleagues (2014) learned that advocacy efforts are more important in early implementation stages, whereas clinical coordination is more important in later stages. In short, research that helps government agencies target their resources toward effective functions at different stages of the scaling processes would be useful (Chamberlain et al., 2012).

Second, the studies to date that have examined government’s role in scaling evidence-informed services focused on a specific service domain, e.g., scaling in education in seven states (Horner et al., 2014); family therapy in Oregon (Dishion, 2016); and behavioral health in New York (Hoagwood et al., 2014). In each case, these states had selected one or a few evidence-informed services designed to prevent or mitigate the target problem and led the scaling activities. But government agencies are collectively responsible for a range of social services and need to facilitate scaled implementation across all social services domains. Selecting a small list of specific services is an incomplete approach because there are few, if any, specific evidence-informed services that span the breadth of needs for which government social services agencies are accountable (Van Dyke & Naom, 2016). Hanson et al. (2016), in their review of implementation frameworks designed to guide scaling activities, found “sparse attention to efforts that target multidisciplinary providers across multiple service settings” (p. 60).

Finally, studies about government involvement in the scaling of evidence-informed services have focused almost exclusively on state roles, with some emphasis on the federal role. Although the federal government and states do play an important role in developing policy for and funding social services, counties are also a key governance level that has receive far less attention and may have different scaling opportunities than states – especially in the nine states where federal and state funds for social services are transferred to counties for administration.¹ County officials are often highly informed community experts who are more likely than state or federal officials to understand local culture and services (Chamberlain et al., 2012). They have existing and often long-term relationships with local service providers via purchase-of-service contracts through which they can encourage scaling participation (Smith, 2012). One study estimates that 64% of counties that administer social services do so via contracts and other agreements with nongovernmental services providers and other local governmental jurisdictions (Farmer, 2010). And nongovernmental services providers often focus their advocacy efforts at the local level. For instance, 49% of California nonprofits report that they focus much of their

¹ These states are California, Colorado, Minnesota, New York, North Carolina, North Dakota, Ohio, Pennsylvania, and Virginia. Three additional states have hybrid state-county arrangements: Maryland, Nevada, Wisconsin (Child Welfare Information Gateway, 2012).

lobbying effort at the local and county levels (CalNonprofits, 2014). It is important to understand if and how local governments, like counties, can promote the expansion of evidence-informed services across the myriad of social services in their jurisdictions.

This study attempted to respond each of these knowledge gaps by observing the experiences of a county government that made a policy decision to scale evidence-informed services in all social services organizations in its jurisdiction. Specifically, this study had two aims.

1. Describe the system-level support strategies conducive to local government coordination in the scaling of evidence-informed services.
2. Examine the relative impact of these strategies on the organization-level adoption of evidence based services.

The case study environment is a California county in which the Board of Supervisors, in January 2010, established a goal of scaling the use of evidence-informed services across all social services delivered by county and nongovernmental service providers. This is an ideal opportunity to study the effects of government, particularly local government, strategies on scaling. Because strong political support for scaling already existed and a county department had been charged with developing and coordinating county scaling activities, this county offered a ripe opportunity to isolate the role of different scaling strategies. The board members also implemented the four five recommended government functions which served as independent variables in this study. They convened and supported a high-level leadership team. Before embarking on their scaling efforts, they assessed organizational readiness for evidence-informed services by documenting existing capacity in local social services organizations. And, they established an ongoing process to track organizational readiness. They launched a technical assistance program. And, they increasingly awarded funding to organizations with the certified capacity to deliver evidence-informed services. One additional strategy provided an opportunity to assess progress in scaling. The board established an objective process to certify organizations that have demonstrated capacity to adopt evidence-informed services. The number of service providers that have been certified as having evidence-informed capacity thus served as the dependent variable. Finally, because the county remained active in this initiative for more than seven years, there is a sufficient and comparable time series to evaluate scaling efforts.

Chapter 3: Study Environment

Sonoma County is a relatively wealthy and liberal community with an estimated population of 502,146 in 2015 (U.S. Census Bureau, 2016). Median household income from 2010–2014 was \$63,799 compared to \$53,482 nationally. In 2014, 11.3% of individuals lived in poverty compared to 13.5% nationally; 64% residents identified as White alone, compared to 62% nationally, and 26% as Hispanic or Latino compared to 17.6% nationally. In a 2012 report, the county compared itself to eight similar counties on 22 indicators of social well-being. It reported being in the bottom 25th percentile on only one indicator—high school graduation rate. It reported being in the top 50th percentile for 14 indicators, suggesting a relatively high level of social well-being. However, the report also identified significant racial and ethnic disparities between Hispanic or Latino and White residents for 13 of the indicators. These included percentage of middle and high school students who reported feeling sad and hopeless, births per thousand women aged 15–19, percentage of elementary and middle school children with healthy body composition, percentage of third graders scoring proficient on English and math tests, high school graduation rate, percentage of the adult population with a bachelor’s degree, number of homeless individuals, number of juvenile and adult arrests, number of domestic violence calls to law enforcement, percentage of middle and high school students in a gang, percentage of households living below 300% of the federal poverty level, and percentage of the population with health insurance (Sirna, 2012).

A primary vehicle for addressing disparities in social well-being is county government. California is one of the nine states that administer health, justice, and human services at the county level rather than the state level. In this system, county governments yield enormous influence over the local delivery of social services because, although these services are regulated by state and federal laws, there is still substantial room for local variation. Consequently, California county governments potentially play important roles in supporting the scaling of evidence-informed services. Sonoma County has embraced its role in supporting the widespread expansion of evidence-informed social services via a policy initiative called Upstream Investments. It has focused its considerable social services resources on promoting and adopting evidence-informed services.

Sonoma County government is composed of five elected district supervisors (legislative branch) and 27 departments and agencies (administrative branch). The 2015–2016 budget was \$1.43 billion and included 4,106 full-time equivalent (FTE) employees. The eight departments involved in providing social services are listed in Table 1 with their annual budget and FTEs. The Human Services Department is the largest county department, with an annual budget of \$339 million and 970 FTEs. It accounts for nearly a quarter of the total county budget and FTEs. It includes the following functional areas: child welfare, adult and aging services, economic assistance, and employment and training. The Department of Health Services is the second-largest department and has an annual budget of \$247 million and 597 FTEs. It includes the following functional areas: adult services, children and family services, community health and safety, emergency preparedness, disease control, and clinical services. The four departments in justice services (District Attorney, Probation, Public Defender, Sheriff) have a combined budget of \$261 million and 1,096 FTEs. In total, the departments that coordinate and provide the county’s social services represent 65.7% of the total county budget and 68.5% of the total county FTEs.

This chapter describes the strategies employed by Sonoma County to scale evidence-informed services. Sonoma County conceptualized scaling as widely implementing any relevant

evidence-informed social services through all service domains and for all county-funded services. Commonly, the concept of scaling is applied to specific services – for instance the scaling of Nurse Family Partnership – which is a reasonable service-specific focus for researchers who develop and want to spread an evidence-informed service. A second conceptual level of scaling is at the organizational level in which individual organizations identify and implement any and all evidence-informed services based on their client needs. The Sonoma County view of scaling is a third and even more generic concept which reflects a system-wide focus appropriate for governments who have the power to encourage all contracted organizations across all service domains to delivery virtually all services via evidence-informed services.

This description of the Sonoma County efforts to scale evidence-informed social services is drawn from an evaluation of Upstream Investments (Learning for Action, 2016) and various documents published by the county.² The evaluation included 28 key informant interviews, transcripts of Upstream meetings, a survey of 113 community-based providers with a 55% response rate, funding data from seven county departments and five private funders, and a review of Upstream documentation. Generally, the evaluation found substantial progress toward the systemic scaling of evidence-informed services. In the survey of providers, it found that compared to “3 to 5 years prior”, more organizations now consider evidence-informed services to be a critical agency-wide priority and include discussion of evidence-informed services in staff meetings, supervision, and trainings. The evaluation provided two quotes that reflect this general perception that progress has been made:

The culture, which takes a long time to shift, is changing. Upstream and evidence-informed services have been woven into the discussion, conversation, and the culture in Sonoma County. (Learning for Action, 2016, p. 25)

Having been around before Upstream and having discussions about using evidence informed programs with practitioners, I can say that the tide changed with Upstream. (Learning for Action, 2016, p. 25)

Prior research suggested that scaling and sustaining evidence-informed services requires political support (Horner et al., 2014). To date, sustained political support in Sonoma County is evident. The 2016 evaluation recognized the importance of sustained political support as one factor contributing to a long-term commitment by other stakeholders. “The high status of Upstream conferred by the Board’s endorsement reinforces the value of the initiative to community stakeholders (in particular, County departments and community based organizations), and encourages their continued participation” (Learning for Action, 2016, p. 5). The evaluation also highlighted the impermanent nature of political support. “Board support of Upstream is partly affected by how voters feel about the initiative. Ultimately, support of Upstream from the Board of Supervisor could wane if Supervisors believe that the initiative could become a political liability with voters” (Learning for Action, 2016, p. 7). In this study, political support is a constant—it is an examination of the effect of government scaling strategies in a politically supportive context.

² This approach is similar to that of Rocque et al. (2014), who similarly used evaluations and project documents to supplement primary data collection to identify events and processes that contributed to the scaling of evidence-informed services in Maine’s juvenile justice system.

This chapter proceeds with a short chronological synopsis of Upstream Investments, followed by a description of the five scaling strategies used by Sonoma County (establishing a local measure of evidence-informed practice, convening a leadership team, nudging organizational readiness, providing technical assistance, and aligning funding) The aim of this chapter is to provide a thick description (Geertz, 1973) of Sonoma County's efforts to scale evidence-informed social services.

Chronological Synopsis of Upstream Investments

In their study of state implementations of three evidence-informed services for delinquent youth, Welsh and Greenwood (2015) found that all five of the most successful states launched their scaling efforts in response to a crisis. This phenomenon was also evident in Sonoma County. In 2007, the county was facing a growing youth population that was troubled by increasingly high rates of school dropout, substance abuse, and gang violence (Results Group, 2006). Because of these challenges, justice services had become the largest expense in the county general fund, representing more than half of discretionary dollars. Moreover, the Board of Supervisors was entertaining a recommendation to build a new adult detention facility, which was the most expensive looming capital investment. To respond to the root causes of these trends and prevent the need to expand justice services, the Board of Supervisors chartered a new project called Upstream Investments. For 18 months, the first Upstream committee surveyed, reported to, and received suggestions from two standing county committees, 11 county departments, all the cities and school districts in the county, and 88 nongovernmental organizations. In January 2010, it recommended that the board launch a long-term endeavor with a three-part agenda: (a) expand prevention services through the community; (b) invest wisely by scaling the use of evidence-informed services in all service-providing organizations including both public and nongovernmental agencies; and (c) invest together by engaging in a model of widespread collaboration based on the collective impact approach popularized by Kania and Kramer (2011). This study focused on the “invest wisely” activities.

From 2010 through 2015, the Upstream team made six formal reports to the Board of Supervisors, each including policy recommendations related to scaling evidence-informed services. Table 2 summarizes the Upstream timeline. At its first report in January 2010, the Upstream team recommended that the board “expand the County’s evaluation of existing and potential Health and Human Service and Criminal Justice programs using published evidence, outcome monitoring, and cost benefit analyses” (County of Sonoma, 2010, p. 56). With this recommendation, the Board established a principle that the county would use an evidence base for services across the full range of health, justice, and human services. By the second Upstream team report to the board in November 2011, a list of local evidence-informed services (the Portfolio) had been developed and pilot tested and technical assistance to service providers had been launched. The Upstream team recommended that the board formalize the Portfolio and continue providing technical assistance. With the Portfolio, the Board institutionalized a local definition of evidence-informed services and a mechanism to evaluate local services against this definition. It also established an expectation that the county would provide organized assistance to service providers as they worked to deliver evidence-informed services. The Upstream team next reported to the board in February 2013. By then, 50 services had been approved for the Portfolio. At this report, the Upstream team recommended that the board continue the Portfolio and expand the technical assistance activities by identifying diversified funding. By diversifying funding for technical assistance, the Board established a mechanism for other local funders to

participate in the scaling of evidence-informed services. In January 2014, the Upstream team made another report and recommended that the board approve a Portfolio renewal process whereby all services approved for the Portfolio must reapply after three years.³ By approving the renewal process, the Board cemented the permanence of their effort to scale evidence-informed services. At each formal report, county departments and community-based agencies testified in support of the recommendations and there was no testimony opposing the recommendations. To date, the board has approved all of Upstream team's recommendations, demonstrating its strong political support for sustained efforts to scale evidence-informed services across all social services.

Establish a shared local measure of evidence-informed service

An early strategy in Sonoma County was to engage in a highly collaborative process to develop a concrete definition of evidence-informed service. The goal was to reduce ambiguity so that service providers and funders would have the same understanding of the concept. Then, the county institutionalized a process to objectively certify services as evidence informed when they met this definition. This process is called the Portfolio. The Sonoma County Portfolio was developed and piloted in 2010 and 2011, sanctioned by the Board of Supervisors in November 2011, and formally launched in March 2012. It is a list of local services that meet one of three tiers of evidence-informed service. Tier 1 programs are evidence-informed services that are listed on a national clearinghouse and delivered in Sonoma County with fidelity. Evidence-based services have been empirically proven via peer reviewed experimental or quasi-experimental studies to produce positive outcomes and have no evidence of causing harm, have been replicated in multiple locations, and have comprehensive documentation about how to deliver the service with fidelity. To determine if a service is evidence based, Sonoma County has relied on 12 national clearinghouses that use rigorous peer-review processes to label a service as evidence based, a common strategy to validate the evidence base of services (Rotheram-Borus et al., 2012). These clearinghouses include the California Evidence-Based Clearinghouse for Child Welfare Programs, the Center for Study and Prevention of Violence Blueprints, and the Cochrane Collaboration Library of Systematic Reviews (see Appendix B for a full list). If a service is listed in one of these national clearinghouses, then it is considered evidence-informed in Sonoma County. The organization implementing the service in Sonoma County must provide evidence of how it maintains fidelity, including adherence, dose and exposure, quality, and participant responsiveness. These are common requirements for fidelity (Meyers et al., 2012). Part of the fidelity description is to identify all adaptations to the service. Sonoma County has developed a list of acceptable unacceptable adaptations that is used in the certification process (see Appendix B).

Tier 2 services are promising practices based on sound theory and with clear expected outcomes. These services are based on a sound literature review and corresponding logic model, are consistently implemented with a manual, and have been evaluated with good results. Tier 3 services are innovative practices that have a sound literature review from which a logic model and a set of policies and procedures have been developed. They have a realistic plan to be evaluated within three years. The criteria for the three tiers are provided in Appendix A. The standards by which these criteria are evaluated are provided in Appendix B. The inclusion of

³ The process for program renewal after 3 years started toward the end of the study period and the results of the renewals are not represented here.

Tier 2 and Tier 3 services is an acknowledgement that local needs exist for which an appropriate evidence-informed service does not yet exist. Including them in the Portfolio establishes the expectation that when there is not an appropriate evidence-informed service, services will still be informed by scientific principles (Rotherman-Borus et al., 2012). This process is similar to one used by Washington state’s juvenile justice courts, which have implemented a series of evidence-informed services over 20 years. Their selection of evidence-informed services includes a process for including services that are not yet fully evidence based but are considered promising practices (Washington State Institute for Public Policy, 2010).

All public and nongovernmental organizations delivering a social service are eligible to apply to the Portfolio by supplying the requested information to the Portfolio Review Committee. Organizations are not services and as such are not eligible to apply for Portfolio approval. Organizations can and do submit various services that they deliver. The Portfolio defines services as “a variety of activities that may also be called strategies, practices, approaches or interventions” (County of Sonoma, 2015, p. 2). In this short definition and by defining the criteria for each Portfolio tier, Sonoma County has reflected the definition of a program proposed by Fixsen et al. (2013): A program is a service intervention with (a) clearly described philosophy, values, and principles; (b) clearly defined inclusion and exclusion criteria; (c) a clear description of essential functions and the operational definition of each function; and (d) a systematic approach to assessing whether practitioners are executing the functions as intended (fidelity). In the Portfolio requirements, these four elements are expected to be evident in the logic model and program manual or policies and procedures.

Portfolio approval decisions are made by a committee of seven to 15 members appointed by the Board of Supervisors for 2-year renewable terms. Criteria for committee membership includes demonstrated experience with evidence-informed services. The Portfolio is staffed by the county’s Human Services Department. When an organization submits a service to the Portfolio, the staff assigns it to two committee members for a blind and standardized review. If the two reviewers agree that the service meets the requested tier criteria, it is approved for Portfolio inclusion. If the two reviewers agree that it does not meet the criteria, the organization is offered technical assistance and can reapply. If the two reviewers do not agree, then the application is brought to the full committee at the next monthly meeting and the full committee decides. A revised application, if submitted, is reviewed by the same two reviewers with the same decision criteria and process. If a service is denied Portfolio inclusion on revised application, the organization may appeal to a separate board-appointed appeals committee. To date, there have been three appeals. All services included in the Portfolio must apply for renewal every three years.

This rigorous process to determine which organizations are delivering evidence-informed services with fidelity provided a suitable dependent variable for this study. Scaling is measured as (a) the number of organizations with an approved Portfolio service, and (b) the proportion of county funds awarded to organizations with an approved Portfolio service.

Convene and support a high-level leadership team. The Sonoma County Board of Supervisors has a long-standing practice of convening committees to help it identify community needs and develop solutions. The county website lists 89 such committees, of which 12 are dedicated specifically to social well-being (County of Sonoma, 2017).⁴ Intentionally following the collective impact model (Hanleybrown, Kania, & Kramer, 2012), the Board of Supervisors

⁴ The Sonoma County advisory team affiliated with this study identified the 12 committees designed to work on issues related to health, justice, and human services.

delegates county departments to provide the six essential functions of backbone support for each committee: provide overall strategic direction, facilitate dialogue among partners, manage data collection and analysis, handle communications, coordinate community outreach, and mobilize funding. Periodically, these committees report to the Board of Supervisors to describe progress, request formal policy votes, and obtain approval and funding for next steps. Together, these committees are the core of the Sonoma County social services governance network. To this existing network, the Board of Supervisors added the Upstream Policy Committee to promote the scaling of evidence-informed services.

The Upstream initiative has been led by a group initially titled the Upstream Team, which later evolved to the Upstream Ad Hoc Board Committee and then the Upstream Policy Committee. These evolutions reflected the growing institutionalization of the initiative and its purpose. The role of the Upstream Policy Committee is to identify and design activities and policies that can promote the use of evidence-informed services, recommend them to the Board of Supervisors for approval, and monitor implementation. In a decision that may differ from other locations that select specific and complementary evidence-informed services (Aldridge, et al., 2016; Dishion, et al., 2016), Sonoma County has generally made a decision to refrain from coordinating the selection of specific evidence-informed services. The committee believes that organizations are more likely to adopt services that they choose rather than services selected and mandated at the county level. Meetings are generally structured to include a short opening inspiration, updates from subcommittees requesting feedback, recommendations from subcommittees requesting approval, and planning for recommendations that the policy committee will make to the Board of Supervisors. The policy committee follows a common local practice of creating subcommittees to inform its decisions. These subcommittees conduct studies, research options, solicit public input, develop plans, implement approved activities, and evaluate success. Upstream committee members sometimes serve on these subcommittees, but more often delegate their own staff and individuals from other organizations to serve on these subcommittees. Over time, the Upstream Policy Committee has commissioned subcommittees in five areas, several of which have evolved from planning groups to implementation groups: (a) a cost-benefit technical team followed by a cost-benefit workgroup; (b) an indicators of success and shared outcomes measurement committee followed by a shared outcomes measurement committee and then a shared outcomes and funding workgroup; (c) an outreach workgroup and a business engagement team; (d) an evidence-informed practice workgroup followed by a Portfolio review committee and a Portfolio appeal committee; and (e) an executive committee.

Reflecting prior research, the Upstream Policy Committee includes a wide range of stakeholders (Forman, 2015; Hoagwood et al., 2014; Metz & Albers, 2014; Rocque et al., 2014; Welsh & Greenwood, 2015). The first Upstream team convened by the human services director was composed of seven people representing four county departments and the county's Office of Education. Over time, the number of people sitting on the Upstream committee grew to 23 members, including two board members, county department heads, the executive directors of social services agencies, and key leaders from education, law enforcement, cities, business, and philanthropy. The aforementioned subcommittees generally meet for one or more years and their membership ranges from five people in the executive committee to 19 in the shared outcomes groups and represents the same sectors as the policy committee. For the first several years of Upstream, the policy committee and each of its subcommittee met monthly. Often, the human services staff assigned to Upstream supported five meetings a month. Toward the end of the

study period, the policy committee was meeting quarterly and the subcommittees were less consistent.

The 2016 evaluation of Upstream found support and appreciation for this structure of subcommittees, frequent and regular meetings, and the breadth of involvement. One stakeholder said, “Early in Upstream, one of the strengths was that we had so many committees. It was important in involving a lot of different people to talk about what is going to be, what we were going to implement” (Learning for Action, 2016, p. 16). Another stakeholder specifically called out the important role of the support staff. “The backbone team does a really nice job of facilitating meetings and documenting and keeping track of decisions. That has been excellent. They do a great job of laying out information that’s needed to make decisions” (p. 10). Moreover, the evaluators found that organizations gained status from their membership in Upstream committees, which these organizations viewed as a valuable asset. The evaluators concluded that this satisfaction with the committee process ensured continued relevance of the goal to scale evidence-informed services.

In this study, five independent variables represented organizational participation in the governance network and other county-sponsored social services committees (a) number of Upstream meetings attended, (b) number of other committees attended, (c) number of meetings attended with discussion of evidence-informed service, (d) number of unique committees attended, and (e) number of social services domains represented in attended meetings.

Nudge organizational readiness. When governments enter the arena of expanding the use of evidence-informed services, they are probably joining an ongoing and evolving effort. The 2016 evaluation of Upstream identified the progressive nature of this work. For instance, one stakeholder said, “A lot of things we were doing very casually before we started with Upstream Investments. Now we’re really look at what evidence informed models anybody is using and how we can work with them” (Learning for Action, 2016, p. 32). One strategy employed by Sonoma County to ease into this existing arena was to recognize existing community capacity. Before the Upstream team made any recommendations to the Board of Supervisors, it assessed the extent to which local social services providers were already implementing evidence-informed services. They identified nine national clearinghouses of evidence-informed services, made a list of the 141 services on these lists, and surveyed local providers about their current use of evidence-informed services. Forty organizations reported currently using evidence-informed services, including nonprofit social services providers, school districts, and county departments. The Upstream team confirmed whether each identified evidence-informed service was listed in one of the nine clearinghouses for 30 of these organizations. All of these organizations, whether or not the evidence-informed service was confirmed as such, were listed in the first Upstream team report to the Board of Supervisors and were recognized as pioneers in Sonoma County’s efforts to systemically spread the use of evidence-informed services.

In March 2011, the Upstream committee launched a mechanism to track the evolving readiness of social services organizations. Local organizations were invited to submit a Resolution of Alignment to the Board of Supervisors. These Resolutions officially articulated the organization’s commitment to evidence-informed services and identified specific activities the organization was taking or planned to take to exercise this commitment, including submitting services to the Portfolio. These Resolutions were published online and board members were informed of any involving organizations in their district. These Resolutions were essentially a public declaration by a social services organization that they were ready and willing to adopt evidence-informed service. Prior studies have used a similar written attestation of readiness to

adopt evidence-informed services as a precondition for technical assistance or funding (Klingner et al., 2003; Ray et al., 2012). In Sonoma County, these Resolutions are not a precondition of receiving technical assistance, but they have been used as a minimum qualification in requests for proposals released by the county and philanthropic funders.

In this study, three independent variables represented organizational readiness. The first was reported delivery of evidence-informed services before Upstream began. The second was confirmed delivery of an evidence-informed service before Upstream began. The third was submission of a Resolution of Alignment.

Provide technical assistance. Scholars have noted the substantial importance of a robust program of government-sponsored and -funded technical assistance to help social services organizations grow their capacity to deliver evidence-informed services (e.g., Meyers et al., 2012). In Sonoma County, readiness to adopt evidence-informed services varied across organizations. Some organizations did not need to make any internal changes. Other organizations only need a small pivot. And other organizations required a substantial shift in their operations. During the 2016 evaluation, service providers and county staff members recognized these challenges. One county staff member said, “We recognize that we can say we want to expand evidence-based service, and it’s another thing for organizations to have the infrastructure to deliver on that” (Learning for Action, 2016, p. 6). To support service providers, the Upstream committee launched a technical assistance program in 2011. In that pilot year, it reported to the Board of Supervisors that it had provided support to more than a dozen organizations (Sonoma County Human Services Department, 2011). Since then, the Upstream staff has regularly held “Portfolio Boot Camps” as orientation sessions for interested organizations. It also held in-depth sessions on the different elements of a Portfolio application—for example, conducting a credible literature review, creating a logic model, and designing an evaluation. It also provided one-on-one support to organizations applying to the Portfolio. By 2013, the Upstream committee reported that 85 organizations had attended a Portfolio workshop and 24 had received one-on-one assistance (County of Sonoma, 2013). A year later, these numbers had increased to 94 and 42, respectively.

In this study, one independent variable represented technical assistance: number of technical assistance sessions an organization attended.

Align funding. One of the recommended government scaling strategies is to use the very prevalent practice of purchase-of-service contracting to adequately fund, and thereby incentivize, evidence-informed service delivery. In Sonoma County, the Board of Supervisors has articulated a desire to prioritize Portfolio services for county contracts. They have also worked with a local funders committee (a group of county departments, foundations, and businesses that provide grants to local social services organizations) to embed Portfolio membership in all community granting decisions. One example of this collaboration is *A Funder’s Guide to Upstream Investments Policy* (County of Sonoma, nd), which describes how to integrate Upstream principles into the grant-making process and how to use the Portfolio in grant decisions. It suggests a 4-year plan for gradually aligning funder activities that includes providing bonus points to grant applicants for participation in any Upstream activities (requiring applicants to submit a Resolution of Alignment or a logic model, be accepted to the Portfolio within 3 months of the grant award, or already be accepted to the Portfolio as a minimum requirement for grant application). Funders receive personalized technical assistance from the county as they incorporate these activities. Encouraging all local funders (not just county departments) to incorporate the Portfolio serves several purposes. It standardizes expectations for evidence-

informed service, it replaces funder determination of evidence-informed service with a third-party determination, and it increases the amount of local funding for evidence-informed services.

The 2016 Upstream evaluation explored local funders' emphasis on evidence-informed services. It included a survey of the 18 major local funders, to which seven city and county departments and six private funders responded. Ten funders (77%) reported using one of the recommended strategies in the 2014–2015 funding cycle to incentivize service providers to use evidence-informed services. The evaluation documented that these 13 funders allocated more than \$26 million to organizations with services on the Portfolio from 2013 to 2015 (Learning for Action, 2016). The evaluation also queried social services providers about this increasing funder focus on evidence-informed services and found that more than 60% of local providers identified new funder requirements as explaining some or a lot of their increased attention to evidence-informed services (Learning for Action, 2016). One provider said:

A lot of our funders look at the Portfolio; it gives a sense of legitimacy to the program. So, I do think it gives us a lot of leverage. It is totally appreciated by funders. It's been my biggest boon when funders see we are a part of the Portfolio. (Learning for Action, 2016, p. 31)

Another executive director echoed this sentiment: “It’s been a strong benefit to me in my fundraising outreach to say I’m on the Portfolio—the major funders know what this is and it’s important to them” (p. 26).

In this study, contract funding was used for two purposes. In the organization-level models, amount of county contract funding received by each organization served as an independent variable. In the description of system scaling, the aggregate amount of county funding awarded to organizations with an approved Portfolio service served as a measure of scaling progress.

Conclusion

Sonoma County is a good local government to use as the focus for this study because it has articulated and thoughtfully engages in activities to promote scaling. Moreover, it has established a local measure of evidence-informed services (the Portfolio) which may not be available in other communities. This reduces the enormous burden that would otherwise be shouldered by a researcher to independently certify the evidence-base of services delivered by an organization. The existence of carefully compiled and maintained county documents allows for an empirical and longitudinal description of county scaling strategies; namely, establishing a shared local measure of evidence-informed service, convening a leadership team, nudging readiness, and aligning funding. In short, these public government documents provide the data needed for this study’s examination of the relative impact of county-led scaling strategies on the incidence and timing of organizational adoption of evidence-informed social services.

Chapter 4: Methods

Although an emerging body of scholarship has explored the need for and role of government involvement in the scaling of evidence-informed services, as of yet, little empirical research has tested the effects of recommended government strategies. Therefore, this exploratory study aimed to (a) describe an implementation of the four scaling strategies recommended for government coordination, and (b) to examine the relative impact of these strategies on organizational adoption of evidence-informed services. This chapter begins by explaining the variables that represent each of these government strategies and expected relationship to organizational adoption of evidence-informed social services. It then describes five sources of data that were mined for relevant information. It concludes by explaining the analytic methods. A Sonoma County advisory team assisted with data access and interpretation. Its support is noted where appropriate.

Study Variables and Hypothesis

Prior research has recommended four government strategies to promote the scaled adoption of evidence-informed services: convening and supporting a high-level leadership team, nudging organizational readiness, providing technical assistance, and ensuring adequate funding. The Sonoma County context appeared to foreshadow an additional strategy: collectively defining evidence-informed service. The following discussion describes the measurement approaches for each of these strategies and identifies the expected relationship between the strategy and organizational adoption of evidence-informed services. Table 3 summarizes these variables. The study variables dataset consisted of 11 matrices (one for each variable). Each matrix included the measurement of the single variable for each organization for each month from July 1, 2009, through June 31, 2016. In each matrix, the rows featured the organizations ($n = 493$), the columns reflected 84 monthly time periods, and the content in each cell was the variable value for that organization in that month.

Establish a shared local measure of evidence-informed service. Sonoma County developed a local Portfolio of services to institutionalize a set of common criteria for three tiers of evidence-informed service. Organizations could submit documentation about a service they deliver to be independently and blindly reviewed for concordance with the criteria. This is a measure of an organization's capacity to deliver a specific evidence-informed service. It is an objective determination that the organization has met standardized criteria for evidence-informed service as defined by Sonoma County. In this study, an approved Portfolio service was the dependent variable. When an organization had one or more approved Portfolio services, it was deemed to have the capacity to provide evidence-informed service related to the approved service(s). Of note, having an approved Portfolio service does not indicate whether the organization delivered the services with fidelity, and the Portfolio process does not include site visits to evaluate service implementation.

Number of approved Portfolio services is a count variable. In the matrix for this variable, each cell contains the number of Portfolio services approved in the given month for the given organization. Organizations that did not have a newly approved Portfolio service in the given month were coded 0. Observed values ranged from 0 to 3. This was a 493-by-84 matrix.

Convene and support a high-level leadership team. To coordinate scaling activities in Sonoma County, the Board of Supervisors sponsored the Upstream committee. Moreover, the County sponsors a large network of committees designed to provide governance oversight of

social services. Five variables represented organizational participation in the Upstream and other county-sponsored governance committees.

Number of Upstream meetings attended. The chartered role of the Upstream Committee was to share information, develop consensus about actions, and make recommendations to the Board of Supervisors. It had broad representation from the varied sectors in the community and it met often – both features identified in prior scholarship as important characteristics that contribute to effective leadership (Aldridge et al., 2016; Bruns et al, 2008; Metz & Albers, 2014; Rocque, et al, 2014). Members of this leadership team are reasonably expected to be advocates of local scaling activities – even implementing evidence-informed services in their own organizations. Sponsoring the Upstream Committee is how Sonoma County operationalized the recommendation to convene a high-level leadership team. Documenting the number of times this committee met and its membership is a measure of the County’s success in executing this scaling function. Counting the number of meeting attended by each organization is a measure of organizational participation in this leadership function. Clearly this indirect measure misses important details about the content of committee discussions, decision-making processes, levels of trust and conflict, and the receptiveness of the county to committee recommendations. Based on the actual functioning of the committee, it might have either a positive or negative effect on organizational decisions to adopt evidence-informed services. In this study, it is hypothesized (based on the evaluation of Upstream) that the committee had a positive effect.

H₁ Organizations that attend more Upstream committee meetings will more quickly adopt evidence-informed services.

Organizational attendance at Upstream meetings was a count variable. In the matrix for this variable, each cell contained the number of meetings that the organization attended in the given month. This value could be 0, indicating the organization did not attend any meetings. Observed values ranged from 0 to 7. This was a 493-by-84 matrix.

Number of other meetings attended. Prior scholarship has suggested that scaling efforts are more successful when they are embedded in existing governance networks. In a governance network, organizations influence one another’s behavior (e.g., Leifeld, 2013). Attending committee meetings is also an investment of time for an organization. Organizations that participate in more meetings are investing more in the governance network than those that attend fewer meetings. Organizations that are highly invested in a governance network are probably more likely to be aware of and positively inclined toward goals of the network, even if they do not serve on a committee with the expressed role of promoting the goal.

H₂ Organizations that attend more other governance meetings will more quickly adopt evidence-informed services.

Organizational attendance at other meetings was a count variable. In the matrix for this variable, each cell contained the number of different meetings that the organization attended in the given month. This value could be 0 if the organization did not attend any meetings. Observed values ranged from 0 to 19. This was a 493-by-84 matrix.

Number of meetings attended with discussion of evidence-informed service. An important reason that scholars recommend that governments embed discussions of evidence-informed service in governance networks is that it is an efficient way spread information.

Moreover, repeated exposure to an idea increases the likelihood that the person exposed will be influenced in favor of the idea (Béland, 2009; Hall, 1993; Heikkila & Gerlak, 2016; Johnston, Matteson, & Finegood, 2014; Leifeld, 2013). This variable documented the number of times an organization was exposed to discussion of evidence-informed service, which was measured as being in a meeting for which the minutes included any of the following terms: clearinghouse, emerging practice, evaluation, evidence-informed service, fidelity, innovative practice, literature review, logic model, manual, Portfolio, promising practice, replication, Tier 1, Tier 2, and Tier 3. These are all terms that are commonly used in Sonoma County to discuss the Portfolio.

H₃ Organizations with greater exposure to the ideas of evidence-informed services will more quickly adopt evidence-informed services.

This was a count variable. Each cell of the matrix for this variable included the number of meetings that the organization attended in that month that included discussion of evidence-informed service. Observed values ranged from 0 to 12. This was a 493-by-84 matrix.

Number of service domains and committees attended. In compound collaborative governance networks, participants interact across a variety of settings and issue areas, which creates opportunities to spread ideas (Ansell, 2015; Weng, Menczer, & Ahn, 2013). By sponsoring so many formal committees, Sonoma County seems to intentionally foster compounding across social service domains. Four committees are dedicated to child and youth development, three to health concerns, two to addressing intersecting social problems, and one each related to employment, housing, and seniors. Organizations that participate in different committees, and especially committees dedicated to different service domains, have the opportunity to think about evidence-informed service in more than one application. This broad exposure may increase an organization's willingness to adopt evidence-informed services.

H₄ Organizations that attend more unique committees related to more service domains will more quickly adopt evidence-informed services.

Both of these variables were count variables. The matrix for the number of committees attended included the number of different committees (not meetings) attended by the organization in the month. The matrix for number of service domains included the number of domains represented by the committees that the organization attended in the given month. Because there were several committees for each social concern, it was possible that an organization could participate in two or more committees dedicated to a single service domain. The observed values were 0 to 10 for number of committees attended in a month and 0 to 6 for number of domains represented in a month. These were both 493-by-84 matrices.

Sector. Prior scholarship has recommended that governments involve a broad range of stakeholders in meetings related to scaling evidence-informed services (e.g., Forman, 2015). To represent the breadth of stakeholder involvement, organizations were assigned one of five sector categories: elected officials; public agencies; nongovernmental social services providers; private businesses; and other organizations, including philanthropies, faith communities, media, and organizations that promote civic engagement. Although many sectors engage in government-sponsored meetings to discuss social problems and collectively design solutions, only social service organizations are expected to embrace evidence-informed services and achieve Portfolio approval. Sector was a descriptive variable and was not used in the study models.

This variable did not vary over time. Therefore, the matrix was 493 rows (one for each organization) and only 1 column (for a single measurement of this variable).

Nudge organizational readiness. Three variables represented organizational capacity for evidence-informed service.

H₅ Organizations that are assessed to be internally ready for evidence-informed services will more quickly adopt evidence-informed services.

Prior reported evidence-informed service. Before recommending that the Board of Supervisor implement a policy that promoted the scaling of evidence-informed services, the Upstream team assessed existing community interest and capacity. This variable identified organizations that self-reported on a survey that they were implementing one or more evidence-informed services. Organizations that responded affirmatively to the survey demonstrated that they were already familiar with evidence-informed service delivery. They also seemed to be expressing an intention to implement evidence-informed services. Therefore, it is reasonable to assume that these organizations were prime candidates for having the capacity to successfully achieve Portfolio approval regardless of their participation in county scaling strategies.

This was a binary variable coded as 0 if the organization did not report any existing evidence-informed services and 1 if it reported one or more services. This was a time invariant variable. The matrix was 493-by-1.

Prior confirmed evidence-informed service. Following the survey, the Upstream team verified whether an identified service was listed as evidence informed by a respected clearinghouse. This variable identified organizations implementing confirmed evidence-informed services. Organization confirmed to be delivering evidence-informed services can be considered early pioneers in Sonoma County. It is reasonable to expect that these organizations would be able to quickly and successfully apply for Portfolio approval because they already demonstrated capacity for evidence-informed service. It was expected that organizations that already had the demonstrated capacity to deliver evidence-informed services would have more and more quickly approved Portfolio services, independent of county strategies.

This variable was binary and coded 0 for no and 1 for yes. It was also a time-invariant variable with a 493-by-1 matrix.

Resolution of Alignment. As an ongoing means of determining which organizations were ready to adopt an evidence-informed service, the Board of Supervisors solicited and recognized Resolutions of Alignment from community organizations. In these Resolutions, organizations made a commitment to submit services to the Portfolio. A template was provided on the Upstream website. Prior to submission, these Resolutions must be approved by the organization's board of directors or other similar governing body. They were submitted to the Upstream staff, which posted them to a website. By the time an organization submitted a Resolution, it probably had an extensive internal conversation about the commitment it was making, and the executive staff had requested its board's approval—meaning the executive staff had lobbied in favor of the Resolution and was now accountable to it. The organization likely reviewed the requirements for Portfolio applications and may already have been aware of available technical assistance.

In the matrix for this variable, each organization was coded as 0 except for the months in it submitted a Resolution, if ever. This was a 493-by-84 matrix.

Provide technical assistance to organizations. One variable represented organizational participation in county-provided technical assistance.

Number of technical assistance sessions attended. County social services departments regularly offered group sessions to assist organizations that wanted to submit a service to the Portfolio. These sessions focused on the range of Portfolio requirements. This support included education and training, opportunities to talk to other organizations regarding implementation challenges, and individualized assistance such as review of organizational documents regarding an evidence-informed service and recommendations for strengthening the organization's approach. Organizations could attend as many sessions as they wish. Organizations that participated in technical assistance, especially multiple sessions, signaled their intention to implement an evidence-informed service. They also demonstrated their willingness to learn and improve their services. And because they received technical assistance, they may have had greater capacity to adopt evidence-informed services.

H₆ Organizations that participate in more technical assistance will more quickly adopt evidence-informed services.

This variable was a count variable. The matrix included the number of technical assistance sessions attended in each month by each organization. This could and often did include no sessions (0). Observed values ranged from 0 to 4. This was a 493-by-84 matrix.

Align funding. One of the primary reasons government involvement is needed in scaling is to provide adequate funding. Through purchase-of-service contracts, governments can incentivize providers to embrace evidence-informed service. But the literature is not clear regarding whether it is more effective for governments to use contract dollars as an incentive or a reward. Should governments fund organizations to develop their capacity for evidence-informed services before they fund them for service delivery? Or should they reward adoption of evidence-informed services with contracts after the organization has already developed the necessary capacity? Or is it both? There is some evidence that social services organizations with government funding have more resources than those without (Grønbjerg, 1993; Smith, 2012). So organizations with a with a government contract may be better able to absorb the costs of adopting an evidence-informed services. This study used funding in two ways. It was used as a system measurement of scaling progress. It was also used as an organizational-level independent variable in the time-to-adopt models.

H₇ Organizations with a prior contractual relationship with the county will more quickly adopt evidence-informed services.

This variable was a continuous variable. The matrix included the amount of new contract dollars awarded to each organization each month. This could and often did include no funding (0). The observed range was 0 to \$11 million. This was a 493-by-84 matrix.

Data Sources and Extraction Methods

Data for this study were gathered from five county sources. These data were available because in California, government transparency is required through the Brown Act (1953) and the California Public Records Act (1968). The Brown Act of 1953 requires that public deliberations and decisions are conducted in public settings and that any member of the public

can be present. The Public Records Act of 1968 requires that governments maintain and make available records of government work. In recent years, many governments in California have routinely posted public documents on the web. For this study, all information available online was downloaded and additional information was requested from the county in the form of a Public Records Act request. Because this study only used publicly available data, it did not meet the definition of research with human subjects set forth in federal regulations. For this reason, the University of California, Berkeley's Committee on the Protection of Human Subjects determined that it did not fall within its scope and further review was not necessary. The advantage of government records as sources of data is that they are likely to be comprehensive and standardized. An important disadvantage is they only include information about activities within the purview of the government and only represent the government's perspective. The five data sources mined for this study were a Portfolio database, a Resolutions of Alignment webpage, minutes of county-sponsored committees, technical assistance records, and agendas and minutes of Board of Supervisors meetings. This section describes the data collection and extraction method for each data source and the resulting database produced for the study.

Establish a shared local measure of evidence-informed service. The Sonoma County Board of Supervisors hosts a Portfolio Review Committee, which accepts applications to the Portfolio and determines the submitted service's compliance with the Portfolio's requirements to be considered an evidence-informed, promising, or innovative practice. Comprehensive information about Portfolio service applications, reviews, and approvals is not posted online. The Upstream staff tracks the status of Portfolio applications and reviews in Apricot, an outcomes management software hosted by Social Solutions. In response to a public records request, the Upstream staff provided a query from the Apricot database in the form of an Excel document with information about each approved service. Because this is information maintained daily by the Upstream staff for operational purposes, it is deemed accurate and complete.

For this study, the following information about each Portfolio approval was retained: service name, provider organization, approval date, and tier. In the Portfolio database, each row was an approved Portfolio and the four columns contained the retained variables. There were 153 rows. This database was used to produce the Portfolio matrix.

Convene and support a high-level leadership team. This study included information about the 12 social services committees hosted by the Sonoma County. Under California law, these meetings must be announced in advance, any member of the public is eligible to attend, minutes must be produced, and the minutes must be provided to any member of the public who requests them. Therefore, minutes for meetings in Sonoma County are nearly guaranteed to be produced and readily available. In the meeting minutes, the recorder generally documents the attendees, topics of discussion, decisions, and next steps. Meeting minutes were downloaded from the county website and totaled 1,510. Relevant data were extracted from the meeting minutes using crowd-sourced coding and natural language processing.

Crowd-sourced coding. Mechanical Turk (MT) is an online, on-demand, and scalable workforce for tasks that are not standardized enough for automation and therefore require human intelligence. MT is one option for crowd-sourced work in which a requester divides a job into small similar tasks and provides very specific instructions. Workers complete the tasks in a low-complication, high-volume sequence. MT and other online venues are increasingly used by researchers to crowd-source extraction of information from text and visual data sources (Adams, 2015). This study used the following procedure in MT to extract meeting date, attendee names, titles, and affiliations.

The human intelligence task (HIT) in MT included a job description and specific instructions. Instructions were to open a link to a document meeting minutes (added to each HIT from an Excel spreadsheet of all links), open the link to a Qualtrics data collection form (see Appendix C), and enter the requested information from the meeting minutes into the Qualtrics form. Upon completion of the Qualtrics form, the MT worker received and entered a confirmation number into the MT interface. See Appendix D for a screen shot of the HIT assignment.

The first MT job posting was a pilot test of 100 meeting minutes. The instructions acknowledged that it was a pilot test and invited workers to provide feedback. The pilot test was monitored to respond quickly to suggestions. In fact, the first pilot test was aborted after about 15 minutes because the Qualtrics form was not adequate. A revised form and second pilot test worked well. The data collected from the pilot test were very accurate, suggesting that the task was adequately described and the work was understandable and doable. A bonus of \$3 was paid to all participants of the pilot test to thank them for their extra effort in providing feedback and, because they were now trained, to encourage their participation in the full job. After the second pilot test, the full MT job was posted. The instructions encouraged questions and the work was closely monitored for the first 12 hours. Questions were quickly responded to in an effort to improve the work. When a trend appeared in the questions, the instructions were revised. Periodically, the completed Qualtrics forms were downloaded to monitor spam and accuracy. All desired data from all meeting minutes were extracted in less than 24 hours.

To ensure that the data gathered using MT would be usable, the pilot tested included test R code to process the information. The code identified completed Qualtrics forms that did not have a corresponding MT worker. This was curious and unfortunate. It indicated instances in which the worker forgot to input the completion code into the MT interface. This occurred for 13 completed HITs. One worker communicated that he misunderstood the instructions and completed nine HITs before he realized he needed to use the completion code. He was paid for these nine HITs. The R script identified average HIT times, which ranged from 0.12 minutes to 64 minutes with a mean of 3.3 minutes. One worker reported that when a worker likes a job, he or she may open multiple HITs at one time to save the HITs. So, these completion times are not a good approximation of the time required for each HIT. The R script also examined results from workers with high and low productivity. These second and third steps were designed to check that the average hourly pay rate was reasonable. The R script identified and removed spam entries. There were 131 spam entries, which consisted of random letters (e.g., “hjkj”). They were all from one worker. Payment for these HITs was denied and the worker was blocked from future work. Finally, this R script calculated how many cells each worker completed so that correct payment could be made.

Payment for single HITs is usually less than \$1 and often just pennies. The expectation is that high-volume work results in a fair hourly wage. But a common complaint of MT workers in online bulletin boards is that workers earn less than minimum wage (Spamgirl, 2014). To ensure a fair payment formula, workers received 10 cents for completing each HIT. This basically paid for the entry of the meeting month, day, and year. These payments were automatically and immediately approved to show good faith and encourage continued work. A bonus was then calculated and paid to each worker when the work was completed and based on the number of other cells completed. There were four possible cells for each meeting attendee: first name, last name, title, and organization. Each accurately entered cell earned a bonus of two cents. For example, a meeting with 10 attendees and all four items for each attendee consisted of 40 cells

for a bonus of 80 cents and a HIT total of 90 cents. A meeting with 20 attendees and only three items for each attendee consisted of 60 cells for a bonus of \$1.20 and a HIT total of \$1.30. Additionally, to attract the best workers, “master” workers were approved and earned an additional 10-cent premium per HIT. Final hourly rates, using the imperfect HIT times as previously described, ranged from \$.79 to \$23.80 with a mean of \$7.55. The hourly rate differed by volume. The 11 workers who completed 50% of the HITs earned \$11.85 per hour. The 10 workers who completed the next 25% of the HITs earned \$9.72 per hour. The 56 workers who completed the remaining 25% of the work earned an average of \$6.32 per hour. The 56 workers who earned the lowest wage completed an average of nine HITs compared to an average of 92 HITs for the highest-paid workers and an average of 47 HITs for the next highest-paid workers. This suggests that workers self-selected jobs that are a good match for their skills. Including the pilot tests, extracting these data from the meeting minutes cost \$1,745 for 2,099 HITs (enough for intercoder validation), an average of \$0.83 for each meeting minutes.

After the meeting data were extracted from the minutes using MT, they were processed in three ways. First, organization spellings and assignment of individuals to organizations was standardized.⁵ There were 15,405 processed rows of individual data containing each individual’s name, organization (if he or she represented one), the committee name, and the meeting date. In this study, the unit of measurement was organizations, rather than individuals. So, in the second step, the data was aggregated so that each row contained an organization’s name, the committee name, the meeting date, and the number of organization employees who attended the meeting. At this point, unaffiliated citizens were removed because they don’t provide services and therefore do not deliver evidence-informed services. This left 10,334 rows. In the third step, a sector was assigned to each organization. Based on prior research and consultation with the advisory team, nine sector categories were included: elected officials, public agencies, service providers, private business, philanthropists, faith communities, coalitions and alliances, organizations that promote civil engagement, and media. Sector assignments were made using organization’s webpages and reviewed and corrected by the advisory team.

Natural language processing. In addition to using crowd-sourced data extraction for the meeting minutes, natural language processing (the dictionary method) was selected as a good tool to infer whether a committee discussed evidence-informed services. It’s possible that a committee discussed these ideas but did not record them in its minutes. However, if discussion of evidence-informed services constituted a substantial portion of the meeting discussion, it should be noted in the minutes.

The dictionary method involves transforming the text data to a “bag of words” and comparing the text to a user-defined dictionary to identify instances of terms of interest. To create the bag of words, all documents needed to be text documents (with a .txt file extension). The meeting minutes in this study came in three forms: .doc or .docx files; .pdf files created from a text document (such as Microsoft Word); and .pdf files created from a scanned document. Word documents (.doc and .docx) were transformed to .txt files using a Visual Basic Editor script in Microsoft Word. Documents transformed to .pdf from the original text-based document were converted to .txt using pdftotext, an open-source command-line utility (Glyph & Cog,

⁵ In most cases, an individual had an organizational assignment in at least one meeting. This assignment was applied to the individual when no organizational assignment was listed in the minutes. The assignments did not always match. Sometimes the minutes had the wrong organization. Some people changed jobs during the study period. Some people were unaffiliated citizens. I made all individual–organization assignments and the advisory team reviewed and made corrections.

2017) and the *lapply* command in R (R Core Team, 2016). Documents transformed to .pdf from a scanned document were transformed to .txt using the export command in Adobe Acrobat Pro. All three methods were batched, meaning that with one command, they converted all files in a specified folder.

A dictionary was created with the following 16 terms (and their derivatives) commonly used in Sonoma County related to the Portfolio and evidence-informed service: clearinghouse, emerging practice, evaluation, evidence-informed service, fidelity, innovative practice, literature review, logic model, manual, Portfolio, promising practice, replication, Tier 1, Tier 2, and Tier 3. R was used to apply this dictionary to the .txt documents. All documents were opened using the *Vcorpus* function in R package *tm* and standard text transformations were performed: *tolower*, *stripWhitespace*, and *removePunctuation* (Feinerer & Hornik, 2017). The text was tokenized for phrases with up to three words using R package *RWeka* (Hornik, Buchta, & Zeileis, 2009). Using the function *DocumentTermMatrix*, also from the R package *tm*, the dictionary was applied to the tokenized corpus, producing a matrix in which each column represented a term and each row represented a meeting minutes. Each cell contained the number of times that each term appeared in each meeting minutes. This essentially represented an automated coding of each document for each of the key words.

The meetings database was the largest. Each row represented an organization and the information for a single meeting. Each organization had a row for each meeting it attended for a total of 10,334 rows. The five columns contained the following information: organization name, committee name, meeting month, meeting year, and a binary variable representing whether the meeting included any of the terms suggesting a discussion of evidence-informed service. This database was used to produce the variable matrices for number of meetings attended, number of meetings with discussion of evidence-informed service, number of committees attended, and number of domains represented.

There were some data quality problems with the meeting minutes. The last name was missing for the Commission on AIDS, which was a conscious choice by this commission to protect the identity of committee members. It was easy to match these committee members across meetings, and county employees who attended were known. However, community and organizational attendees were not known and could have also attended other meetings. If so, they were duplicated in the data. The AIDS commission was among the smallest committees, so this was not deemed a major problem. Three of the Upstream subcommittees were missing minutes for 1 year. However, an annual report identified every individual member of each committee and their representative organization. For this year, each of the three committees was assigned 10 meetings (the average number for Upstream subcommittees at that time) and each of the participating organizations was assigned attendance. Although individuals may miss meetings, it is rare for organizations to miss meetings; individual members usually send representatives. At the time of these missing minutes, all other Upstream meeting minutes included words and phrases that suggested a discussion of evidence-informed service. This is reasonable because the Upstream committee has the expressed objective of promoting the scaling of evidence-informed services. Therefore, for the three subcommittees with missing information, it was inferred that they also included discussion of evidence-informed services.

Nudge organizational readiness. Two sources of data provided information about organizational readiness.

Prior reported or confirmed evidence-informed practice. Prior to launching the Portfolio, the county conducted a survey to assess existing evidence-informed capacity and

adoption. The survey was sent to 170 local organizations representing state agencies, county departments, cities, education, social services providers, and faith-based organizations. Eighty-five organizations responded for a 50% response rate. Of these, 25 organizations reported that they were currently implementing one or more evidence-informed services (29%). County staff members confirmed that 30 local organizations were implementing a service listed in a national clearinghouse. Seventeen organizations both reported and were confirmed as implementing an evidence-informed service. Thirteen organizations did not report that they were delivering an evidence-informed service, but were deemed to be upon investigation. Eight organizations reported delivering an evidence-informed service not listed in a national clearinghouse. This data was extracted from in a county report and was considered to be an accurate representation of the survey method and findings (County of Sonoma, 2010).

For this study, each organization's name was manually extracted from both lists (reported evidence-informed service and confirmed evidence-informed service). In this database, each row represented an organization that had prior reported or confirmed implementation of evidence-informed service. There were two columns, one for each variable (reported and confirmed use of evidence-informed services).

Resolutions of Alignment. The Sonoma County Board of Supervisors invited local organizations to submit a Resolution of Alignment signaling their commitment to supporting the Upstream agenda, including the scaling of evidence-informed services. These Resolutions must have been approved by the organization's governing body. When organizations submitted a Resolution, the Upstream staff posted it online. Because the Resolution was intended to be a public declaration, it was likely that the organization would notice if the Upstream staff neglected to post a Resolution online. For this reason, the posted Resolutions were deemed to be accurate and complete. During the study period, 80 organizations submitted a Resolution.

For this study, each Resolution was manually downloaded and the organization's name and Resolution submission date were manually extracted. In the Resolutions database, each row represented an organization and one column recorded the Resolution submission date. There were 80 rows. This database was used to produce the Resolutions matrix.

Provide technical assistance to organizations. In Sonoma County, county departments provided technical assistance to social services providers. In response to a public records request, two county departments, Human Services and Probation, reported that they provided such assistance related to the expansion of evidence-informed services and they each provided records in Excel spreadsheets. From these records, the following information was retained: assistance date, organization, and county department that provided the assistance. All other county health, justice, and human services departments reported that they did not provide technical assistance related to evidence-informed service.

In the technical assistance database, each row represented an organization for a single technical assistance session. During the study period, 153 organizations received technical assistance. Organizations could have more than one row. The five columns reflected the retained information. This database had 590 rows.

One missing data problem occurred with the technical assistance records. Details about the assistance provided by the Human Services Department for Year 4 were not found. An annual report to the Board of Supervisors identified 96 organizations that received technical assistance during this year. Because it was not possible to infer the date of these technical assistance sessions, these data were not inferred and were deemed missing. If this information was available, it may have changed the findings related to technical assistance. Available

technical assistance records begin in Year 5. Related to this, it is also possible that the concept of county-sponsored technical assistance was not well articulated in the request for records. For instance, the Health Department reported that it does not provide technical assistance related to evidence-informed service. However, they have sponsored ongoing training about and evaluation of Triple P for years. According to the Portfolio records provided by the county, 19 organizations were delivering Triple P. This county-managed and ongoing training and evaluation represents institutionalized technical assistance that was not reflected in the data of this study; therefore, the effect of this assistance, and other similar assistance, was not captured.

Align funding. This study included information about contracts between county departments and nongovernmental organizations for social services during the study time period. In Sonoma County, the Board of Supervisors approves all contracts and these approvals are documented in board meeting minutes, providing a publicly available source of contract data. The Board of Supervisors meets weekly and the minutes were posted online. These minutes were downloaded. A review of the minutes demonstrated that all contracts are referred to as a “contract” or an “agreement.” A research assistant used a search function to locate all references to either word in each meeting minutes and manually extracted information about each contract in the health, justice, and human services departments, in addition to contracts in other departments that funded social services. For instance, the Water Agency regularly funded a summer employment service for at-risk youth in which a provider agency managed the service and the youth worked with the Water Agency staff to clean creeks. The following information was extracted: meeting date, vendor, contract amount, and service provided. This information is not recorded in the minutes in a standardized manner, so the research assistant also noted any information to assist in interpreting the extracted data.

During the study period, the Board of Supervisors met on 246 dates. To validate the research assistant’s accuracy, the author randomly selected 25 dates (10% of all dates) for validation and replicated the research assistant’s process. The author identified 154 contracts in these 25 dates and the research assistant identified 152. Both identified 142 contracts with the same information but different information for 15 contracts. The research assistant listed one contract twice, recorded the department incorrectly for one contract, and recorded the wrong date for one meeting (off by 1 month) and included two that the author ultimately excluded. These were eight minor errors and easily caught. The research assistant also missed seven contracts and the author added these missed contracts but did not check the remaining dates. If the assistant’s work was consistent, this suggests a missing rate of approximately 4.5% (seven of 154), which was deemed acceptable.

Unfortunately, some of the minutes only identified the vendor as “the vendor.” In other cases, the service was contracted to various vendors and the minutes only recorded “local providers” and noted the aggregated contract amount. In these missing data cases, the meeting agenda packets were consulted. Agenda packets are also available online. They include the agenda for a meeting and supporting documents. These packets are often hundreds of pages long and are more difficult to search. They are useful as a second source of information.

Once the list of contract data was complete, exclusions were made. The goal of this study was to include contracts for services. Therefore, the following types of contracts were excluded: building maintenance, supplies, staff training, internally used computer equipment and software (although contracts to design and maintain public-facing websites used by community members to find or apply for services were retained), environmental health deliverables such as removing leaking underground storage tanks, and vouchers for transportation (public transportation is not a

service although vouchers may be provided as part of a case management service). Contracts between the county and state or public agencies in other counties were excluded because the county is unlikely to be able to influence the adoption of evidence-informed services by the state and other counties.

In the contracts database, each row represented a contract. The five columns contained the contract date, the county department awarding the contract, the organization receiving the contract, and the contract amount, and a brief description of the funded service. There were 1,759 rows.

In addition to the inaccuracies caused by potentially missing contracts, there were also two situations which introduced some level of inaccuracy in the contract amount. First, even in the meeting agenda packets, a few instances occurred in which a list of providers was included but only the total contract amount was listed. In these cases, the total amount was equally split between all listed providers, although it is not known if this is accurate. Second, the health department often added “various contracted support as needed” without listing any specific vendor. These amounts were usually relatively low and provided a flexible pool that the health department could allocate to any of the listed vendors if the client volume was more than anticipated. These amounts, if spent, were not included in this study, which may have slightly underrepresented the total contract dollars received by some organizations. Contract amount is useful in this study, but with these identified data problems, it is more useful to interpret it as an estimate rather than exact level of scale.

Analysis

This study had two key aims: to describe the system-level support strategies conducive to local government coordination in the scaling of evidence-informed services and to examine the relative impact of these strategies on the organization-level adoption of evidence-informed services. In addition to the description of Sonoma County’s experience in Chapter 3, this study employed descriptive approaches to achieve the first aim. To achieve the second aim, this study used time-to-event analysis (sometimes called survival analysis). This is similar to Wang and colleagues (2010), who used time-to-event modeling to understand county officials’ decisions to adopt multidimensional treatment in foster care.⁶

System-level description of scaling strategies. Descriptive analyses were conducted to describe and quantify the specific strategies employed by Sonoma County to promote the scaling of evidence-informed services. The descriptive analysis included annual timelines to explore the evolution of the county’s strategy implementation during the 7-year study period (see Table 4).

Organizational-level modeling of scaling strategy effects. The analytic goal for the second study question was to determine which county strategies are most effective in encouraging an organization to adopt its first evidence-informed strategy. During the study period, 70 organizations were certified as implementing one or more evidence-informed services per the Sonoma County Portfolio criteria. Of these, 25 had two to 12 approved services. This study focused on the 70 first-approved Portfolio services. Bruns and colleagues (2008) hypothesized that readiness to adopt a first evidence-informed service is different than readiness for subsequent adoptions. This seems reasonable, although it does not appear that any study has tested this assumption. Nevertheless, this study focused on understanding the county’s success at

⁶ All analyses, plots, and tables produced with R (R Core Team, 2017) using RStudio (RStudio Team, 2015) or in Microsoft Excel.

convincing organizations to convert from zero to one evidence-informed service with the assumption that government strategies to promote scaling are probably most influential for a first adoption. Once an organization has adopted one evidence-informed service, subsequent adoptions may be easier and not require county encouragement.

It is important to note several limitations of the study design. First, organizations were not randomly assigned to participate in the county's strategies (the study treatment); instead, they self-selected. Second and similarly, organizations that did participate in county strategies were not assigned a level of participation (dosage); they also self-selected, and individual organizational dosage changed over time. Third and again similarly, organizations were not assigned a beginning and end to their participation in county strategies (characteristics); they self-selected and engaged in participation on and off over time. Due to these problems, this study could not make causal claims. However, because this study was longitudinal, it could calculate the amount of organizational participation in county strategies, if any, before the approval of a Portfolio service and compare this to the amount of organizational participation in county strategies for organizations that did not have any approved Portfolio services. Additionally, it is highly likely that the effect of the county strategies on organizational adoption of evidence-informed services has not yet been fully realized. This effort in Sonoma County is ongoing, and the end of the study in no way signified the end of the effort. Therefore, it cannot be concluded that organizations that did not adopt an evidence-informed service during this study will never do so. These last two design characteristics are commonly encountered, and time-to-event methods have been developed to statistically account for them. This section begins by briefly explaining time-to-event modeling. It then describes the assumptions that must be met in time-to-event analyses and the estimation procedures for the three included models.

Fundamentally, time-to-event models are time studies that estimate the probability that an event occurs at any given time (hazard function), how long it takes to occur (survival function), and how measured covariates affect the probability of an occurrence. In this study, the hazard function represented whether an organization in Sonoma County adopted an evidence-informed service. The survival function represented how long it took to do so after the county established the goal to scale evidence-informed services. There are two choices regarding the model timeframe used for a time-to-event model. The first is the time at which each organization enters the study and the second is the time at which each organization leaves the model. The study start time for each organization could be the date that the county established the policy goal of scaling evidence-informed services or the date that the organization first engaged in any of the county-supported strategies. The study end time could be the date at which an organization achieves its first Portfolio approval (if ever), a recurrent Portfolio approval, or the end of the study. Because this study was interested with how long it takes a system (not just an individual organization) to scale evidence-informed services, the start date for every organization was the start of the policy. Of interest was how long it took the county to reach organizations and convert them from nonadopters to adopters of evidence-informed services. Therefore, the censored, or end time for each organization was the date of its first approved Portfolio service or the end of the study for organizations that had yet to receive a Portfolio approval. This choice means that the data were right censored -- this work in Sonoma County is ongoing and organizations continue to adopt evidence-informed services, even though the study stopped collecting data.

Model assumptions. As with most statistical methods, time-to-event analysis makes important assumptions, that if not met, may result in inaccurate results. These assumptions are

uninformative censoring, independence of the dependent variable, homogeneity of treatment, and adequate power.

Censoring means that information about what happened before or after the study period is unknown but relevant. Influential experiences prior to the study may not be measured and the desired outcome may not yet be known for some study participants (Rodríguez, 2001). A unique strength of time-to-event analysis is that it adjusts for censoring in the likelihood function. However, the censoring must be uninformative. Uninformative right censoring means that there is no known systematic reason that the probability that an organization adopts an evidence-informed service after the study ends would be different than before the study ends. Examples of informative censoring include a public declaration by an organization that it does not ever intend to adopt an evidence-informed service or an explicit participation waiver from the county for a class of organizations. In this case, there was no known evidence of intentional censoring.

A second assumption is that each event of interest occurs independently of all others. Because organizations can adopt more than one evidence-informed service, it is reasonable to assume that recurring adoptions are correlated to the first adoption, in which case this assumption would be violated. In this case, time-to-event models often only include the first occurrence of an event. This common practice was adopted here, and only the first Portfolio adoption was modeled.

When using time-to-event analysis to compare the effect of an intervention on the probability of an event time (in this study, the effect of government strategies on the adoption of evidence-informed services), a third assumption is homogeneity of treatment. However, during long studies, it is common that the treatment evolves with time, even in a single site. If this happens, time to event may vary based on the treatment cohort. In this situation, it is customary to stratify the survival model with a cohort variable. In this study, the county's implementation of its strategies to promote evidence-informed services have probably changed, and even intentionally so. For instance, the frequency of Upstream meetings was monthly in the early years and became quarterly in later years. However, there are no assigned cohorts in this study. Organizations self-select if and when they participate in the county scaling strategies.

Adequate statistical power is highly relevant in survival analysis because the dependent variable is often rare. The fourth assumption is that the number of covariates is scaled to the number of instances of the desired event (Portfolio approval). Modeling events that are rarer requires either larger sample sizes to increase the number of events or fewer covariates. A commonly accepted ratio, based on simulated studies, is a minimum of 10 observed events for each covariate (Bradburn et al., 2003a). Any fewer events may result in undetected coefficient effects. This study featured 70 observed instances in which an organization first adopted a Portfolio service. Therefore, the maximum recommended number of covariates is seven. However, this study uses 10 independent variables and therefore, some effects may be undetected.

A final assumption in time-to-event models is that sufficient time has elapsed following the intervention for the event to occur (Clark, Bradburn, Love, & Altman, 2003; Columbia University Mailman School of Public Health, n.d.). This is generally determined by prior knowledge and theory. In this case, it is known that Oregon, Washington, Maine, and New York have been working to scale evidence-informed justice and child welfare services for decades. This study period of seven years and may be too short to identify the full effects of government scaling strategies.

Model estimation. Two time-to-event models are presented. The first nonparametrically estimated the hazard function (=time to adoption) without covariates. The second parametrically estimated the effect of covariates on the hazard function (time to adoption).

The most common hazard function for estimating the time to event while accounting for censoring is the Kaplan-Maier method. It is a nonparametric estimation, meaning that organizations can have different adoption rates (similar to a random-intercept model). In the following equation, let t_j be time j (range = 0 to 84), let d_j be the number of approved Portfolios at t_j , and let n_j be the number of organizations without an approved Portfolio at t_j . In each t_j , the hazard function (lower-case lambda) $\lambda(t_j)$ is the number of approved Portfolios in the time period divided by the number of organizations that do not yet have an approved Portfolio. Once an organization achieves an approved Portfolio, it is dropped from the sample for all subsequent time periods and hazard functions.

$$\lambda(t_j) = \frac{d_j}{n_j}$$

Here, the hazard function is presented as a plot of the cumulative hazard function as follows. The cumulative hazard function (upper-case lambda) $\Lambda(t_j)$ is simply the cumulative sum each month of all prior hazard functions and the current hazard function.

$$\Lambda(t_j) = \sum \frac{d_i}{n_i}$$

It is common to compare the time-to-event rates for different groups and use a logrank to test the hypothesis that there is no difference in the cumulative hazard rates for two or more groups (Clark et al., 2003). This is essentially a chi-square statistic that compares the observed and expected rates for each group. A significant p -value indicates a low probability that the two groups have the same hazard function (Peto et al., 1977). Here, the logrank test was used to compare the hazard function of organizations for each covariate. Kaplan-Maier models are produced using R package *survival* (Therneau, 2015) and plotted using R package *survminer* (Kassambara, 2017).

The Cox proportional hazards model (Cox, 1992) is commonly used to estimate the effect of covariates on the probability that an event will occur (hazard function; Columbia University Mailman School of Public Health, n.d.; Rodríguez, 2001). In these models, the hazard function is random as above—different organizations can have different probabilities of adopting an evidence-informed service. But the covariate effects are modeled as linear, meaning the relative difference in effects between groups is parallel over time and the effect on the outcome is the same over time. This is essentially a random-intercept, fixed-slope model. The following equation represents the Cox proportional hazards model for this study. The hazard function $\lambda(t_j)$ is calculated as above with the addition of the logistic coefficient for each of the ten independent variables (\mathbf{x}).

$$\lambda(t_j) = \lambda(t_0) \exp(\beta_1 \mathbf{x}_1 + \beta_2 \mathbf{x}_2 + \dots + \beta_{10} \mathbf{x}_{10})$$

Because Cox modeling is a logistic approach and can only accommodate a dichotomous outcome variable, it is common to produce different models for different comparison groups (Rodríguez, 2001). In this study, the first model compared organizations with no approved Portfolio services (reference group) to organizations with one approval. The second model compared organizations with no approvals to organizations with two or more approvals. And the

third model compared organizations with one approval to those with two approvals. The Cox models are produced using R package *survival* (Therneau, 2015). The models table is produced using R package *stargazer* (Hlavac, 2015).

Chapter 5: Findings

This study measured four strategies implemented by a county government to support the scaling of evidence-informed services: convening and supporting a leadership team, nudging organizational readiness, providing technical assistance, and aligning funding. It also introduced a fifth strategy used by this county—establishing a shared local measure of evidence-informed service. The first aim of this study was to describe these scaling strategies implemented by local government. The results related to this aim are included in the first section. This is a system-level description of the Sonoma County experience. The second study aim was to examine the relative effect of these strategies on organizational adoption of evidence-informed services. Modeling of these organizational-level effects is presented in the second section.

System-level description of scaling strategies

In total, 493 organizations participated in at least one of the county strategies during this 7-year study. These organizations were not preselected for the study. Rather, they showed up in one of the study datasets—meeting minutes, Resolution records, technical assistance records, contract records, or Portfolio records. Of these organizations, 265 (56%) were service providers, 70 (15%) were public agencies, 60 (13%) were private businesses, 21 (4%) were elected officials, and 59 (12%) were other groups such as media and philanthropic organizations. During these seven years, Sonoma County approved 153 Portfolio applications, hosted 1,510 meetings, received Resolutions of Alignment from 80 organizations, and held 191 technical assistance sessions. The county awarded \$395 million in contracts for social services, of which 34% went to organizations with a previously approved Portfolio service. Table 4 demonstrates the annual trend for each strategy.

Establish a shared local measure of evidence-informed service. Portfolio inclusion is objective evidence that an organization is delivering a service that meets standardized criteria for evidence-informed service as defined by the Sonoma County governance network. The first 12 Portfolio services were approved in the second year, and the number steadily rose to a peak of 41 approved services in the sixth year. The 153 approved Portfolio services were delivered by 70 organizations, which had an overall average of 2.2 approved services. Some services were delivered by more than one organization, and the implementation by each organization was reviewed for approval. Of the 92 unique services listed in the Portfolio, 24 (26%) were Tier 1, 39 were Tier 2 (42%), and 29 were Tier 3 (32%). Tier 1 services were evidence-informed services. They were listed by a national clearinghouse that has conducted a rigorous peer review and were implemented with fidelity in Sonoma County. Some Tier 1 services were implemented in Sonoma County before Upstream was launched, although fidelity was not assessed by the county. Table 5 compares the list of evidence-informed services implemented in Sonoma County before and after the start of the county-sponsored scaling activities. Eleven services were identified in the pre-Upstream assessment but had not been approved for the Portfolio by the end of the study. Five services were identified in the pre-Upstream assessment and had been approved for the Portfolio by the end of the study. Since the launch of Upstream, 19 additional services had been certified as evidence based by the Portfolio process. It appears that Sonoma County had 24 evidence-informed services in implementation at end of this study. That number could be as high as 35 if the previously identified but not Portfolio-approved services were still active. A full list of approved Portfolio services, including Tiers 2 and 3, is provided in Appendix E.

Convene and support a high-level leadership team. Sonoma County embedded its efforts to scale evidence-informed services in a network of 12 standing committees dedicated to promoting social services in six domains: child and youth development ($n = 4$), health ($n = 3$), employment ($n = 1$), housing ($n = 1$), seniors ($n = 1$), and intersecting service domains ($n = 2$, including Upstream). Information about these committees is provided in Table 6. During the 7-year study, these committees held 1,510 meetings attended by 1,868 unique individuals. Of these individuals, 632 were unaffiliated with any organization and 1,236 represented 302 organizations. All data were aggregated to the organizational level for analysis, and individuals, including unaffiliated citizens, were not subject to analysis. On average, the county sponsored four meetings each week ($1,510 \div 52 \text{ weeks} \div 7 \text{ years}$). The Health Department hosted six committees with an average of 2.3 meetings every week, and the Human Services Departments hosted five committees, averaging 1.6 meetings per week. Justice departments hosted one committee, which started in July 2013 and met 29 times. The most active committee, the Area Agency on Aging, held 306 meetings over seven years attended by 72 organizations. The second year had the most Upstream meetings (46), although the number then declined steadily to a low of 10 in the final year. The number of other county-sponsored social services-focused meetings rose steadily, with a high of 236 in the sixth year. Meetings of these committees offered many opportunities for local organizations to influence one another by engaging in discussions about evidence-informed service. Overall, 44% of meetings included a discussion of evidence-informed services, with the most frequent discussions occurring in Upstream meetings, which is reasonable given that Upstream was tasked with coordinating scaling activities. But discussion of evidence-informed service was also very common in other committees, reflecting the countywide focus on evidence-informed service. Overall, these committees had broad cross-sector participation, another important criterion for discussion and influence in these leadership teams. Elected officials, public agencies, social services providers, and businesses were represented on almost all committees (10 to 12 of the 12 committees). Organizations from other sectors were also commonly present but represented on slightly fewer committees—9 of 12.

Nudge organizational readiness. Before Upstream was launched, 25 organizations reported implementing evidence-informed services and the county confirmed that 30 organizations were implementing services listed by a national evidence-informed clearinghouse. During the seven study years, 80 organizations signaled their readiness to adopt evidence-informed service via a Resolution of Alignment, with a peak of 22 organizations in the second year and a steady decline to eight in the final year.

Provide technical assistance. The county began tracking its technical assistance program in the fifth year, in which it documented 20 sessions. This increased to 102 sessions in the seventh year 192 organizations had attended at least one session.

Align funding. During the seven study years, the county steadily increased contract funding awarded to organizations with an approved Portfolio service. By the last year, 67% of organizations receiving a new contract had a prior-approved Portfolio service. And, by the last year, 55% of all contract funding was awarded to these organizations.

Organizational-level modeling of scaling strategy effects

The second study aim sought to understand the relative effect of county strategies on the adoption and time to adoption of evidence-informed services by individual organizations. Time-to-event analysis was used to achieve this aim. This analysis was conducted with a subset of the full dataset. The effort needed to scale evidence-informed services is relevant for service

providers and public agencies ($n = 336$) because these two sectors provide the majority of social services. Scaling efforts are also relevant for organizations that have been awarded a county contract for social services, even if they are not a typical service provider ($n = 26$). The remaining 113 organizations, which included elected officials and others, although they may have interest in the scaling of evidence-informed services, were not expected to apply to the Portfolio because they do not provide social services. Therefore, for this analysis, the data were divided into two groups: organizations for which evidence-informed service is applicable ($n = 362$) and organizations for which it is not applicable ($n = 113$). The first group was used in the time-to-event modeling and further divided into three groups: organizations with no approved Portfolio service ($n = 292$), organizations with one approved Portfolio service ($n = 45$), and organizations with two or more approved Portfolio services ($n = 25$). Table 7 presents the descriptive statistics for the groups and variables used in the time-to-event analyses. In general, organizations with two or more approved services participated more in the county scaling strategies prior to their first-approved service than organizations with one or no approved service. In this time-to-event analysis, data tracking ended when an organization adopted its first Portfolio service. The data tracking did not end until the 84th month for organizations with no Portfolio approvals. Even with this longer period, organizations with no approved Portfolio services had much less participation in county scaling activities than organizations with any approved Portfolio.

Establish a shared local measure of evidence-informed service. Organizations with two or more Portfolio services had an average of four approved Portfolio services ($SD = 3$), with a maximum of 12.

Convene and support a high-level leadership team. Before their first approved Portfolio service, organizations with multiple approvals were frequent attenders of meetings, with a mean attendance of 15 Upstream meetings ($SD = 3$) and 96 other meetings ($SD = 6$), compared to six ($SD = 2$) and 16 ($SD = 4$), respectively, for organizations with one approval and two ($SD = 9$) and one ($SD = 27$) for organizations with no Portfolio approvals. In addition to attending more meetings, they also attended more committees ($M = 3$, $SD = 3$) and participated in more service domains ($M = 2$, $SD = 2$). Organizations with one or no Portfolio approvals only attended an average of one committee ($SD = 1$) related to one service domain ($SD = 1$). Highly involved organizations were exposed to discussions of evidence-informed service in a mean of 33 meetings ($SD = 6$) before their first Portfolio approval. The other two groups had much lower rates, with a mean of 12 ($SD = 22$) and six exposures ($SD = 15$), respectively, to evidence-informed service discussion.

Nudge organizational readiness. Close to half of the multiple-approval organizations appeared ready to adopt evidence-informed services before the launch of Upstream. Forty percent reported implementing evidence-informed services and 48% were confirmed to have done so. Almost none of the one- and no-approval organizations were assessed as having this same readiness (7% and 4%–5%, respectively). Moreover, 60% percent of the 25 highly involved organizations signaled readiness to adopt evidence-informed service by submitting a Resolution of Alignment before their first Portfolio approval, compared to 42% of one-approval organizations and 10% of no-approval organizations.

Provide technical assistance. There was one area of participation in which highly active organizations did not have the highest rates. The number of technical assistance sessions they attended before their first Portfolio approval ranged from 0 to 5, with an average of 0.28 ($SD = 1$). Organizations with one approved Portfolio service attended a range of 0 to 13 sessions, with a

mean of 0.82 ($SD = 2$), and organizations with no approvals attended a range of 0 to 14, with a mean of 0.54 ($SD = 1$).

Align funding. Regarding contracts, 72% of multiple-approval organizations had county contracts before their first approval, and 76% did after. On average, they were awarded more contract dollars after their first approval than before—\$4.4 million ($SD = \7.3 million) compared to \$1.7 million ($SD = \3.5 million). For one-approval organizations, the trend was reversed. Fifty-one percent had contracts before their Portfolio approval, for a mean of \$742,000 ($SD = \1.9 million), and 42% had contracts after approval, for a mean of \$622,000 ($SD = \1.4 million). Fifty-three percent of organizations with no approvals held county contracts during the study period, for a total of \$601,000 ($SD = \2.7 million). During the study period, organization with two or more Portfolio approvals received more county contract funding than organizations with one or no approved services. However, organizations with no approvals also received more funding, on average, than organizations with one approval.

Time-to-event models. Time-to-event modeling was used to estimate the cumulative time to adoption of evidence-informed services in Sonoma County and the impact of county strategies on probability of a first adoption, while accounting for censoring. Two models were produced: Kaplan-Meier hazard models and Cox proportional hazard models. Because the models examined the relative effect of all county strategies together, it was not convenient to separate the findings in the discussion. This section is organized by model rather than by strategy.

Kaplan-Meier hazards model. This model estimated the proportion of organizations that had adopted an evidence-informed service (measured by a first Portfolio approval) at each month of the study time period. This was a nonparametric estimation of the hazard function, meaning that organizations could each have a different adoption rate. This is essentially a random-intercept model with no covariates. Figures 2 and 3 illustrate the time to adoption for all organizations and subgroups. Overall, at the end of seven years, only 19% of organizations for which evidence-informed service was relevant had adopted at least one evidence-informed service as measured by Portfolio approval. However, the gradual (albeit slow) increase illustrates a steady and continuing adoption process. Differences in adoption rate for different subgroups of organizations can be tested with the Mantel-Haenszel logrank test, which compares the expected and observed rates for each group. A significant p -value indicates that the rates are different. In this study, the rate of adoption of evidence-informed services as measured by first Portfolio approval differed by Upstream meeting attendance, more than two committees and domains, prior reported and confirmed evidence-informed service implementation, and submission of a Resolution. By the end of the study, 46% of organizations attending an Upstream meeting, 40% of those attended two or more committees, 40% of those engaged in two or more domains, 52% of those with reported prior adoption, 50% of those with confirmed prior adoption, and 52% of those with a Resolution had adopted their first evidence-informed service. County strategies that did not seem to influence the adoption or time to adoption of a first Portfolio service were attendance at non-Upstream meetings, exposure to discussions of evidence-informed service in meetings, receipt of technical assistance, and prior contract relationship with the county.

With Kaplan-Meier hazard models, it is common to estimate the median time to desired event, i.e., adoption of an evidence-informed service. In this context, the median was the time for half the identified group to achieve its first Portfolio approval. The median is illustrated with the dashed line in Figures 2 and 3. For most groups, the median time had not yet been achieved. The county formally adopted the Portfolio in Month 8 of the 84-month study period. This is evident

in Figures 2 and 3, i.e., a straight line at 0 in early months. Seventy-six months after the new policy (more than six years), half of most subgroups had not yet adopted an evidence-informed service as measured by Portfolio membership. Three groups had achieved the median time—the three groups of organizations with demonstrated readiness for adoption. On average, it took 52 months for half of the organizations with prior confirmed readiness, 55 months for half of the organizations with prior reported readiness, and 64 months for half of the organizations that submitted a Resolution to achieve their first approved Portfolio service.

Cox proportional hazards model. Kaplan-Meier models illustrated the overall trend toward adoption of evidence-informed services for each covariate individually. But they did not account for the relative effects when all independent variables were considered together. The second set of models, Cox proportional hazards models, estimated the effect of covariates on the probability of Portfolio adoption. These models are called semiparametric because the hazard function is nonlinear, like the Kaplan-Meier model, but the covariates are linear. This is similar to a random-intercept, fixed-slope model. The rate of adoption could differ for each organization, but the effect of the covariate was the same for all organizations in all months. Cox proportional hazard models can be interpreted similarly to logistic models. The exponentiated coefficients are like odds ratios. In these models, the exponentiated coefficient is its effect on the null probability that an organization will achieve its first Portfolio approval in any given month. As the value of a significant covariate increases, the probability that an organization will secure a first Portfolio approval in a given month also increases proportionately (Bradburn et al., 2003b). And because the effects are proportional over time, the coefficients can also be interpreted as a general effect on Portfolio adoption, regardless of time. Table 8 includes coefficient hazard ratios (*HR*), standard errors (*SE*), and significance level (*p*).

Seventy organizations had a first Portfolio approval during the study period. Based on the recommendation for 10 approved Portfolio observations for each covariate in Cox models, the models should include no more than seven covariates. However, the goal of this recommendation is to reduce overfitting to increase the generalization of the findings to other populations. Because this was an exploratory study, there was no counterfactual environment to support strong causal claims, and the goal was to learn as much as possible from this environment, all 11 variables that represented the county scaling strategies were included in the Cox models. This means that the model findings may be well fit for this environment but probably overfit (not representative) for other environments.

Table 8 compares three Cox models that include the dependent variable (first approved Portfolio service) and the same covariates. As in the Kaplan-Meier models, the independent variables were all cumulative totals prior to the first Portfolio approval or cumulative to the end of the study period for organizations with no approved Portfolio. These models, however, had different populations. Cox models can only accommodate outcomes for two groups. So, it is common practice in time-to-event modeling to model different groups separately. The first model compared organizations with no Portfolio approval to those with a single approval. This model included 350 organizations. The second model compared organizations with no approval to those with multiple approvals, and included 330 organizations. The last model compared organizations with one approval to those with multiple approvals, and included 70 organizations.⁷ Comparing organizations with one approval to those with multiple approvals was inspired by Bruns and colleagues (2008), who commented that readiness for a first versus

⁷ A model comparing nonadoption to any adopters would conflate the effects on one-approval and multiple-approval organizations and lose explanatory power. Therefore, it was not reported.

subsequent adoption of evidence-informed services is probably different. Here, the question of interest was whether organizations with more than one approval were already different at the time of their first Portfolio adoption.

In the first model, which compared no-approval organizations to one-approval organizations, four variables were significantly associated with first adoption. Organizations that signaled readiness with a Resolution were more than 4 times more likely to have a first approval ($HR = 4.92, SE = .33$). Organizations that attended more committees were also more likely to have a first approval. For each additional committee, organizations were more than 6 times more likely to have a first approval ($HR = 6.44, SE = 0.52$). The number of committees attended by one-approval organizations ranged from 0 to 3. An organization attending three committees in at least 1 month was more than 19 times more likely to adopt a Portfolio service ($6.44 \times 3 = 19.32$). In these models, total contract dollars prior to first approval were divided into quartiles for ease of interpretation. With each quartile increase, one-approval organizations were 1.45 times more likely to adopt a Portfolio service ($SE = 0.15$). Organizations with the largest prior contract relationship with the county (in the fourth quartile) were more than 4 times more likely than those in the first quartile to achieve a first Portfolio approval during the study period ($1.45 \times 3 = 4.35$). Finally, for each additional service domain, organizations were more than 6 times less likely to adopt a Portfolio service ($HR = 0.15; 1 \div 0.15 = 6.67; SE = 0.61$). The number of service domains attended by a single organization ranged from 0 to 6, so this multiservice interest may have had a substantial dampening effect on adoption of evidence-informed services.

The second model compared the 25 organizations with more than one approved Portfolio service to those with none. Like organizations with one approval, the first Portfolio approval for organizations with multiple approvals was significantly and positively associated with readiness as signaled by a Resolution ($HR = 6.65, SE = 0.55$) and number of committees attended ($HR = 3.51, SE = 0.60$). However, they were not negatively affected by breadth of service domains. For multiple-approval organizations, their first Portfolio adoption also seemed to be influenced by prior report of evidence-informed service ($HR = 6.88, SE = 0.80$) and prior contract relationship with the county ($HR = 1.90, SE = 0.25$). It appears that what differentiated the two groups was the dampening effect of interest in multiple service domains for one-approval organizations and the positive effect of readiness via previously reported implementation of an evidence-informed service for multiple-approval organizations. They were similarly influenced by greater number of attended committees (although the effect was larger for one-approval organizations) and readiness as signaled by a Resolution (although the effect was larger for multiple-approval organizations).

The third model was a direct comparison between one- and multiple-approval organizations. This included 70 organizations. Both groups had a first Portfolio approval. The model estimated the probability that multiple-approval organizations would have quicker adoption times than one-approval organizations. This model highlighted three differences between these two groups. Multiple-approval organizations were more influenced by prior reported readiness for evidence-informed service and multiple committee attendance. Multiple-approval organizations with prior reported experience with evidence-informed services achieved their first approval more than twice as fast as one-approval organizations. Their time to adoption was also quickened by additional committee attendance ($HR = 2.05, SE = 0.36$). In addition, multiple-approval organizations were slower to adopt their first Portfolio service when they had higher rates of exposure to discussion about evidence-informed service in meetings. Each additional meeting they attended reduced their time to adoption by about 5% ($HR = 0.95; 1 \div$

0.95 = 1.05; $SE = 0.02$). On average, multiple-approval organizations were exposed to discussion of EBP in 76 meetings prior to their first Portfolio approval, compared to 18 meetings for one-approval organizations. This difference may result in being almost 3 times slower to adopt a service ($76 - 18 = 58$; $58 \times 0.05 = 2.9$).

One simple and common model fit statistic used to compare Cox models is adjusted R^2 , which for each model was .16, .48, and .38 ($R^2 \div \text{maximum } R^2$), suggesting that the second and third models had better fit than the first. Because these models were not nested, the comparison is simply how effective each model was in accounting for the variability in the dependent variable for its own group of organizations. The second model accounted for about 48% of the variation in Portfolio adoption between nonadopters and multiple-service adopters. The third model accounted for about 38% of the variance in time to adoption between one-approval and multiple-approval organizations. The first model, which compared nonadopters to single-service adopters, only accounted for about 16% of the variability in time to adoption. Thus, this study revealed more about first Portfolio adoption among organizations that go on to have subsequent adoptions than organizations with a single adoption.

For Cox models, a second model fit statistic can test the covariate proportionality assumption. A Schoenfeld residuals test (Bradburn et al., 2003a) was used to test this assumption for each covariate and for the model globally. Table 9 shows Schoenfeld test results for the covariates in the three Cox proportional hazards models. This test is a chi-square test of the null hypothesis of no disproportionality in the covariate effect over time. A significant p -value suggests the assumption was not met and provides support for a random-slope model. For these models, the proportionality assumption was quite strong. The first model had no evidence of disproportionality in effects over time or across organizations. The second and third models each suggested that one variable may have disproportionate effects—prior reported adoption of evidence-informed service in the second model and technical assistance in the third. The Schoenfeld residuals test is commonly used to test for disproportional effects. But the results might indicate either nonlinear effects over time or a missing covariate. Given the low R^2 in these models, missing covariates is probable and not remediable in this study.

To summarize the time-to-event models, the Kaplan-Meier time-to-event models demonstrated a steady rate of adoption of evidence-informed services throughout the study period and substantial differences in time to adoption for organizations that attended Upstream meetings, attended more than one committee, engaged in more than one domain, had prior reported and confirmed adoption of evidence-informed service, and submitted a Resolution. The Cox proportional hazards models also consistently suggested that submitting a Resolution of Alignment significantly preceded an approved Portfolio service for both single- and multiple-approval organizations. Multiple-approval organizations were also more likely to have readiness for adoption prior to the launch of Upstream. The Cox models also suggested that number of committees attended monthly by an organization and the amount of pre-Portfolio contract funding also increased the probability of an approved Portfolio service for all organizations. On the other hand, organizations were less likely to have a Portfolio approval if they were involved in more than one service domain. For organizations with more than one Portfolio approval, receiving technical assistance was less useful than for organizations with one Portfolio approval.

Chapter 6: Discussion

A persistent and seemingly intractable problem is the systemic failure to successfully scale evidence-informed social services to a level that achieves population-level improvements in well-being. Governments are increasingly being encouraged to enter the scaling environment as primary coordinators, trainers, and funders. Prior scholarship identifies four strategies governments may employ to enact these roles: convene and support high-level leadership teams, assess organizational readiness, provide technical assistance, and align funding. But it is unclear whether any or all these government scaling strategies is sufficient to achieve scaled services. Moreover, prior scholarship has largely focused on state and federal government roles, largely ignoring how these factors might operate in local government environments. Yet counties may hold the greatest scaling leverage because they often have well-established relationships with service providers through shared clients, contracts, and advocacy. The current study, thus, aimed to provide much needed insight into the relationship between potential government scaling strategies and scaling success in a local governmental context. Drawing data from a single county with a stated goal of scaling evidence-informed services across social services domains and organizations, it used public government records to create measures of these four alternative strategies, crowd-sourced and computational data extraction methods, and time-to-event analyses. This study assessed the relative effects of these strategies on time to and probability of organizational adoption of evidence-informed services. This study suggests that county governments are well positioned to implement scaling strategies, that the proportion of social services providers adopting evidence-informed services can increase, and so can the proportion of county funding directed to these organizations. It also found some empirical support for a link between three of the strategies and scaled evidence-informed services—convening a leadership team, assessing readiness, and aligning funding. Moreover, it identified a new and potentially desirable county strategy—establishing a shared local measure of evidence-informed service. This study design is highly replicable and thus, provides a general model to implement in other local environments to identify common county levers to scaling evidence-informed social services.

Establish a Shared Local Measure of Evidence-Informed Service

Early on, the Sonoma County Board of Supervisors formalized a common measure of evidence-informed services in its Portfolio process. This is a scaling strategy not identified in prior research. The Portfolio served several purposes. For service providers, the requirements for approval clarified what is expected in an evidence-informed service. For funders, the approval of organizations to the Portfolio provided objective evidence of capacity to deliver evidence-informed services. And for the county, monitoring participation in the Portfolio provided a mechanism to track scaling success. This study used the Portfolio data for this third purpose – as a measure of scaling success. Over seven years, the number of organizations with an approved Portfolio service steadily increased to 70 organizations.

Compared to emerging measures of scaling success, Sonoma County seemed to be making progress. One suggested measure of scaling success is the proportion of service providers using an evidence-informed service. One suggested threshold is 60% of providers in a given setting (Fixsen et al., 2013). Sonoma County exceeded that threshold, with 67% of providers in the setting of county-funded social services demonstrating capacity for evidence-informed service by the end of the study. Another suggested measure of scaling success is

proportion of funding dedicated to evidence-informed services, although no suggested threshold has been established. In Sonoma County, by the last year, more than half of county funding for contracted social services (55%) was awarded to organizations with evidence-informed capacity. Based on these measures of scaling success, Sonoma County is making progress.

Although these findings are very positive, they are not a perfect representation of successful scaling. This study did not determine the degree to which Portfolio services are being delivered with fidelity, although the Portfolio approval process includes assessment of fidelity. It is not completely clear that all funding awarded to Portfolio organizations was targeted specifically to Portfolio services. And this study included no measure of the proportion of social services clients that received an evidence-informed service or the effect of the services on the wellbeing of these users. As this scholarship continues, it will be important to improve the measurement of scaling success by including measures of fidelity, linking funding specifically to evidence-informed services, and determining the proportion of service users benefiting from these services.

In addition to quantifying Sonoma County's scaling success, this study also aimed to identify the impact of county-sponsored scaling strategies on this success. Specifically, this study tested the relative effect of four strategies—convening a leadership team, nudging organizational readiness, providing technical assistance, and ensuring adequate funding.

Convene and Support a High-Level Leadership Team

Sonoma County seems to be adept at convening multisector committees to discuss and plan for social services across a variety of domains. With its Upstream committee, charged specifically with coordinating scaling activities, the county has supported 12 standing committees working in the domains of child and youth development, health, employment, housing, older adults, and the intersectionality of these domains. Throughout the seven years of this study, the county hosted an average of four meetings each week. During these seven years, 293 organizations attended meetings, with a peak of 193 in the sixth year. This is clearly an active governance network. Related specifically to scaling leadership, the Upstream committee met 171 times and was attended by 68 organizations (23% of all meeting attending organizations). Attendees included elected officials, public agencies, service providers, businesses, and others, reflecting the broad inclusion suggested as necessary by prior scaling scholarship (Forman, 2015). According to the evaluation of Upstream, this committee is highly regarded and valued (Learning for Action, 2016). The number of Upstream meetings peaked in the second year and steadily declined thereafter. This suggests that the county's specific focus on scaling may have declined. But perhaps this is because attention to scaling was well embedded in the full network of meetings. In the last three years of the study, half of all meetings included a discussion of evidence-informed service. Throughout the study, except for the first year, more than 70% of organizations in each year were exposed to a discussion of evidence-informed service in at least one meeting.

Prior scholarship has emphasized the importance of regular meetings to discuss and manage scaling activities. These meetings are thought to effectively promote scaling because they spread information, which influences organizational behaviors, fosters relationships and encourages trust and risk taking by organizations (e.g., adopting evidence-informed services), and encourages policy makers from various service domains to begin to expand system supports for scaling (e.g., technical assistance and adequate funding). This study posed hypotheses

regarding how Upstream meetings and the full governance network of meetings would affect organizational adoption of evidence-informed services.

It was expected that organizations that attended more Upstream Committee meetings would have more and more quickly approved Portfolio services. This seemed to be partially supported. As demonstrated in the Kaplan-Maier model, 46% of organizations that attended Upstream meetings adopted at least one Portfolio service, compared to 15% of organizations that did not attend Upstream meetings. This suggests that direct involvement in a scaling leadership team quickens participation in scaling, either because organizations have more information to make their decision or because as part of scaling leadership, they are trying to set a good example. Another possible mechanism is that organizations that are interested in adopting evidence-informed services are those that choose to participate in scaling leadership, in which case, compared to other government strategies, direct participation in a scaling leadership team may not be the reason that individual organizations choose to adopt an evidence-informed service. This is not to say that a systemic leadership team is not necessary. The coordination provided by the team may create an environment that supports the adoption of evidence-informed services by organizations that do not participate in the leadership team. In fact, this is the basic goal—to scale evidence-informed services across all social service domains, not just in organizations that participate in the leadership activities. Although, only 15% of organizations that did not participate in this committee adopted an evidence-informed service, which does not seem like a sufficient systemic effect. Future research should expand the measurement of this strategy – convening a leadership team – to more fully capture possible mechanism by which it does or does not influence member and non-member organizations to adopt evidence-informed social services.

It was expected that organizations that attended more non-Upstream network meetings would have more and more quickly approved Portfolio services because they would be generally invested in the governance network and presumably the networks goals. This was not supported. By the end of the study period, 22% of the organizations that attended other meetings had adopted a Portfolio service, compared to 15% of organizations that did not attend other meetings. This was not a statistically significant difference in the Kaplan-Maier models, and this strategy is not significantly associated with organizational adoption decisions in the Cox models.

It was expected that organizations that attended more unique committees in more service domains would have more and more quickly approved Portfolio services because they would have an opportunity to consider the benefits of evidence-informed services in more than one service setting and this broader exposure would increase their interest in adoption. This was partially supported. Organizations that attended more unique committees (not necessarily more meetings) were significantly and substantially more likely to have a first Portfolio approval. In the Cox models, one-approval organizations that attended more than one committee were more than 6 times more likely to adopt an evidence-informed service than no-approval organizations (HR = 6.44). Multiple-approval organizations that attended more committees were more than 3 times more likely than no-approval organizations to have a first Portfolio approval (HR = 3.51). On average, organizations with no Portfolio-approved services attended slightly less than one committee per month (0.70), organizations with one approval attended slightly more than one committee (1.04) before their first Portfolio adoption, and multiple-approval organizations averaged almost three committees per month (2.80).

Expressed interest in more than one service domain seemed to have a dampening effect on first Portfolio adoption. When the number of service domains increased, the likelihood of

Portfolio adoption decreased in the Cox model comparing no-approval to one-approval organizations. This relationship was not significant in the model featuring multiple-approval organizations, and was not a significant factor differentiating one- and multiple-approval organizations in the third Cox model. Over time, the negative effect of involvement in multiple service domains seemed to worsen. It appears that although increased committee membership may be conducive to adoption of evidence-informed services, the complexity of considering such services for intersecting service domains may be challenging. Organizations that serve a variety of social needs, and that may take a whole-person approach to services, may have a harder time identifying more broadly focused evidence-informed services.

Finally, it was expected that organizations with greater exposure to the ideas of evidence-informed services would have more and more quickly approved Portfolio services because more knowledge would be a positive influence on behavior. This was not supported. Increased exposure to evidence-informed discussion in meetings was not significantly associated with Portfolio adoption for either one- or multiple-approval organizations. This may reflect limited variability in exposure. The proportion of organizations exposed to discussions of evidence-informed service was consistently greater than 70%. Sonoma County social services organizations were likely aware of the county's scaling goal, and this knowledge alone may not have been sufficient to prompt Portfolio participation. Moreover, this hypothesis assumed that the meeting discussions were favorable toward evidence-informed service. However, the tenor of these discussions was not assessed in this study, and it is possible that these discussions were generally neutral or negative. Computational text analyses can facilitate understanding of the meaning of large bodies of text without the need for humans to fully read and categorize all the text. This study included the minutes of more than 1,500 meetings. A logical next step with this research would be to explore the content and sentiment of meeting discussion.

In sum, the county has invested substantial resources in convening and supporting many cross-sector committees, including one specifically tasked with promoting the scaling of evidence-informed services. With the exception of attending more than one committee, meeting participation seemed to have little effect on organizational decisions to adopt evidence-informed services.

Nudge Organizational Readiness

Organizational readiness and capacity for adopting evidence-informed services are crucial. Prior scholarship has noted that organizations need strong internal support for transitioning to evidence-informed services, including adequate training, coaching and supervision for staff members, facilitative administrative support, and evident leadership buy-in. There has been less attention in prior research on the role of governments in assessing this readiness related to scaling success. The Sonoma County environment offered two opportunities to examine the impact of county involvement in readiness assessment. Prior to the launch of Upstream, the county identified organizations that reported and were confirmed to be delivering evidence-informed services. For the county, the primary goal was to recognize these organizations. In hindsight, this assessment provided important information about likely first adopters. The county also sponsored a process whereby organizations publicly declared their alignment with the goals of Upstream, including a commitment to adopting evidence-informed services. With this strategy, the county was intentionally assessing the level of buy-in and readiness across the community of service providers as an early barometer of the degree of work

that might be needed for successful scaling. This study included three hypotheses related to these county readiness assessments.

It was expected that organizations that self-identified as already implementing one or more evidence-informed services would have more and more quickly approved Portfolio services, independent of county strategies, because they were already clearly interested in and capable of adopting these services. In other words, these organizations were already on a path toward expanded evidence-informed service delivery before the county adopted the scaling goal, and it is reasonable to assume they would have continued this direction even without county involvement. This hypothesis had mixed findings. By the end of the study period, 52% of organizations with prior reported evidence-informed services had achieved Portfolio approval for at least one service, compared to only 16% of organizations without this prior interest. The Cox model demonstrated that multiple-approval organizations with this prior interest were nearly 7 times more likely to adopt a first service than organizations with no identified prior interest ($HR = 6.88, p < .05$). This is one area that distinguished one- and multiple-approval organizations, with the latter being nearly 3 times faster at achieving its first Portfolio approval than the former ($HR = 2.76, p < .05$).

It was also expected that organizations that already had the confirmed capacity to deliver evidence-informed services would have more and more quickly approved Portfolio services, independent of county strategies. This hypothesis was not fully supported. The Kaplan-Maier models demonstrated that more organizations with prior confirmed capacity did achieve Portfolio approval more than those without (50% compared to 16%). But this previously confirmed capacity was not a significant influencer when compared to other strategies in the Cox models. It is possible that the number of these organizations was too small to detect an effect. But 30 organizations had confirmed and 25 organizations had reported prior capacity, providing sufficient power to detect a positive effect of the latter. Based on path dependence theory (Pierson & Skocpol, 2002; Walby, 2007), it is reasonable to expect that organizations already on a path toward adopting evidence-informed services would be more likely to participate in the Portfolio, so the incongruity between organizations that were confirmed to have prior capacity is curious. One possibility is that organizations that reported prior capacity were more likely to have a current contract relationship with the county and those with confirmed capacity were less likely and therefore less interested in participating in the county-sponsored Portfolio.

It was expected that organizations that submitted a Resolution would have more and more quickly approved Portfolio services. This hypothesis was soundly supported. The Kaplan-Maier models revealed that 52% of organizations that submitted a Resolution subsequently adopted a first Portfolio service, compared to 12% of organizations without a Resolution. A submitted Resolution was significantly associated with first Portfolio adoption in the Cox models for both organizations with one and multiple services. Via this process, the county was intentionally prompting organizations to internally consider their desire and capacity for adopting evidence-informed services. The fact that the Resolutions required organizational board approval meant they were probably taken seriously and by the time an organization submitted a Resolution, it was probably solidly moving toward adoption of evidence-informed services. However, the number of newly submitted Resolutions had declined to eight in the final year, which mirrored the pattern of a declining number of first Portfolio approvals (see Table 4). So, although the number of overall Portfolio approvals was still on an increasing trend, it seems that newly submitted and approved Portfolios were increasingly from organizations already involved in the Portfolio. Organizations signaling readiness via a Resolution were declining, as were new

organizations to the Portfolio. This suggests that the county's success at convincing new organizations to adopt evidence-informed service may have peaked.

Provide Technical Assistance to Organizations

The necessity of providing clinical and administrative technical assistance to social services organizations as a strategy to successfully scale evidence-informed services has more empirical support than any of the other strategies studied here (Meyers et al., 2012), and this study explored one related and simple hypothesis.

It was expected that organizations that participated in more technical assistance would have more and more quickly approved Portfolio services. This hypothesis was uniformly not supported. In the Kaplan-Maier models, there was no significant difference in the proportion of organizations with and without technical assistance that adopted a Portfolio service. In the Cox models, number of technical assistance sessions attended was not significantly associated with Portfolio adoption. There are several possible reasons for this finding of no effect. First, technical assistance might not be effective in promoting adoption of evidence-informed services. In light of the substantial prior research that supported its effect, this option seems unlikely. Second, it is possible that organizations that received technical assistance had not yet adopted, but still will adopt evidence-informed service. Transitioning from an organization without the capacity to sufficient capacity for adoption is not trivial. It is highly probable that organizations that received technical assistance were still working, at the end of the study, to develop their internal capacity and the effects of the assistance will be observed later. Third, there was a data collection problem related to technical assistance. Records for the full first year of county-provided assistance were not available. These organizations that received the earliest assistance were more likely to have already adopted an evidence-informed service, but the effect of the technical assistance, if any, was not included in this model. A final possibility is that the type of assistance provided to date by the county was not sufficient to help unprepared organizations develop the capacity for adoption of evidence-informed services. Prior scholarship suggested that states that have successfully provided technical assistance have opened statewide resource centers, provided on-site observation and coaching, provided intensive weeks-long institutes, and offered other expansive supports. Domitrovitch and Durlak (2015) suggested that the needed level of technical assistance is not yet well understood and requires a new profession to fully materialize. Perhaps Sonoma County technical assistance needed to be more intensive to have an effect.

Aligning Funding

Prior experience has suggested that without government financial support, scaling of evidence-informed services cannot be successful. No other source of funding for social services is likely to be adequate to ensure that a substantial portion of social services are evidence-informed. Specifically, scholars have suggested that governments should tie contract awards and service reimbursements to the adoption of evidence-informed services. It is not clear yet how this process might unfold for governments. Governments can't switch to exclusively funding evidence-informed services if the community of service providers does not have the capacity to deliver such services. To develop capacity, organizations need funding. For governments, funding capacity building for future services competes with funding of current services.

This study hypothesized that organizations with a prior contractual relationship with the county would be more likely to adopt evidence-informed services as a way to appease the county and retain their county funding. The Kaplan-Maier model suggested that having an existing contract relationship with the county did not influence the rate of or time to adoption of Portfolio services. During the seven study years, 17% of organizations without a county contract and 21% of organization with a county contract achieved Portfolio approval for at least one service. But the Cox models demonstrated that the effect of a contract relationship was not binary (as represented in the Kaplan-Maier model) but rather dependent on the size of the financial partnership. For both one- and multiple-approval organizations, there was a significant association between contract value and Portfolio adoption. Organizations with prior contracts in the fourth quartile by value were 4 or 5 times more likely to adopt an evidence-informed service than organizations with contracts in the first quartile – suggesting that organizations with larger county contracts were more incentivized to participate in evidence-informed services. Maybe large contract holders were slow to apply to the Portfolio. As time progressed, maybe the county exerted more pressure to apply. It is clear from the timeline in Table 4 that the county has steadily prioritized Portfolio membership in contract awards. The comparison of organizational participation in county scaling strategies provided in Table 7 showed that organizations with multiple Portfolio services received more funding after their first Portfolio adoption than before and received more funding than organizations with no or one Portfolio service.

Limitations

The limitations of this study suggest implications for continued research in this area. Limitations include lack of a counterfactual environment, missing variables, missing data, and crude measurement.

First, and most importantly, this was an observational study without an experimental control or counterfactual environment. This study seemed to establish a relationship between governmental involvement in scaling activities and increased adoption of evidence-informed services. But without a counterfactual or control environment it is in possible to conclude that the county strategies were significantly influential in organizational decisions to adopt evidence-informed services. Maybe the county's scaling strategies caused organizations to adopt evidence-informed services. Or maybe organizations would have done so anyway in response to national and professional pressures, coincidentally expanding their adoption of evidence-informed services in tandem with and regardless of the county scaling strategies. Or maybe organizations only adopt evidence-informed services to retain their county funding. This study used a highly replicable design that relied solely on public data that should be available in most communities. Ongoing research should focus on replicating these results in a variety of settings. This would facilitate an understanding of configurations of government strategies that are more or less effective in promoting evidence-informed services. Although, it may be difficult to find comparisons counties with an existing measure of evidence-informed services. Researcher documentation of such may be prohibitive at scale. Developing a standardize measure that certifies whether a delivered social service is evidence-informed will be an important step in this scholarship.

Second, this study clearly missed important variables. For instance, organizational characteristics such as budget size and funding mix, organizational age and mission, leadership style and effectiveness, and number of employees may be important influencers of organizational adoption of evidence-informed service. Larger organizations and better resourced organizations

are probably better able to absorb the cost of internal capacity development. The fields of organizational development and management and cross-sector collaboration can suggest important variables to add in future studies. Environmental factors such as national and state regulation, or the availability of relevant evidence-based services, may also be more influential in organizational decisions to adopt evidence-informed services than government encouragement of scaling. And, to fully understand the extent of scaling in a specific setting, information about services not funded by the county should be included. For instance, a future study could include the extent to which services funded by other local funders, client fees, and state and federal grants and reimbursements are evidence based.

Third, the measurement approach in this study was crude. Although it provided a high-level examination of government involvement in scaling practices, it could be enhanced in future research. Scaling was measured as number and percentage of social services organizations that had been objectively certified as having the capacity to deliver at least one evidence-informed service with fidelity and the amount and proportion of county service dollars awarded to these organizations. Improvements to this approach should include documenting the match between contract dollars and specific Portfolio-approved services. It should also include an observed determination of the fidelity with which organizations are delivering their evidence-informed and funded service. To round out the measurement of successful scaling, future studies should also document the proportion of service users who are served with an evidence-informed service and the resultant improvements in wellbeing. In addition to improved measurement of scaling success, the measurement of government scaling strategies can also be improved. Specifically, methods should be incorporated that capture the content and tenor of meeting discussions, adequately account for the quantity and quality of technical assistance, and identify motivations for organizations that adopt evidence-informed services. More sophisticated measures of organizational readiness for evidence-informed service could also be adopted.

Finally, this study only reports a single dependent variable (Portfolio adoption) using a single modeling approach – time-to-event models. However, it is highly likely that the behaviors studied here are highly interactive. Organizational motivation to attend meetings, receive technical assistance, develop internal readiness, and adopt evidence-informed services may all center on the desire to obtain and retain county funding. Perhaps county governments do not need to invest in government networks or technical assistance. Perhaps the only role they need to play in scaling evidence-informed social services is to prioritize such services for funding. But it is probably not that simple. To fund evidence-informed services, counties need organizations with the capacity to deliver them. If no organizations respond to requests-for-proposals that require evidence-informed services, then counties are forced to fund services without a clear evidence base. In this case, providing technical assistance to develop capacity probably is a worthwhile government investment and role. Another complication is that service providers often have strong relationships with elected officials and can successfully lobby to overturn public agency funding decisions. Elected official support for evidence-informed services is not a given (as noted by the Upstream evaluation) and if it wanes, social service agencies probably cannot make evidence-informed practice a requirement of funding. One way the Sonoma County social service agencies manage this possibility is to coordinate extensive governance networks to achieve broad consensus about county funding priorities, such as requirements for evidence-informed practice. To more fully understand the reasons why service providers are willing to adopt evidence-informed services, and to clarify the ways in which governments can best invest their resources to encourage this decision, complex models are needed. For instance, stochastic

actor-oriented models can demonstrate the iterative, interdependent, and path dependent interactions between service providers and governments in governance networks and the effect of these interactions on behaviors of both service provider and public organizations (Burk, Steglich & Snijder, 2007; Mohrenberg, 2017; Pierson & Skocpol, 2002; Steglich, Snijders, & Pearson, 2010). Essentially, these models allow rotating dependent and independent variables to more fully express the system complexity. Complexity theory would also be a useful frame to better understand the intersecting interactions within local social services systems and the emergent achievement of shared goals (Walby, 2007).

Conclusion

In many communities, county elected officials and the public social services agencies they oversee may be the only entities with sufficient resources to support an extended commitment to scaling (Van Dyke & Naoom, 2016). County officials can enact local policy and ordinances that help create an environment conducive to scaling (Horner et al., 2014). County elected officials likely have existing and long-term relationships with executive directors of local social services organizations that they can leverage to encourage adoption of evidence-informed services. County public agencies have the resources to provide the documented historical memory necessary to sustain a long-term commitment (Aldridge et al., 2016). They have institutional staying power and relatively reliable financial resources. They can establish the expectation that scaling evidence-informed services is an embedded and normal activity in the broader array of activities that are necessary to deliver social services and which they already coordinate through governance networks (Meyers et al., 2012). Moreover, county social service agencies are motivated and have the capacity to monitor progress toward the achievement of improvements in population-level social well-being because they already manage the full breadth of social services and house significant stores of relevant data (Van Dyke & Naoom, 2016). In other words, local government agencies have the capacity, if they choose to use it, to support the scaling of evidence-informed services in their jurisdiction. However, scant research has examined the possible government scaling strategies and their effect. Without such evidence, governments may be reluctant to enter the scaling arena.

This study achieved two aims. First, it explored what strategies county governments can employ to support the scaling of evidence-informed services. Second, it assessed the relative effect of these strategies on scaling success. To do so, it analyzed the experiences of one county that decided to actively expand the use of evidence-informed services. Other studies have similarly described state and federal efforts to expand the use of evidence-informed services (Horner et al., 2014; Ray et al., 2012; Rocque et al., 2014; Welsh & Greenwood, 2015), but have not included a focus on counties. Additionally, research about federal and state initiatives to scale evidence-informed services has focused on the costs and benefits of the services (Drake, 2010), the effectiveness of the services at a scaled level (Dishion, et al, 2016; Drake, 2010), and the technical assistance supported by the government (Ray et al., 2012). But it has not focused specifically on the effect of government interventions to promote scaling. Additionally, most prior research focused on a few specific evidence-informed services in a single service domain, but not on the full array of social services in a given geographic setting. Building on prior research, the current study considered the goal of scaling evidence-informed services across the spectrum of service domains in a county. It also considered the government strategies themselves to be an intervention lever and examined their effects as an additional and important focus.

This study found good evidence that a county government can maintain a long-term and intense focus on supporting the scaling of evidence based services—at least in a community like this one, which featured preexisting and substantial political support for scaling and a well-established and active governance network. This study demonstrated that over time, a county can substantially increase the number of social services providers with the capacity to deliver evidence-informed services and the proportion of county funding dedicated to these providers. For perhaps the first time, this study compared the effect of government scaling strategies on organizational decisions to adopt evidence-informed services. Surprisingly, it did not find evidence of a relationship between organizational adoption of evidence-informed services and technical assistance, although this is likely the result of inadequate measurement of such assistance. It did demonstrate a strong association between adoption of an evidence-informed service and (a) organizational internal readiness and (b) organizational participation in more than one committee of the governance network. It also demonstrated a positive relationship between an organization's choice to adopt an evidence-informed service and a preexisting and large contractual relationship with the county. This study developed an easily replicable design that can be applied in different county settings to begin to understand the patterns of county strategies to support scaled evidence-informed services and their effect on organizational adoption of such services.

Despite the limitations, most notably the inability to account for potentially important omitted variables and the lack of a counterfactual or control environment, this study outlines a novel approach with great potential to advance this field. It demonstrates the feasibility of using readily available public data and efficient computational methods to quantify the extent to which scaling of evidence-informed social services occurs (e.g. number of adopting organizations and percent of dedicated contract funding). And, it begins to empirically articulate possible government strategies that may influence social service organizations adoption of evidence-informed services (e.g. hosting active governance networks, providing technical assistance, and aligning contract funding). Furthermore, it suggests that readiness is one of the most important factors in organizational adoption of evidence-informed services. Governments should maximize knowledge of organizational readiness by targeting technical assistance and other government sponsored supports to organizations that are clearly not yet capable of adopting evidence-informed services. A viable next step in this research is to extend this study design to other California counties which would provide a rich understanding of similarities and differences across locations and the effects thereof while controlling for state and federal variation. Moreover, data about nonprofit service provider organizational characteristics is readily available from IRS 990 forms catalogued in GuideStar and other search engines and should be included. And, as more data from more locations and regarding more potentially important covariates is gathered, interactions can be tested. By extending this study to more locations, and by controlling for organizational characteristics and probable interactions, more compelling conclusions can be drawn about the power of government interventions to promote scaling of evidence-based social services. Specifically, and perhaps most importantly, this study demonstrates that governments can gradually shift funding to organization that commit to delivering evidence-based services. Because governments are such substantial funders of social services, understanding and harnessing the power of government funding as a lever to promote scaling of evidence-based services may be the best opportunity to date to achieve wide-scale implementation of evidence-based services and their promised population-level benefits.

References

- Adams, N. (2015). Scaling up content analysis: Crowd-coding text units. *SSRN*. doi:10.2139/ssrn.2617222
- Aldridge, W. A., II, Boothroyd, R. I., Fleming, W. O., Jarboe, K. L., Morrow, J., Ritchie, G. F., & Sebian, J. (2016). Transforming community prevention systems for sustained impact: Embedding active implementation and scaling functions. *Translational Behavioral Medicine*, 6, 135–144. doi:10.1007/s13142-015-0351-y
- Ansell, C. (2015). When collaborative governance scales up: Lessons from global public health about compound collaboration. *Policy & Politics*, 43, 391–406. doi:10.1332/030557315X14357434864543
- Béland, D. (2009). Ideas, institutions, and policy change. *Journal of European Public Policy*, 16, 701–718. doi:10.1080/13501760902983382
- Bradburn, M. J., Clark, T. G., Love, S. B., & Altman, D. G. (2003a). Survival analysis part III: multivariate data analysis – choosing a model and assessing its adequacy and fit. *British Journal of Cancer*, 89, 605–611. doi:10.1038/sj.bjc.6601120
- Bradburn, M. J., Clark, T. G., Love, S. B., & Altman, D. G. (2003b). Survival analysis part II: Multivariate data analysis – an introduction to concepts and methods. *British Journal of Cancer*, 89, 431–436. doi:10.1038/sj.bjc.6601119
- Bruns, E. J., Hoagwood, K. E., Rivard, J. C., Wotring, J., Marsenich, L., Carter, B., & Hamilton, J. D. (2008). State implementation of evidence-informed practice for youths, part II: Recommendations for research and policy. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47, 499–504. doi:10.1097/CHI.0b013e3181684557
- Bumbarger, B. K. (2015). Moving research evidence from the fringe to the mainstream in social policy. *Social Policy Report*, 28(4), 17–19. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiSopfWrvzXAhVN32MKHVydBCMqFggqMAA&url=http%3A%2F%2Fwww.srca.org%2Fsites%2Fdefault%2Ffiles%2Fdocuments%2Fspr_28_4.pdf&usq=AOvVaw30Wam_adAMxYSoOpYl_PWa
- Bumbarger, B. K., & Campbell, E. M. (2012). A state agency–university partnership for translational research and the dissemination of evidence-informed prevention and intervention. *Administration and Policy in Mental Health and Mental Health Services Research*, 39, 268–277. doi:10.1007/s10488-011-0372-x
- Burk, W. J., Steglich, C. E., & Snijders, T. A. (2007). Beyond dyadic interdependence: Actor-oriented models for co-evolving social networks and individual behaviors. *International Journal of Behavioral Development*, 31(4), 397–404. doi:10.1177/0165025407077762
- California Public Records Act of 1968, Cal. Gov. Code 6250 *et seq.*, Ch. 1473 (1968).

- CalNonprofits. (2014). *Causes count: The economic power of California's nonprofit sector*. Retrieved from <http://calnonprofits.org/publications/causes-count>
- Center for Implementation-Dissemination of Evidence-Based Practices among States. (2017). Retrieved from <https://www.ideas4kidsmentalhealth.org/>
- Chamberlain, P., Roberts, R., Jones, H., Marsenich, L., Sosna, T., & Price, J. M. (2012). Three collaborative models for scaling up evidence-informed practices. *Administration and Policy in Mental Health and Mental Health Services Research*, *39*, 278–290. doi:10.1007/s10488-011-0349-9
- Chang, D. I., Gertel-Rosenberg, A., & Snyder, K. (2014). Accelerating efforts to prevent childhood obesity: Spreading, scaling, and sustaining healthy eating and physical activity. *Health Affairs*, *33*, 2207–2213. doi:10.1377/hlthaff.2014.0818
- Child Welfare Information Gateway. (2012). *State vs. county administration of child welfare services*. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau.
- Clark, T. G., Bradburn, M. J., Love, S. B., & Altman, D. G. (2003). Survival analysis part I: Basic concepts and first analyses. *British Journal of Cancer*, *89*, 232–238. doi:10.1038/sj.bjc.6601118
- Columbia University Mailman School of Public Health. (n.d.). Time-to-event data analysis. Retrieved from <https://www.mailman.columbia.edu/research/population-health-methods/time-event-data-analysis>
- County of Sonoma. (nd). *A Funder's Guide to the Upstream Investments Policy*. Retrieved from http://issuu.com/sonomacountyupstreaminvestments/docs/ui_funders_guide
- County of Sonoma. (2010). *Upstream Investments*. Retrieved from <http://www.upstreaminvestments.org/html/documents.htm>
- County of Sonoma. (2013). *Progress Report and Next Steps for 2013*. Retrieved from <http://www.upstreaminvestments.org/documents/BOSReport2-26-13FINAL.pdf>
- County of Sonoma. (2015). *Portfolio of Model Upstream Programs: INSTRUCTIONS*. Retrieved from http://www.upstreaminvestments.org/html/add_form.htm
- County of Sonoma. (2017). Boards, commissions, committees & task forces. Retrieved from <http://sonomacounty.ca.gov/Board-of-Supervisors/Boards-Commissions-Committees-and-Task-Forces/>
- Cox, D. R. (1992). Regression models and life-tables. In *Breakthroughs in statistics* (pp. 527–541). Springer.

- Dishion, T., Forgatch, M., Chamberlain, P., & Pelham, W. E., III. (2016). The Oregon model of behavior family therapy: From intervention design to promoting large-scale system change. *Behavior Therapy, 47*, 812–837. doi:10.1016/j.beth.2016.02.002
- Domitrovich, C., & Durlak, J. A. (2015). The importance of quality implementation in the wide-scale use of evidence based programs. *Social Policy Report, 28*(4), 20–22. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiSopfWrvzXAhVN32MKHVydBCMqFggqMAA&url=http%3A%2F%2Fwww.srce.org%2Fsites%2Fdefault%2Ffiles%2Fdocuments%2Fspr_28_4.pdf&usg=AOvVaw30Wam_adAMxYSoOpYl_PWa
- Drake, E. (2010). *Washington state juvenile court funding: Applying research in a public policy setting*. Olympia, WA: Washington State Institute for Public Policy. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjMxPWzr_zXAhVB-2MKHXveDc0QFggnMAA&url=http%3A%2F%2Fwww.wsipp.wa.gov%2FReportFile%2F1077%2FWsipp_Washington-State-Juvenile-Court-Funding-Applying-Research-in-a-Public-Policy-Setting_Full-Report.pdf&usg=AOvVaw1xd-gFxlIBwLO3xeK5tJd
- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology, 41*, 327–350. doi:10.1007/s10464-008-9165-0
- Fagan, A. A., Arthur, M. W., Hanson, K., Briney, J. S., & Hawkins, J. D. (2011). Effects of Communities That Care on the adoption and implementation fidelity of evidence-informed prevention programs in communities: Results from a randomized controlled trial. *Prevention Science, 12*, 223–234. doi:10.1007/s11121-011-0226-5
- Farmer, J. L. (2010). County government choices for redistributive services. *Urban Affairs Review, 6*, 1–24. doi.org/10.1177/1078087410384235
- Feinerer, I., & Hornik, K. (2017). Package ‘tm.’ *Corpus, 4*, 1.
- Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-informed programs. *Exceptional Children, 79*, 213–230. doi:10.1177/001440291307900206
- Fixsen, D. L., Blase, K. A., Naoom, S. F., & Wallace, F. (2009). Core implementation components. *Research on Social Work Practice, 19*, 531–540. doi:10.1177/1049731509335549
- Forman, S. G. (2015). Sustaining and scaling-up evidence-informed programs. In *Implementation of mental health programs in schools: A change agent's guide* (pp. 185–198). Washington, DC: American Psychological Association.

- Frank Porter Graham Child Development Institute. (n.d.). State Implementation & Scaling-Up of Evidence-Based Practices Center. Retrieved from <http://sisep.fpg.unc.edu/>
- Friedlander, W. A. (1955). *Introduction to social welfare*. New York, NY: Prentice-Hall.
- Gambrill, E. D. (2003). From the editor: Evidence-based practice: Sea change or the emperor's new clothes? *Journal of Social Work Education, 39*, 3–23.
- Geertz, C. (1973). *The interpretation of cultures* (Vol. 5019). Basic books.
- Gilbert, N. (2002). *Transformation of the welfare state: The silent surrender of public responsibility*. New York, NY: Oxford University Press.
- Gilbert, N., & Gilbert, B. (1989). *The enabling state: Modern welfare capitalism in America*. New York, NY: Oxford University Press.
- Glyph & Cog. (2017). XpdfReader. Retrieved from <http://www.foolabs.com/xpdf/>
- Gottfredson, D. C., Cook, T. D., Gardner, F. E., Gorman-Smith, D., Howe, G. W., Sandler, I. N., & Zafft, K. M. (2015). Standards of evidence for efficacy, effectiveness, and scale-up research in prevention science: Next generation. *Prevention Science, 16*(7), 893-926. doi:10.1007/s11121-015-0555-x
- Gray, M., Joy, E., Plath, D., & Webb, S. A. (2013). Implementing evidence-informed practice: A review of the empirical research literature. *Research on Social Work Practice, 23*, 157–166. doi:10.1177/1049731512467072
- Green, L. W. (2001). From research to “best practices” in other settings and populations. *American Journal of Health Behavior, 25*, 165–178. doi:10.5993/AJHB.25.3.2
- Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Quarterly, 82*, 581–629. doi:10.1111/j.0887-378X.2004.00325.x
- Grønbjerg, K. A. (1993). *Understanding nonprofit funding: Managing revenues in social services and community development organizations*. Jossey-Bass Inc Pub.
- Hall, P. A. (1993). Policy paradigms, social learning, and the state: The case of economic policymaking in Britain. *Comparative Politics, 25*, 275–296. doi:10.2307/422246
- Hanleybrown, F., Kania, J., & Kramer, M. (2012). Channeling change: Making collective impact work. *Stanford Social Innovation Review*. Retrieved from https://ssir.org/articles/entry/channeling_change_making_collective_impact_work
- Hanson, R. F., Self-Brown, S., Rostad, W. L., & Jackson, M. C. (2016). The what, when, and why of implementation frameworks for evidence-informed practices in child welfare and child mental health service systems. *Child Abuse & Neglect, 53*, 51–63. doi:10.1016/j.chiabu.2015.09.014

- Heemskerk, E. M., Daolio, F., & Tomassini, M. (2013). The community structure of the European network of interlocking directorates 2005–2010. *PLoS One*, 8, e68581. doi:10.1371/journal.pone.0068581
- Heikkila, T., & Gerlak, A. K. (2016). Learning. In C. Ansell & J. Torfing (Eds.), *Handbook on theories of governance* (pp. 225–235). Northampton, MA: Edward Elgar.
- Hlavac, Marek (2015). stargazer: Well-Formatted Regression and Summary Statistics Tables. R package version 5.2. <http://CRAN.R-project.org/package=stargazer>
- Hoagwood, K. E., Olin, S. S., Horwitz, S., McKay, M., Cleek, A., Gleacher, A., ... Hogan, M. (2014). Scaling up evidence-informed practices for children and families in New York State: Toward evidence-informed policies on implementation for state mental health systems. *Journal of Clinical Child & Adolescent Psychology*, 43, 145–157. doi:10.1080/15374416.2013.869749
- Horner, R. H., Kincaid, D., Sugai, G., Lewis, T., Eber, L., Barrett, S., ... Johnson, N. (2014). Scaling up school-wide positive behavioral interventions and supports: Experiences of seven states with documented success. *Journal of Positive Behavior Interventions*, 16, 197–208. doi:10.1177/1098300713503685
- Hornik K, Buchta C and Zeileis A (2009). Open-Source Machine Learning: R Meets Weka. *Computational Statistics*, 24(2), pp. 225–232. doi: 10.1007/s00180-008-0119-7
- Johnston, L. M., Matteson, C. L., & Finegood, D. T. (2014). Systems science and obesity policy: A novel framework for analyzing and rethinking population-level planning. *American Journal of Public Health*, 104, 1270–1278. doi:10.2105/AJPH.2014.301884
- Jung, K., & Valero, J. N. (2016). Assessing the evolutionary structure of homeless network: Social media use, keywords, and influential stakeholders. *Technological Forecasting and Social Change*, 110, 51–60. doi:10.1016/j.techfore.2015.07.015
- Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review*. Retrieved from https://ssir.org/articles/entry/collective_impact
- Karoly, L. A., Kilburn, M. R., & Cannon, J. S. (2006). *Early childhood interventions: Proven results, future promise*. Rand Corporation. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjAtK2qsvzXAhUU7WMKHQa2CMsQFggnMAA&url=https%3A%2F%2Fwww.rand.org%2Fcontent%2Fdam%2Frand%2Fpubs%2Fmonographs%2F2005%2FRAND_MG341.pdf&usg=AOvVaw3iEuI-czs8l4hFmvxxLO5k
- Kassambara, A. (2017). Package 'survminer'. Retrieved <https://cran.r-project.org/web/packages/survminer/index.html>
- Kingston, B. E., Mihalic, S. F., & Sigel, E. J. (2016). Building an evidence-informed multitiered system of supports for high-risk youth and communities. *American Journal of Orthopsychiatry*, 86(2), 132–143. <http://dx.doi.org/10.1037/ort0000110>

- Klingner, J. K., Ahwee, S., Pilonieta, P., & Menendez, R. (2003). Barriers and facilitators in scaling up research-based practices. *Exceptional Children, 69*, 411–429. doi:10.1177/001440290306900402
- Klingner, J. K., Boardman, A. G., & McMaster, K. L. (2013). What does it take to scale up and sustain evidence-informed practices? *Exceptional Children, 79*, 195–211. doi:10.1177/001440291307900205
- Koliba, C., Meek, J. W., & Zia, A. (2011). *Governance networks in public administration and public policy*. Boca Raton, FL: CRC Press.
- Learning for Action. (2016). *Upstream Investments Policy Initiative: Systems change evaluation*. Santa Rosa, CA: County of Sonoma. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKewjhp-jDsvzXAhUP92MKHel7AfMQFggnMAA&url=http%3A%2F%2Fsonoma-county.granicus.com%2FMetaViewer.php%3Fview_id%3D2%26clip_id%3D636%26meta_id%3D200403&usg=AOvVaw2xymSQBWUXqB0S8zJgeM6I
- Leifeld, P. (2013). Reconceptualizing major policy change in the advocacy coalition framework: A discourse network analysis of German pension politics. *Policy Studies Journal, 41*, 169–198. doi:10.1111/psj.12007
- Horikoshi, M. & Tang, Y. (2016). *ggfortify: Data Visualization Tools for Statistical Analysis Results*. Retrieved from <https://CRAN.R-project.org/package=ggfortify>
- Metz, A., & Albers, B. (2014). What does it take? How federal initiatives can support the implementation of evidence-informed programs to improve outcomes for adolescents. *Journal of Adolescent Health, 54*, S92–S96. doi:10.1016/j.jadohealth.2013.11.025
- Meyers, D. C., Durlak, J. A., & Wandersman, A. (2012). The quality implementation framework: A synthesis of critical steps in the implementation process. *American Journal of Community Psychology, 50*, 462–480. doi:10.1007/s10464-012-9522-x
- Midgley, J., & Livermore, M. (Eds.). (2008). *The handbook of social policy* (2nd ed.). Thousand Oaks, CA: Sage.
- Milward, H. B., & Provan, K. G. (2006). *A manager's guide to choosing and using collaborative networks*. Retrieved from <http://www.businessofgovernment.org/report/managers-guide-choosing-and-using-collaborative-networks>
- Mohrenberg, S. (2017). Studying Policy Diffusion with Stochastic Actor-Oriented Models. In *Networked Governance* (pp. 163-188). Springer International Publishing. doi.org/10.1007/978-3-319-50386-8_10
- Nurse-Family Partnership. (2017). Proven effective through extensive research. Retrieved from <https://www.nursefamilypartnership.org/about/proven-results/>

- Olds, D. L. (2002). Prenatal and infancy home visiting by nurses: From randomized trials to community replication. *Prevention Science*, 3, 153–172. doi:10.1023/A:1019990432161
- Peto, R., Pike, M. C., Armitage, P., Breslow, N. E., Cox, D. R., Howard, S. V., ... Smith, P. G. (1977). Design and analysis of randomized clinical trials requiring prolonged observation of each patient. II. analysis and examples. *British Journal of Cancer*, 35, 1–39. doi:10.1038/bjc.1977.1
- Pettijohn, S. L., & Boris, E. T. (2014). *Contracts and grants between human service nonprofits and government: Comparative analysis*. Retrieved from <https://www.urban.org/research/publication/contracts-and-grants-between-human-service-nonprofits-and-government-comparative-analysis>
- Pierson, P., & Skocpol, T. (2002). Historical institutionalism in contemporary political science. *Political science: The state of the discipline*, 3, 693-721.
- Pople, P. R. (1993). *Social work, social welfare, and American society* (2nd ed). Boston: Allyn & Bacon.
- R Core Team (2017). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Ralph M. Brown Act of 1953, Cal. Gov. Code 54950 *et seq.*, Ch. 1588 (1953).
- Ray, M. L., Wilson, M. M., Wandersman, A., Meyers, D. C., & Katz, J. (2012). Using a training-of-trainers approach and proactive technical assistance to bring evidence based programs to scale: An operationalization of the interactive systems framework's support system. *American Journal of Community Psychology*, 50, 415–427. doi:10.1007/s10464-012-9526-6
- Results Group. (2006). *Sonoma County strategic plan: Analysis phase (final report)*. Santa Rosa, CA: Author.
- Rocque, M., Welsh, B. C., Greenwood, P. W., & King, E. (2014). Implementing and sustaining evidence-informed practice in juvenile justice: A case study of a rural state. *International Journal of Offender Therapy and Comparative Criminology*, 58, 1033–1057. doi:10.1177/0306624X13490661
- Rodríguez, G. (2001). *Generalized linear model theory*. Retrieved from <http://data.princeton.edu/wws509/notes/>
- Rosenheck, R., Neale, M., Leaf, P., Milstein, R., & Frisman, L. (1995). Multisite experimental cost study of intensive psychiatric community care. *Schizophrenia Bulletin*, 21, 129–140.
- Rotheram-Borus, M. J., Swendeman, D., & Chorpita, B. F. (2012). Disruptive innovations for designing and diffusing evidence-informed interventions. *American Psychologist*, 67, 463–476. doi:10.1037/a0028180

- RStudio Team (2015). *RStudio: Integrated Development for R*. RStudio, Inc., Boston, MA URL <http://www.rstudio.com/>.
- Rubin, A., & Babbie, E. R. (2017). *Research Methods for Social Work*. Boston, MA: Cengage Learning.
- Salamon, L. M. (1987). Of market failure, voluntary failure, and third-party government: Toward a theory of government-nonprofit relations in the modern welfare state. *Nonprofit and Voluntary Sector Quarterly*, *16*, 29–49. doi:10.1177/089976408701600104
- Schoenwald, S. K., & Hoagwood, K. (2001). Effectiveness, transportability, and dissemination of interventions: What matters when? *Psychiatric Services*, *52*(9), 1190–1197. doi.org/10.1176/appi.ps.52.9.1190
- Shapiro, V. B., Hawkins, J. D., Oesterle, S., Monahan, K. C., Brown, E. C., & Arthur, M. W. (2013). Variation in the Effect of Communities That Care on Community Adoption of a Scientific Approach to Prevention. *Journal of the Society for Social Work and Research*, *4*(3), 154–164. doi.org/10.5243/jsswr.2013.10
- Sheldon, B. (2001). The validity of evidence-informed practice in social work: A reply to Stephen Webb. *British Journal of Social Work*, *31*, 801–809. doi:10.1093/bjsw/31.5.801
- Sirna, M. (2012). *Indicators of success: 2012 update*. Santa Rosa, CA: County of Sonoma.
- Smith, S. R. (2012). Social services. In L. M. Salamon (Ed.), *The state of nonprofit America* (2nd ed., pp. 192–228). Washington, DC: Brookings Institution Press.
- Sørensen, E., & Torfing, J. (2009). Making governance networks effective and democratic through metagovernance. *Public Administration*, *87*, 234–258. doi:10.1111/j.1467-9299.2009.01753.x
- Spamgirl. (2014, January 30). The myth of low cost, high quality on Amazon's Mechanical Turk [Online forum comment]. Retrieved from <http://turkernation.com/showthread.php?21352-The-Myth-of-Low-Cost-High-Quality-on-Amazon-s-Mechanical-Turk>
- Steglich, C., Snijders, T. A., & Pearson, M. (2010). Dynamic networks and behavior: Separating selection from influence. *Sociological methodology*, *40*(1), 329–393. doi: 10.1111/j.1467-9531.2010.01225.x
- Supplee, L. H., & Metz, A. (2014). Opportunities and challenges in evidence-informed social policy. *Social Policy Report*, *28*(4). Retrieved from https://www.srpd.org/sites/default/files/documents/spr_28_4.pdf
- Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2012). Bridging research and practice: Models for dissemination and implementation research. *American Journal of Preventive Medicine*, *43*(3), 337–350. doi:10.1016/j.amepre.2012.05.024

- Therneau T (2015). *A Package for Survival Analysis in S*. Retrieved from <https://CRAN.R-project.org/package=survival>
- Thyer, B. A., & Myers, L. L. (2011). The quest for evidence-based practice: A view from the United States. *Journal of Social Work, 11*(1), 8–25. doi.org/10.1177/1468017310381812
- Trattner, W. I. (1989). *From poor law to welfare state: A history of social welfare in America* (4th ed.). New York, NY: Free Press.
- U.S. Census Bureau. (2016). Sonoma County, California; United States: Population estimates, July 1, 2016. Retrieved from <https://www.census.gov/quickfacts/fact/table/sonomacountycalifornia,US/PST045216>
- U.S. Department of Education. (2017). Positive behavioral interventions & supports. Retrieved from <http://www.pbis.org/>
- U.S. Department of Labor. (2017). Occupational outlook handbook. Retrieved from <https://www.bls.gov/ooh/home.htm>
- Van Dyke, M. K., & Naoom, S. F. (2016). The critical role of state agencies in the age of evidence-informed approaches: The challenge of new expectations. *Journal of Evidence-Informed Social Work, 13*, 45–58. doi:10.1080/15433714.2014.942021
- Vernez, G., Karam, R., Mariano, L. T., & DeMartini, C. (2006). *Evaluating comprehensive school reform models at scale: Focus on implementation*. Santa Monica, CA: RAND.
- Walby, S. (2007). Complexity theory, systems theory, and multiple intersecting social inequalities. *Philosophy of the social sciences, 37*(4), 449-470. doi.org/10.1177/0048393107307663
- Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., ... Saul, J. (2008). Bridging the gap between prevention research and practice: The interactive systems framework for dissemination and implementation. *American Journal of Community Psychology, 41*, 171–181. doi:10.1007/s10464-008-9174-z
- Wang, W., Saldana, L., Brown, C. H., & Chamberlain, P. (2010). Factors that influenced county system leaders to implement an evidence-informed program: A baseline survey within a randomized controlled trial. *Implementation Science, 5*, 72. doi:10.1186/1748-5908-5-72
- Welsh, B. C., & Greenwood, P. W. (2015). Making it happen: State progress in implementing evidence-informed programs for delinquent youth. *Youth Violence and Juvenile Justice, 13*, 243–257. doi:10.1177/1541204014541708
- Weng, L., Menczer, F., & Ahn, Y.-Y. (2013). Virality prediction and community structure in social networks. *Scientific Reports, 3*, 2522. doi:10.1038/srep02522

- Wensing, M., Wollersheim, H., & Grol, R. (2006). Organizational interventions to implement improvements in patient care: A structured review of reviews. *Implementation Science, 1*, 2. doi:10.1186/1748-5908-1-2
- Wickham, H. (2009). *ggplot2: Elegant Graphics for Data Analysis*. New York: Springer-Verlag.
- Wynter, N., Hardee, K., & Russell-Brown, P. (2003). *The policy environment score: Measuring the degree to which the policy environment in Jamaica supports effective policies and programs for adolescent reproductive health: 2002 round*. Retrieved from <https://www.k4health.org/sites/default/files/environmentscore.pdf>

Table 1. 2015-2016 Budget and FTE of Sonoma County Social Services Departments

Department	Annual Budget		Annual FTE	
	Amount	% of County Total	N	% of County Total
Justice Services				
District Attorney	\$24,692,195	1.7	120.75	2.9
Probation Department	\$67,032,746	4.7	290.1	7.1
Public Defender	\$9,848,318	0.7	49.0	1.2
Sheriff's Office	\$160,425,838	11.2	636.0	15.5
Health Services				
Department of Health Services ^a	\$247,319,977	17.3	597.0	14.5
Human Services				
Child Support Services Department	\$14,693,867	1.0	97.5	2.4
Community Development Commission	\$69,347,022	4.9	42.0	1.0
Human Services Department ^b	\$339,473,077	23.8	969.6	23.6
Totals				
County	\$1,429,317,938	100%	4,106	100%
Health, Justice, and Human Services	\$932,833,040	65.2%	2,802	68.2%

Note. FTE, full-time equivalent.

^aThe Health Department includes the following divisions: adult services, children and family services, community health and safety, emergency preparedness, and disease control, and clinical services.

^bThe Human Services Department includes the following divisions: family, youth and children's services, adult and aging services, economic assistance, and employment and training.

Table 2. Upstream Timeline

2008	<ul style="list-style-type: none"> • BOS assigns Upstream Investment to Human Services Department 	2012	<ul style="list-style-type: none"> • BOS appoints first Portfolio Review Committee
Apr		Apr	
Jul		Jul	
Oct	<ul style="list-style-type: none"> • Upstream Team holds first meeting 	Oct	
2009	<ul style="list-style-type: none"> • Study period starts 	2013	<ul style="list-style-type: none"> • Upstream Ad Hoc Committee publishes second Indicators of Success Report
Apr		Apr	<ul style="list-style-type: none"> • Upstream Policy Committee reports to BOS
Jul		Jul	<ul style="list-style-type: none"> • First recorded technical assistance
Oct		Oct	<ul style="list-style-type: none"> • BOS holds Upstream Forums in each District
2010	<ul style="list-style-type: none"> • Upstream Team Reports to BOS • BOS approves focus on scaling evidence-informed practices • BOS appoints Upstream Ad Hoc Committee 	2014	
Apr		Apr	<ul style="list-style-type: none"> • Upstream Policy Committee reports to BOS
Jul		Jul	
Oct	<ul style="list-style-type: none"> • Portfolio Pilot Test begins • First Portfolio application approved 	Oct	
2011	<ul style="list-style-type: none"> • Upstream Ad Hoc Committee publishes first Indicators of Success report • First Resolution of Alignment submitted 	2015	<ul style="list-style-type: none"> • Upstream Committee publishes A Funder's Guide to Upstream Investments
Apr	<ul style="list-style-type: none"> • BOS holds Upstream Forums in each District 	Apr	
Jul		Jul	
Oct	<ul style="list-style-type: none"> • Upstream Ad Hoc Committee reports to BOS • BOS approves Portfolio • Board creates permanent Upstream Policy Committee 	Oct	
		2016	
		Apr	
		Jul	<ul style="list-style-type: none"> Learning for Action presents Upstream Evaluation to BOS

Table 3. Summary of Study Variables in Time-to-Event Models (Monthly Measurement)

Strategy	Variable	County-level (system)		Organization-level	
		Measure	Observed Range	Measure	Observed Range
Measure evidence-informed services	Portfolio	# approved	[0-19]	# approved	[0-3]
Convene leadership team	Upstream meetings	# sponsored	[1, 7]	# attended	[0, 7]
	Upstream EIS discussion	# with	[0, 6]	# with	[7, 23]
	Other meetings	# sponsored	[6, 27]	# attended	[0, 19]
	Other EIS discussion	# with	[0, 14]	# with	[0, 12]
	Committees	# sponsored	[5, 12]	# attended	[0, 10]
	Domains	# sponsored	[0, 6]	# attended	[0, 6]
Assess readiness	Prior reported *	# reported	25	reported	[0, 1]
	Prior confirmed *	# confirmed	30	confirmed	[0, 1]
	Resolution	# submitted	[0, 10]	submitted	[0, 1]
Provide TA	Technical Assistance	# sponsored	[0, 13]	# sessions attended	[0, 4]
Align funding	Contracts value (millions)	\$ awarded	[0, 61]	\$ received	[0, 11]

Note. BOS, Board of Supervisors; EBP, evidence-informed practice; TA, technical assistance. In models, all variables cumulative total prior to first Portfolio approval, or at end of study for organizations with no Portfolio approval.

Table 4. Timeline of County Strategies to Scale Evidence-Informed Services

County Strategies	Fiscal Year							Trend Line	Total	Mean
	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016			
Collectively measure EIS										
Portfolios	0	12	19	17	32	41	32		153	22
First Portfolios	0	12	18	7	19	20	12		70	13
Percent First Portfolio		100%	95%	41%	59%	49%	38%			64%
Organizations with Portfolios	0	12	21	27	42	59	70		70	33
Convene Leadership Team										
Upstream Meetings	8	46	33	39	22	13	10		171	24
Other Meetings	169	178	162	174	185	236	231		1,335	191
# with EIS discussion	63	84	76	82	106	128	124		663	95
% with EIS discussion	36%	38%	39%	38%	51%	50%	51%			43%
# of organizations in meetings	129	129	150	172	162	193	184		293	160
# of orgs exposed to EIS	76	94	115	131	126	155	137		233	119
% orgs exposed to EIS discussion	59%	73%	77%	76%	78%	80%	74%			80%
Assess organizational readiness										
Resolutions	0	22	20	10	14	6	8		80	11
Provide Technical Assistance										
TA Sessions					20	70	102		192	64
Align Funding										
Contract Expenditures	17,063,014	68,567,324	46,812,505	55,303,244	63,085,605	68,438,847	75,359,514		394,630,053	56,375,722
To organizations with Portfolio	0	5,656,215	12,059,836	15,734,143	24,629,513	35,545,862	41,819,540		135,445,109	19,349,301
% dollars to Portfolio Org	0%	8%	26%	28%	39%	52%	55%			30%
Organizations with new contract	101	107	93	110	95	109	104		221	103
% of contracts to Portfolio orgs	0%	11%	23%	25%	44%	54%	67%			32%

Note. EBI, evidence-informed service; TA, technical assistance.

Table 5. Tier 1 services in Sonoma County Before and After Upstream Launch

Before Only	After Only	Both
1. Boys and Girls Club	1. A Matter of Balance	1. Big Brothers Big Sisters
2. Brief Strategic Family Therapy (BSFT)	2. Aggression Replacement Training	2. Families in Action
3. Early Risers Skills for Success	3. AVANCE	3. Nurse-Family Partnership
4. Gang Resistance Education and Training (GREAT)	4. Cognitive Behavioral Therapy	4. Trauma-Focused Cognitive Behavioral Therapy
5. Incredible Years	5. Coping Cat	5. Triple P (Positive Parenting Project)
6. Life Skills Training	6. Depression Treatment Quality Improvement	
7. Parent-Child Interaction Therapy (PCIT)	7. Functional Family Therapy	
8. Perry PreSchool	8. Guiding Good Choices	
9. Project ALERT	9. Healthier Living	
10. Second Step Violence Prevention	10. Healthy IDEAs	
11. Strengthening Families Program	11. Interpersonal Psychotherapy for Perinatal Mood/Anxiety Disorders	
	12. Living with Diabetes	
	13. Motivational Interviewing	
	14. Project SUCCESS	
	15. Restorative Justice Conferencing	
	16. Seeking Safety	
	17. Seneca Wraparound	
	18. SMART Moves	
	19. Structured Decision Making	

Table 6. Social Services Committees in Sonoma County

Committee	Service Domain	Meetings	Orgs	EIP	Sector					
		<i>n</i>	<i>n</i>	%	Elected	Public	Provider	Private	Other	
Health Services										
Commission on AIDS	Health	44	3	5		✓	✓			
Alcohol and Drug Problems Advisory Board	Health	70	28	51	✓	✓	✓	✓	✓	
First 5 Commission	CYD	238	48	69	✓	✓	✓	✓	✓	
Health Action	Intersecting	255	131	58	✓	✓	✓	✓	✓	
MCAHAB	CYD	72	38	49	✓	✓	✓	✓	✓	
Maternal, Child, Adolescent Health Board	Health	143	50	16	✓	✓	✓	✓	✓	
Justice Services										
Juvenile Justice Coordinating Committee	CYD	29	28	55	✓	✓	✓	✓		
Human Services										
Area Agency on Aging	Older adults	306	72	14	✓	✓	✓	✓	✓	
READY	CYD	29	10	69		✓	✓			
Upstream	Intersecting	176	69	83	✓	✓	✓	✓	✓	
Workforce Investment Board	Employment	72	48	25	✓	✓	✓	✓	✓	
Community Development Commission	Housing	76	77	13	✓	✓	✓	✓	✓	
Unduplicated Total		1,510	302		10	12	12	10	9	
Mean		126	17	44						

Note. CYD, Child and Youth Development; EIP, evidence-informed practice; READY, Road to Early Achievement and Development of Youth.

Table 7. Organizational Participation in County Strategies to Scale Evidence-Informed Services

Covariates	Multiple Portfolio Approvals				One Portfolio Approval				No Portfolio Approvals			
	(n = 25)				(n = 45)				(n = 423)			
	<i>p</i>	<i>m</i>	Min	Max	<i>p</i>	<i>m</i>	Min	Max	<i>p</i>	<i>m</i>	Min	Max
Define EBP												
Portfolio approvals	1.00	4.3	2	12	1.00	1	1	1	.00	0	0	0
Convene team												
Upstream meetings	.48	63	1	174	.33	25	1	123	.10	18	1	62
Other meetings	.84	166	2	786	.53	47	1	192	.57	19	1	162
EBP exposure	.96	80	1	354	.91	20	1	112	.58	10	1	128
Service domains	.84	2.76	1	6	.56	1.68	1	3	.60	1.26	1	4
Committees	.84	3.52	1	10	.56	1.92	1	3	.60	1.3	1	5
Nudge readiness												
EBP reported	.40				.07				.01			
EBP confirmed	.44				.07				.01			
Resolution	.88				.51				.08			
Provide TA	.92	7.5	1	21	.73	3.5	1	20	.23	2	1	14
Align funding												
Contract (millions)	.80	\$7.60	\$.050	\$3.00	.53	\$2.60	\$.007	\$13.00	.42	\$1.10	\$.002	\$34.00
Repeat contract	.95				.92				.58			

Notes. Post-contract funding was not used in the model but reported here. EBP, evidence-informed practice; TA, assistance. These differences in participation in county-sponsored scaling activities were all statistically and meaningfully significant.

Table 8. Cox Proportional Hazards Models

	Model 1: 0 vs. 1 Approval			Model 2: 0 vs. Multiple Approvals			Model 3: 1 vs. Multiple Approvals		
	HR	SE	95% CI	HR	SE	95% CI	HR	SE	95% CI
Convene team									
Upstream	1.02	.03	.97, 1.07	1.00	.03	.94, 1.07	1.03	.02	.99, 1.07
Other meetings	.99	.02	.96, 1.03	.98	.02	.95, 1.01	1.01	.01	.99, 1.02
EBP exposure	.98	.03	.93, 1.04	1.00	.04	.93, 1.08	.95*	.02	.91, 1.00
Committees	6.44***	.52	2.32, 17.86	3.51*	.60	1.07, 11.49	2.05*	.36	1.02, 4.15
Service domains	.15**	.61	.05, .50	.43	.78	.09, 1.98	.51	.43	.22, 1.20
Nudge readiness									
EBP reported	2.10	.81	.43, 1.23	6.88*	.80	1.43, 33.10	2.76*	.48	1.08, 7.08
EBP confirmed	1.25	.75	.29, 5.39	1.83	1.01	.25, 13.21	1.66	.47	.66, 4.20
Resolution	4.92***	.33	2.57, 9.42	6.65***	.55	2.27, 19.47	1.42	.32	.76, 2.64
Provide TA									
Align funding	.90	.10	.75, 1.09	.70	.25	.43, 1.14	.85	.12	.67, 1.08
Precontract	1.45*	.15	1.07, 1.96	1.90*	.25	1.15, 3.13	1.06	.16	.78, 1.45
R^2	.12			.25			.38		
Max R^2	.77			.58			1.00		
Adjusted R^2	.16			.48			.38		

Note. All covariates measured as sum total before first Portfolio approval. For organizations with no approval, values reflect sum total during 84-month study period. Precontract reflects total contract value before Portfolio approval in quartiles. Adjusted R^2 is R^2 divided by maximum R^2 . HR, exponentiated hazard ratio (similar to odds ratio).

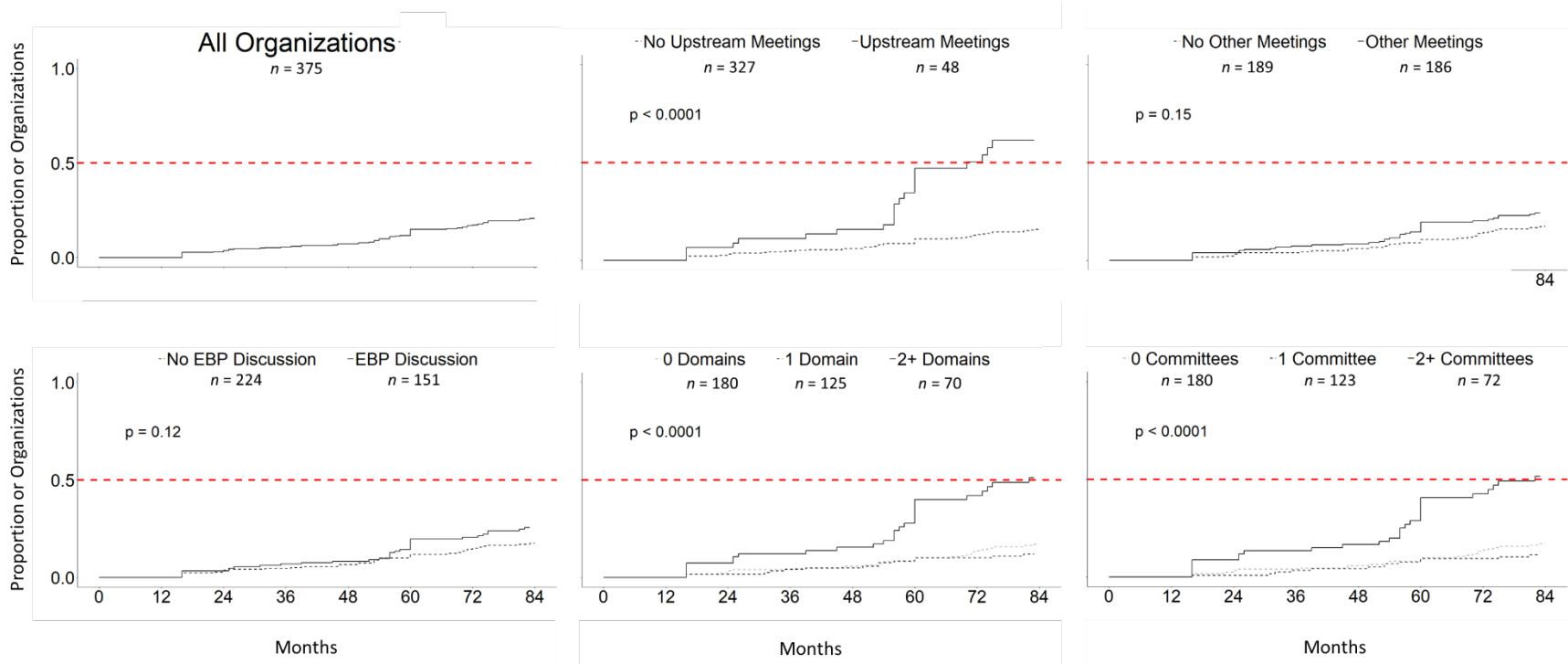
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9. Schoenfeld Residuals Test of the Cox Proportional Hazards Model Assumption of Proportionality

Covariate	Model 2: 0 vs. 1 Approval		Model 3: 0 vs. Multiple Approvals		Model 4: 1 vs. Multiple Approvals	
	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>
Convene team						
Upstream	.95	.33	.44	.51	.42	.52
Other meetings	.25	.62	.46	.50	.06	.81
EBP exposure	2.19	.14	.05	.82	.07	.79
Committees	1.91	.17	.01	.92	.14	.71
Service domains	2.86	.09	.22	.64	.95	.33
Nudge readiness						
EBP reported	1.28	.26	7.39	.01	.27	.60
EBP confirmed	.30	.59	1.19	.28	1.02	.31
Resolution	.05	.82	3.59	.06	9.45	.00
Provide TA	2.37	.12	.07	.80	6.82	.01
Ensure adequate funding						
Precontract	.12	.73	1.82	.18	1.66	.20
Global	13.46	.34	28.15	.01	23.42	.02

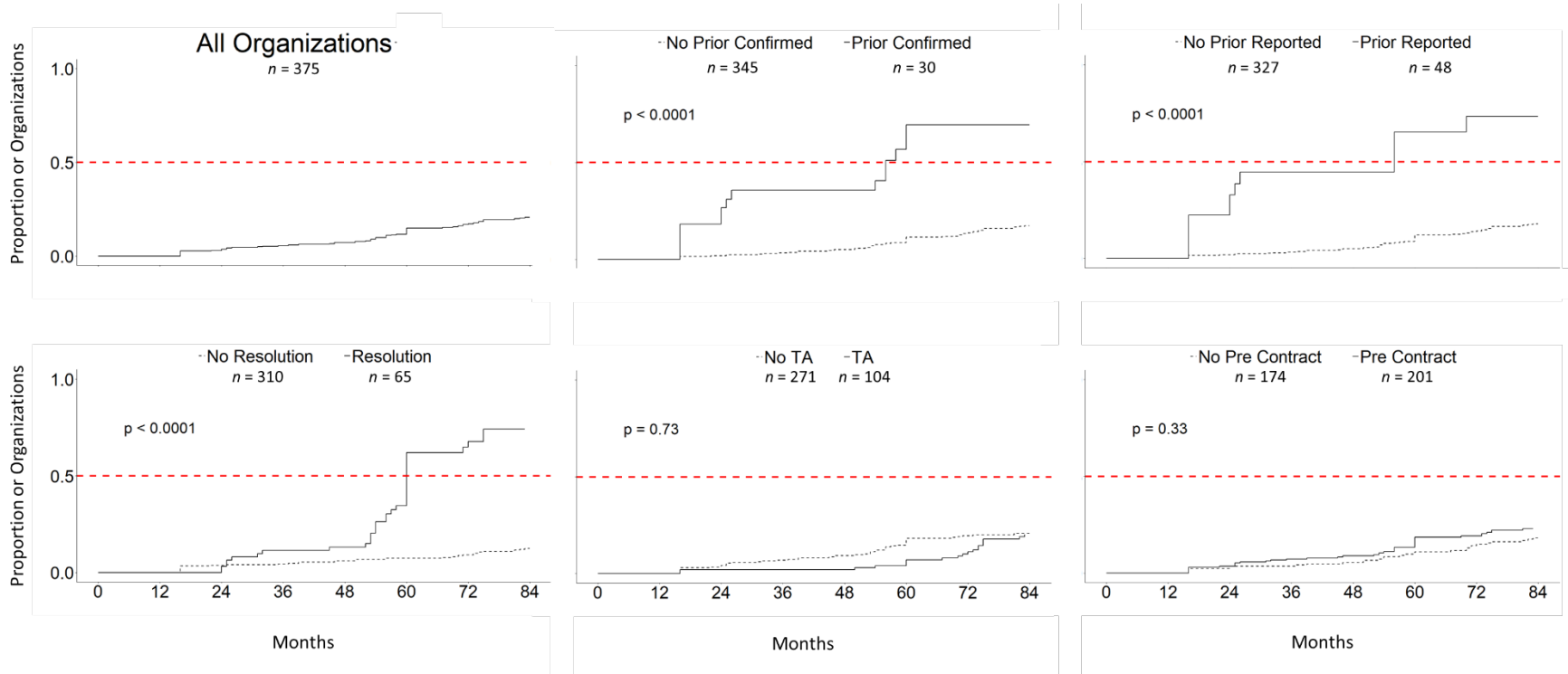
Note. EBP, evidence-informed practice; TA, technical assistance.

Figure 1. Organizational Participation in County Strategies (Convene Team) Prior to Organization’s First Portfolio Approval



Notes. Kaplan Meier Hazard models. All covariates measured as binary or trinary.

Figure 2. Organizational Participation in County Strategies (Readiness, TA, Funding) Prior to First Portfolio



Notes. Kaplan Meier Hazard models. All covariates measured as binary or trinary.

Appendix A: Portfolio Tier Requirements⁸

The Sonoma County Portfolio of Model Upstream Programs was developed in 2010 and 2011 during an extensive period of committee work, invited input, and pilot testing. It has proven to be robust and has been minimally revised since. The Portfolio is a list of local programs that meet the criteria for one of three tiers. The criteria are as follows.

TIER 1: EVIDENCE-BASED PRACTICES

Evidence-based practices are “gold standard” programs—those programs that have been empirically proven to produce positive outcomes and implemented in Sonoma County with fidelity to the model program. Tier 1 Portfolio practices are listed in a clearinghouse approved by the Portfolio review committee. Applicants must:

1. Verify that the practice is listed in a clearinghouse at an acceptable level. The Clearinghouse Crosswalk is a list of approved clearinghouses and acceptable standards.
2. Demonstrate how the practice is implemented in Sonoma County with fidelity to the model by completing a Tier 1 Portfolio application.

TIER 2: PROMISING PRACTICES

Promising practices do not meet the rigorous Tier 1 criteria for evidence-informed service, but they are designed based on sound theory and with clear expected outcomes. Tier 2 programs include the components listed here. The intent of Tier 2 is that program implementers use the evidence reflected in the literature review to inform the design of the logic model, manual, and evaluation. For a practice to be considered a promising practice, it must be apparent that the logic model, manual, and evaluation are aligned and reflect the evidence cited in the literature review.

1. Literature review: The literature review should demonstrate that the program theory and practice reflect current research in the selected field.
2. Logic model: The logic model is a map of what a program does, what the program hopes to achieve, and how the program will measure achievement. It reflects the findings of the literature review and informs evaluation questions.
3. Manual: The manual specifies the key program elements and how to administer them. A manual makes a program replicable.
4. Evaluation: Good evaluations assess performance, measure impacts, and document successes. The evaluation should suggest positive outcomes and reflect the design of the program being submitted.

TIER 3: INNOVATIVE PRACTICES

Innovative practices have the intent of being outcomes based. However, these programs have not yet conducted or completed an evaluation. Tier 3 programs must include the items listed here. The intent of Tier 3 is that program implementers use the evidence reflected in the

⁸ Adapted from www.upstreaminvestments.org/html/add_form.htm.

literature review to inform the design of the logic model, policy and procedures, and evaluation plan. For a practice to be considered an innovative practice, it must be apparent that the logic model, policy and procedures, and evaluation plan are aligned and reflect the evidence cited in the literature review.

1. Literature review: See requirements in Tier 2.
2. Logic model: See requirements in Tier 2.
3. Policies and procedures: The program may not have a fully developed manual but has made progress toward standardization through the development of policies and procedures.
4. Evaluation plan: Good evaluations assess performance, measure impacts, and document successes. The evaluation plan needs to be realistically implemented in 3 years.

Appendix B: Portfolio Tier Instructions⁹

TIER 1: EVIDENCE-BASED PRACTICE

Evidence-based practices are “gold standard” programs—those programs that have been empirically proven to produce positive outcomes and implemented in Sonoma County with fidelity to the model program.

1. Evidence-based clearinghouse: A variety of evidence-informed clearinghouses evaluate whether or not programs meet the criteria for being evidence based. Generally, these clearinghouses use similar criteria: rigorous evaluation using experimental¹⁰ design, publication in a peer-reviewed journal, sustained effect, replication, and replicability. Often, these rigorous evaluations are completed by universities, government agencies, and privately funded research institutes. It is less common for a locality to have the necessary resources to complete this level of evaluation. To verify that programs at Tier 1 have met these criteria, the program submitted must be included in one or more of the following evidence-informed clearinghouses.

- Administration on Aging (www.aoa.gov)
- American Diabetes Association Education Recognition Program (www.diabetes.org)
- California Evidence-Based Clearinghouse for Child Welfare Programs (www.cebc4cw.org/)
- Center for the Study of Prevention of Violence Blueprints (www.blueprintsprograms.com/)
- Child Trends LINKS Database (www.childtrends.org/Links/)
- Coalition for Evidence-Based Policy, Social Programs that Work (www.coalition4evidence.org)
- Cochrane Collaboration Library of Systematic Reviews (www.thecochranelibrary.com/view/0/index.html)
- Crime Solutions (www.crimesolutions.gov/)
- Diffusion of Effective Behavioral Interventions (www.effectiveinterventions.org/en/home.aspx)
- Guide to Community Preventive Services (www.thecommunityguide.org)
- SAMHSA National Registry of Evidence-Based Programs and Practices (www.nrepp.samhsa.gov/)
- What Works Clearinghouse (www.ies.ed.gov/ncee/wwc/)

⁹ Adapted from www.upstreaminvestments.org/documents/7.24.15Instructions.pdf.

¹⁰ “The defining characteristic of experimental research designs is control (i.e., purposeful manipulation) of the independent variable(s). The strongest experimental designs also have random assignment of participants to treatment and control groups. In experiments, researchers do something to the research participants (they intervene, administer a treatment, or modify an environment), and they examine the results of this activity. They do not simply observe or ask questions. In a simple design, participants are randomly assigned to an experimental group or control group. Random assignment is crucial because it makes the groups equivalent (within the limits of probability) at the beginning of the experiment. It is also important that experimenters control the treatment so that they know its nature, size, and timing. The experimental group receives the treatment, and the control group does not; the researcher then determines if the groups differ on the dependent (outcome) variable.” Source: Sullivan, L. E. (Ed.). (2009). *The SAGE glossary of the social and behavioral sciences*. Thousand Oaks, CA: Sage.

Some programs listed in clearinghouses do not meet the criteria for Tier 1 placement, and may be placed at Tier 2 or Tier 3. See the “Upstream Clearinghouse Crosswalk” for a list of clearinghouses and the rating for each that meets the criteria for Tier 1. Evidence-based practices are popular with funders because there is a high likelihood that the initiative will work as intended. The following link provides a good discussion of evidence-informed initiatives: http://www.uwex.edu/ces/flp/families/whatworks_06.pdf.

2. Fidelity: Fidelity is the extent to which a program is implemented in a way that adheres to the protocol or model of the originally developed and evaluated program. Programs that are implemented with fidelity can demonstrate that they match the model program in the following dimensions.¹¹
 - a. Adherence: The extent to which the model’s critical elements (core activities and methods necessary to achieve the outcomes desired) are implemented.
 - b. Dose or exposure: The amount of program content received by participants.
 - c. Quality of program delivery: The manner in which providers implement the program, relative to specifications in the model program.
 - d. Participant responsiveness: The extent to which participants are engaged by and involved in the activities and content of the program.

To demonstrate fidelity, submitters must complete the fidelity chart included in the application to describe activities meeting the aforementioned dimensions of fidelity.

3. Adaptations: Although discouraged, programs may sometimes make adaptations from the model program manual. Examples of acceptable and risky or unacceptable adaptations are as follows.¹²

Acceptable Adaptations

- a. Changing language or translating or modifying vocabulary
- b. Replacing images to show youth and families that look like the target audience
- c. Replacing cultural references
- d. Modifying some aspects of activities such as physical contact
- e. Adding relevant, evidence-informed content to make the program more appealing to participants

Risky or Unacceptable Adaptations

- a. Reducing the number or length of sessions or how long participants are involved
- b. Lowering the level of participant engagement
- c. Eliminating key messages or skills learned
- d. Removing topics
- e. Changing the theoretical approach
- f. Using staff members or volunteers who are not adequately trained or qualified
- g. Using fewer staff members than recommended

¹¹ Learning for Action. (2012). *First 5 Sonoma County: Evaluation plan for the commission’s 2011-15 strategic plan*. Santa Rosa, CA: County of Sonoma.

¹² Acceptable and risky or unacceptable adaptations mirror those articulated by First 5 Sonoma County.

Any adaptation made to the model program should be explained.

TIER 2: PROMISING PRACTICE

Promising practices do not meet the rigorous Tier 1 criteria for evidence-informed practice, but they are designed based on sound theory and with clear expected outcomes. Tier 2 programs meet the criteria listed here. The intent of Tier 2 is that program implementers use the evidence reflected in the literature review to inform the design of the logic model, manual, and evaluation. For a practice to be considered a promising practice, it must be apparent that the logic model, manual, and evaluation are aligned and reflect the evidence cited in the literature review.

1. **Literature Review:** A literature review is a summary and synthesis of current and credible literature on a specific topic, issue, or practice method. It is a survey of scholarly articles, books, and other sources that are relevant to the subject. It should include a sufficient number of credible sources that support claims made in the logic model (see logic model definition and instructions). Many applicants find suitable literature reviews online. It may not be necessary to write your own. A credible literature review includes the following components.^{13,14}
 - a. Clear statement of the subject of interest.
 - b. Review of a credible number of studies about the topic. It should be clear that the most influential, most current, and most cited sources have been included.
 - c. Summary of what is known or not known about the topic.
 - d. Literature review was written in the past 15 years.

2. **Logic Model:** A logic model is a map or simple illustration of what a program does, what the program hopes to achieve, and how the program will measure achievement. A quality logic model reflects the findings from the literature review. Evaluation questions should be based on the outcomes identified in the logic model. A credible logic model will include most, if not all, of the following elements.¹⁵ A template is available at <http://www.upstreaminvestments.org>.
 - a. Problem statement (i.e., problems to be solved)
 - b. Inputs (i.e., resources)
 - c. Outputs (i.e., activities, participation)
 - d. Outcomes (i.e., impacts, results)
 - e. Assumptions and theories
 - f. Environmental factors

3. **Manual:** The program has a book or other available writings that specify the components of the program and describe how to administer it. A program that has been standardized in this

¹³ The Writing Center, University of North Carolina.

¹⁴ Rubin, A., & Parrish, D. (2007). Problematic phrases in the conclusions of published outcome studies: Implications for evidence-informed practice. *Research on Social Work Practice, 17*, 334–347. doi:10.1177/1049731506293726

¹⁵ U.S. Department of Health and Human Services, Administration for Children & Families (n.d.). Logic model builders. Retrieved from http://www.childwelfare.gov/management/effectiveness/logic_model.cfm#whatis

way can be reliably replicated elsewhere. A credible manual includes most, if not all, of the following components.

- a. Description of the program
 - History of the program
 - Rationale
 - Core components of the program
 - Definitions
 - Assumptions
 - b. Staff
 - Background and education
 - Licensure
 - Background checks
 - Job description
 - Responsibilities
 - Training
 - Supervision
 - Performance evaluation
 - c. Clients
 - Outreach methods
 - Eligibility criteria (i.e., age, income, location)
 - Enrollment process
 - Client-to-staff ratio
 - Rights and responsibilities
 - Complaints and appeals
 - Crisis management
 - Termination process
 - d. Curricula and activities
 - Components and content
 - Number of sessions
 - Sequence
 - Quality management
 - Fidelity requirements
 - e. Records
 - Information to document
 - Confidentiality
 - Records retention
 - f. Evaluation
 - Research question to be answered
 - Data to be collected
 - Analysis and reporting procedures
 - Audiences
4. Evaluation: Good evaluations assess performance, measure impacts on families and communities, and document successes. With evaluation information, programs can direct

limited resources to where they are most needed and most effective for their clients and communities. The evaluation should suggest positive outcomes and reflect the design of the program being submitted. A credible evaluation will result in a report that includes the following components.

- a. Purpose: Reason(s) that the evaluation was conducted.
 - b. Audience: Intended audience and its information or decision-making needs.
 - c. Questions: Research questions that the evaluation answered. These questions should be linked to the outcomes identified in the logic model.
 - d. Literature review: A review of the literature that informed the development of the program and the evaluation.
 - e. Methods: Data collection methods (for example, surveys, interviews, document review, observation, focus groups), with an explanation of confidentiality, anonymity, consent, objectivity, sampling, pilot testing, and reliability and validity.
 - f. Analysis: Appropriate descriptive and inferential analysis.
 - g. Recommendations: Discussion of the analysis, conclusions, and recommendations.
5. Cohorts: To be considered a promising practice, a program will have been delivered to more than one cohort. In other words, the program is no longer considered a pilot test. A cohort is a group of clients that has received the same program services within a given period—usually the time frame selected for one evaluation (clients within a cohort may have received services over time and not all at the same time). Clients in a cohort may have different demographics.

TIER 3: INNOVATIVE PRACTICE

Innovative practices have the intent of being outcomes based and meet the prerequisites for evidence-informed practice. However, these programs have not yet conducted or completed an evaluation. Tier 3 programs must meet the criteria listed here. The intent of Tier 3 is that program implementers use the evidence reflected in the literature review to inform the design of the logic model, policy and procedures, and evaluation plan. For a practice to be considered an innovative practice, it must be apparent that the logic model, policy and procedures, and evaluation plan are aligned and reflect the evidence cited in the literature review.

1. Literature Review: A literature review is a summary and synthesis of current and credible literature on a specific topic, issue, or practice method. It is a survey of scholarly articles, books, and other sources that are relevant to the subject. It should include a sufficient number of credible sources that support claims made in the logic model (see logic model definition and instructions). Many applicants find suitable literature reviews online. It may not be necessary to write your own. A credible literature review includes the following components.¹⁶
 - a. Clear statement of the subject of interest.
 - b. Review of a credible number of studies about the topic. It should be clear that the most influential, most current, and most cited sources have been included.
 - c. Summary of what is known or not known about the topic.

¹⁶ Writing Center, University of North Carolina.

- d. Literature review was written in the past 15 years.
2. Logic Model: A logic model is a map or simple illustration of what a program does, what the program hopes to achieve, and how the program will measure achievement. A quality logic model reflects the findings from the literature review. Evaluation questions should be based on the outcomes identified in the logic model. A credible logic model will include most, if not all, of the following elements.^{17,18} A template is available at <http://www.upstreaminvestments.org>.
 - a. Problem statement (i.e., problems to be solved)
 - b. Inputs (i.e., resources)
 - c. Outputs (i.e., activities, participation)
 - d. Outcomes (i.e., impacts, results)
 - e. Assumptions and theories
 - f. Environmental factors
 3. Policies and Procedures: The program may not have a fully developed manual but has made progress toward standardization through the development of policies and procedures. A policy states the expectations. A procedure describes the steps to meet the expectations. Policies and procedures also describe what not to do. We recommend using the criteria for an Upstream Tier 2 manual to shape a program's policies and procedures.
 4. Evaluation Plan: Good program evaluations assess performance, measure impacts on families and communities, and document successes. With evaluation information, programs can direct limited resources to where they are most needed and most effective for their clients and communities. Tier 3 programs may not have a completed evaluation but are conducting or have a plan to conduct an evaluation. Programs can remain in Tier 3 for up to 3 years after the development of an evaluation plan. After 3 years, if the evaluation has not been completed, the program will no longer qualify for Tier 3. So, it is essential to develop an evaluation plan that can realistically be implemented in 3 years. A credible evaluation plan will include the following components.
 - a. Purpose: Reason(s) that the evaluation is being conducted.
 - b. Audience: Intended audience and its information or decision-making needs.
 - c. Questions: Research questions that the evaluation will answer. These questions should be linked to the outcomes identified in the logic model.
 - d. Resources: Resources needed and available for the evaluation, including timelines.
 - e. Challenges: Anticipated challenges to completing the evaluation and how they will be managed.
 - f. Literature review: A review of the literature that will inform the evaluation decision.
 - g. Methods: Planned data collection methods (for example, surveys, interviews, document review, observation, focus groups), with attention to confidentiality, anonymity, consent, objectivity, sampling, pilot testing, reliability and validity, and

¹⁷ U.S. Department of Health and Human Services, Administration for Children & Families (n.d.). Logic model builders. Retrieved from http://www.childwelfare.gov/management/effectiveness/logic_model.cfm#whatis

¹⁸ Rubin, A., & Parrish, D. (2007). Problematic phrases in the conclusions of published outcome studies: Implications for evidence-informed practice. *Research on Social Work Practice, 17*, 334–347. doi:10.1177/1049731506293726

timelines.

- h. Analysis: Plan for appropriate descriptive and inferential analysis.
- i. Recommendations: Plan for the creation of conclusions and recommendations.
- j. Dissemination: Plan that identifies when and how to disseminate the report and to what audiences.

Appendix C: Meeting Minutes Data Extraction Form

Here you will enter information from the document you have opened. The document is minutes from a meeting. If you have a question, feel free to email me. I am monitoring my email.

What month is this meeting?

- | | | | |
|--------------------------------|-----------------------------|---------------------------------|--------------------------------|
| <input type="radio"/> January | <input type="radio"/> April | <input type="radio"/> July | <input type="radio"/> October |
| <input type="radio"/> February | <input type="radio"/> May | <input type="radio"/> August | <input type="radio"/> November |
| <input type="radio"/> March | <input type="radio"/> June | <input type="radio"/> September | <input type="radio"/> December |

What is the day of this meeting?

- | | | | | | | | | | | |
|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="radio"/> 1 | <input type="radio"/> 4 | <input type="radio"/> 7 | <input type="radio"/> 10 | <input type="radio"/> 13 | <input type="radio"/> 16 | <input type="radio"/> 19 | <input type="radio"/> 22 | <input type="radio"/> 25 | <input type="radio"/> 28 | <input type="radio"/> 31 |
| <input type="radio"/> 2 | <input type="radio"/> 5 | <input type="radio"/> 8 | <input type="radio"/> 11 | <input type="radio"/> 14 | <input type="radio"/> 17 | <input type="radio"/> 20 | <input type="radio"/> 23 | <input type="radio"/> 26 | <input type="radio"/> 29 | |
| <input type="radio"/> 3 | <input type="radio"/> 6 | <input type="radio"/> 9 | <input type="radio"/> 12 | <input type="radio"/> 15 | <input type="radio"/> 18 | <input type="radio"/> 21 | <input type="radio"/> 24 | <input type="radio"/> 27 | <input type="radio"/> 30 | |

What year is this meeting?

- | | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| <input type="radio"/> 2007 | <input type="radio"/> 2009 | <input type="radio"/> 2011 | <input type="radio"/> 2013 | <input type="radio"/> 2015 |
| <input type="radio"/> 2008 | <input type="radio"/> 2010 | <input type="radio"/> 2012 | <input type="radio"/> 2014 | <input type="radio"/> 2016 |

List each person who attended the meeting. This is usually at the top of the minutes. List their first name, last name, title, and organization. If the information is not listed, leave it blank. Sometimes the first or last name is just an initial (e.g. J.). If so, just enter the initial, do not enter the punctuation.

Do list committee members, staff, and guests. Do not list people who were absent. Do not list people who gave public comment.

DO NOT USE ALL CAPS. Thank you!

	First Name	Last Name	Title	Organization
Attendee 1				
Attendee 2				
Attendee 3				
Attendee 4				
Attendee ...				
Attendee 45				

Please let me know here if there is anything unusual about this one -- including if there are more than 45 attendees. Thank you!

Appendix D: Screenshot of Mechanical Turk Human Intelligence Task Assignment

Extract information from a document and enter it into a form (bonuses granted)

Requester: Marla Stuart Reward: \$0.10 per HIT HITS available: 0 Duration: 45 Minutes

Qualifications Required: Masters has been granted

HIT Preview

Instructions

You will be extracting information from a document and entering that information into a form.

1. Open this document: **URL**
2. Open this form: https://berkeleyssw.co1.qualtrics.com/jfe/form/SV_06d0NvLpX3d6dbT
3. The document is minutes from a meeting.
4. In the form, enter the meeting date.
5. In the form, enter each meeting attendee's first name, last name, title, and organization. For each attendee, this is a maximum of 4 items. Each accurate item earns a bonus of \$.02. For example, a meeting with 10 attendees and with all 4 items for each attendee, will be a total of 40 cells for a bonus of \$.80 and a HIT total of \$.90. A meeting with 20 attendees with only 3 items for each attendee will be a total of 60 cells for a bonus of \$1.20 and a HIT total of \$1.30. When all HITs are complete, each worker will be paid a single bonus for the total number of accurate cells from all the worker's HITs.
6. **Make sure to leave this window open as you complete the HIT. When you are finished, you will return to this page to paste the completion code into the box below. The completion code will be used to identify your entries in the form and calculate your bonus.**
7. Thank you!

When you are finished, enter the completion code here.

Appendix E: Portfolio Programs as of June 31, 2016

Tier 1	Tier 2	Tier 3
1. A Matter of Balance	1. 10,000 Degrees	1. 211 Sonoma County
2. Aggression Replacement Training	2. 4-H Positive Youth Development	2. Center for Economic Success Outreach Plan
3. AVANCE	3. 4-H STEM	3. Expressive Arts Peer and Grief Support Groups for Youth
4. Big Brothers Big Sisters	4. AVID	4. Foster Youth Mentoring Program
5. Cognitive Behavioral Therapy	5. Behavioral Consultation Project	5. Gateway to Quality
6. Coping Cat	6. Breastfeeding Peer Counseling	6. Grade Level Proficiency Project
7. Depression Treatment Quality Improvement	7. California State Preschool program	7. Healthy for Life
8. Families in Action	8. CARES Plus	8. Healthy Meals for Healthy Communities
9. Functional Family Therapy	9. CASA	9. Imagine You
10. Guiding Good Choices	10. Child and Adult Care Food Program	10. Kid Scoop News
11. Healthier Living	11. Cooperative Parenting and Divorce	11. LifeLong Connections Program
12. Healthy IDEAs	12. Destination College Academy	12. Maternal Child Health Field Nursing
13. Interpersonal Psychotherapy for Perinatal Mood/Anxiety Disorders	13. Double Punches Boxing Club	13. Mike Hauser Algebra Academy
14. Living with Diabetes	14. Earn It, Keep It, Save It	14. MyLIFE Transition Program
15. Motivational Interviewing	15. El Puente - The Bridge	15. Neighborhood Listening Project
16. Nurse-Family Partnership	16. Family Justice Center	16. Project SAM
17. Project SUCCESS	17. Family Therapy	17. READY
18. Restorative Justice Conferencing	18. Gang Prevention Through Targeted Outreach	18. Ready to Work
19. Seeking Safety	19. Girls Circle	19. SCENIQ
20. Seneca Wraparound	20. Latino Service Providers Sonoma County	20. School Based Mentoring
21. SMART Moves	21. Padres Unidos	21. Seneca Unconditional Care Model
22. Structured Decision Making	22. Partners for Change Outcomes Management System	22. Somatic Experiencing Brief Stabilization Program
23. Trauma Focused Cognitive Behavioral Therapy	23. Pasitos Playgroups	23. Southwest Family Resource Centers
24. Triple P - Positive Parenting Program	24. Project Learn	24. Teen Mentoring Program
	25. Reach out and Read	25. Tutoring and Mentoring (TAM)
	26. Safe School Ambassadors	26. Value in Preschool
	27. School Readiness Backpacks	27. Youth and Family Development through Martial Arts
	28. Schools of Hope Literacy Initiative	28. Youth Connections
	29. Sonoma County Youth Ecology Corps	29. YouThrive
	30. Summer Search	
	31. Tackling Tough Skills	
	32. TALLK (Teachers Acquiring Language Learner Knowledge)	
	33. Teen Parent Connections	
	34. The Consultation Project	
	35. The Council	
	36. THP Plus	
	37. TRIBES	
	38. Triple Play	
	39. WIC Dental Days	